

## DOCTORAL THESIS

# Unfolding How Entrepreneurial Teams Create: An Integrative Model of Entrepreneurial Creativity of Teams from Mondragon Team Academy in the Basque Country.

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I, Monika Sara Tkacz, declare that this thesis is the result of my personal work, and that it has not been previously submitted to obtain another degree or professional qualification. The ideas, formulations, images, illustrations taken from other sources have been duly cited and referenced.

## **Ethical Statement**

This research was conducted in full compliance with ethical standards and guidelines. All studies included in this thesis were approved by the relevant ethics committees prior to commencement (Research Ethics Committee of Mondragon Unibertsitatea: The ethical board approval number: IEB-20241002A).

## **AI usage declaration**

During the preparation of this work, the author used ChatGPT 3.5 in order to check grammar and style. After using this tool/service, the author reviewed and edited the content as needed and take full responsibility for the content of the publication.

# Acknowledgments

A PhD is often described as a “driving license” to conduct research. Entering this doctoral journey, I believed this to be true. Along the way, however, I discovered that it is also a process of profound professional and personal transformation: learning to accept uncertainty, to persist despite doubt, to respect complexity, and to acknowledge one’s own insecurities and limitations.

Most importantly, I learned that this journey cannot be undertaken alone. It requires support, external motivation, empathy, and the presence of people who help you continue when your own confidence falters- people who believe in you when you do not yet believe in yourself. In this sense, the doctoral journey has felt much like learning to drive: not only knowing when to accelerate or slow down, but also when to stop and rest, how to start again on a steep hill, and how to trust that releasing the handbrake will not cause everything to collapse. For this, my deepest gratitude goes to my family, my closest friends, and my friends from work- who, fortunately, have also become my closest friends. Thanks to your presence, I was not afraid to take the ride even when the driving license was not yet in my “pocket”.

I still remember the beginning of this journey and how I entered for the first time the Lab of the Mondragon Team Academy (MTA) in Oñati. I was immediately struck by how different it was from the academic environments I had previously known in my home country. Driven by curiosity and personal initiative, I became involved in developing several projects with MTA students and gradually immersed myself in the MTA ecosystem. I clearly recall the moment when my perspective shifted. Rather than becoming further involved solely in entrepreneurial projects, I began to see the young entrepreneurs of the MTA Lab as a valuable source of scientific observation. I realized that observing their dynamics- what they do, how they do it, and why they engage in entrepreneurial action- could offer a unique and powerful path for understanding entrepreneurship at its very early origins. Being so close to individuals and teams at the genesis of their own ventures- searching for ideas, experimenting with opportunities, and attempting to do things differently- revealed an exceptional context for observing entrepreneurial potential and the early origins of economic and social value creation.

I vividly remember participating in several pitching events in which MTA teams presented their business ideas in front of invited experts and investors. Sitting in the audience, I was struck by how rare and meaningful it is to witness the origins of new ventures. While we are usually exposed to organizations once they are already established, these moments offered a privileged view into the uncertain, fragile, and creative beginnings of entrepreneurial ideas. Observing how some ideas immediately captured attention while others passed almost unnoticed led me to question what investors were truly searching for- feasibility, disruption, or a combination of both. Why were some teams able to identify radical ideas while others were not? What factors shaped these differences in their creative processes? These questions marked the initial construction of the topics that would later develop into this doctoral thesis.

For this reason, I would like to express my sincere gratitude to Aitor Lizartza Martín, as well as to the entire MTA community- coaches and students- for making me feel at home since

2016, for opening the doors of the Lab to me, and for trusting this research by agreeing to treat MTA students not only as future practitioners, but also as a valuable context for scientific investigation.

At that time, I did not yet know how difficult it would be, from a scientific perspective, to capture entrepreneurial teams and their creative processes. I am therefore especially grateful to Izaskun Agirre for helping me understand that the originality and value of a scientific investigation do not reside solely in the phenomenon being observed, but crucially in the methodologies and theories used to observe it. Methodologies must be adapted to the characteristics of the phenomenon itself and grounded in robust theoretical perspectives that allow for an understanding of internal relationships, dynamics, and inherent complexity. Only when these elements are coherently aligned through a clear analytical logic can a phenomenon be scientifically explained while maintaining the rigor required by scientific inquiry. Thank you, Izaskun, for guiding me through the demanding process of making entrepreneurial creativity observable, analyzable, and meaningful. This required continuous reflection and adaptation, and it challenged the application of existing theories and methodologies, pushing the boundaries of how this phenomenon can be understood, examined, and ultimately rendered tangible within scientific research.

Finally, I would also like to express my deepest gratitude to two women who have been fundamental pillars throughout this journey. To my mother, Grazyna Tkacz, who was always there- either in person or at the other end of the phone- accompanying me through the long hours of writing and offering calm and reassurance when I needed it most. And to Idoia Bidaurrezaga Basterrica, my *persona vitamina*, always willing to listen, to walk, to talk, and simply to be present. Your support gave me strength in moments when words were not enough.

I am also grateful to those who accompanied me personally at different stages of this doctoral journey. To Alejandro Trapote who shared many formative years of this process with me, thank you for your presence, patience, and support during a long and demanding period of growth. And to the person who appeared toward the end of this journey, thank you for the inspiration, encouragement, and renewed energy that helped me find the words to bring this work to completion.

# Abstract

The thesis investigates the complex functioning of (nascent) entrepreneurial teams as they engage in collective creative efforts to identify market opportunities and generate creative (i.e., novel and useful) business ideas. Through three interconnected studies, the research offers a comprehensive and integrative understanding of entrepreneurial team creativity by examining teams across four interrelated dimensions: *person* (team members' characteristics), *press* (team environment/climate), *process* (stages of creative process) and *product* (teams' creative output/idea). Grounded in the 4Ps of Creativity framework the thesis integrates multiple complementary theoretical perspectives such as Schumpeter's theory of creative destruction, Complex Adaptive Systems (CAS) theory of teams, ambidexterity theory, team creative synergy perspective, social influence theory on group creativity and complexity theory- alongside key constructs including Team Entrepreneurial Orientation (TEO), Fixed-Growth Creative Mindset, Team- Perceived Heterogeneity, Team Climate Inventory (TCI); Creativity- Based Opportunity Recognition Process and Creative Idea. Methodologically, the thesis employs advanced quantitative techniques such as Partial Least Squares Structural Equation Modeling (PLS-SEM), Necessary Conditions Analysis (NCA) and fuzzy set Qualitative Comparative Analysis (fsQCA) to uncover both linear and configurational patterns underlying entrepreneurial team creativity.

The empirical setting consists of 88 Basque entrepreneurial teams situated within Mondragon Team Academy (MTA), a pioneering entrepreneurship hub embedded in Mondragon Unibertsitatea (Basque Country, Spain) that places team entrepreneurship at the core of its learning model. Young team entrepreneurs of MTA immerse themselves in a highly practical, team-based environment in which they collaboratively create real companies and entrepreneurial projects. This distinctive model nurtures a setting where shared entrepreneurial predispositions, interpersonal interactions, team climate, and the collective creative efforts/process involved in identifying business opportunities become central. As such MTA provides an ideal context for scientifically observing the complex dynamics of nascent entrepreneurial teams.

**Study 1** examines entrepreneurial team creativity through the *product* dimension of the 4Ps of Creativity framework, conceptualizing creativity as a business idea generated by a team of entrepreneurs. By focusing on creative outcomes, the study explores how team members' characteristics and collective predispositions shape creative performance, thereby illuminating the *person-product* relationship within the creativity literature. Drawing on Schumpeter's theory of creative destruction, the study investigates whether Team Entrepreneurial Orientation (TEO)- defined as a team's collective predisposition to discover new product-market opportunities- enhances teams' ability to generate creative market opportunities in the form of novel and high-quality business ideas. To refine this relationship, the study incorporates Perceived Team Heterogeneity and Individual Creative Mindsets (Growth-Creative and Fixed-Creative) as moderating variables, allowing for a contingent understanding of when entrepreneurial teams are more likely to produce creative outcomes. Using PLS-SEM and the sample of 36 entrepreneurial teams the findings reveal which creative direction entrepreneurial teams tend to follow and reproduce by default. Empirically, TEO shows a systematic tendency of entrepreneurial teams to privilege feasibility-seeking entrepreneurial paths and quality-oriented search for business ideas over the pursuit of radical or disruptive novelty. Regarding moderation effects, the presence of

individuals with a Fixed-Creative Mindset weakens the relationship between TEO and idea quality, whereas Perceived Team Heterogeneity and Growth-Creative Mindset show no significant moderating effects. Overall, the study challenges theoretical assumptions linking entrepreneurial orientation to radical creativity and offers new insights for both scholars and practitioners seeking to diagnose and manage team entrepreneurial predispositions that influence creative business idea generation.

**Study 2** further deepens *person-product* relationship in creativity literature and offers a more fine-grained examination of TEO and its relationship with novel and quality outcomes of team entrepreneurs. Building directly on the findings of Study 1, this study responds to the observed tendency of entrepreneurial teams to privilege feasibility seeking (quality-oriented outcomes) by investigating whether this directional pattern reflects underlying synergies or counterproductive dynamics among entrepreneurial behaviors at the team level. Rather than conceptualizing TEO as an aggregated team-level predisposition (as in Study 1), this study disaggregates it into distinct entrepreneurial behaviors-proactiveness, innovativeness, risk-taking and autonomy- that interact dynamically during the business idea generation process. This behavioral perspective more closely reflects the realities of entrepreneurial team functioning, where interaction of heterogeneous behaviors between team members may either foster or constrain the emergence of creative business ideas. Drawing on complexity science (CAS), ambidexterity, and team creative synergy perspective, the study examines how interactions among TEO behaviors enable or hinder the exploration of novel ideas and the exploitation of high-quality business concepts. Using survey data from 88 nascent entrepreneurial teams (NETs) from Mondragon Team Academy in the Basque Country and applying PLS-SEM (interaction effects), the analysis uncovers both synergistic and counterproductive behavioral interactions. The findings offer insights into how NETs self-organize, manage exploration-exploitation tensions, and navigate uncertainty through entrepreneurial behaviors. The study provides actionable guidance for entrepreneurial teams and educators seeking to optimize behavioral configurations, mitigate hindering dynamics, balance feasibility-disruption trade-offs, and ultimately enhance teams' creative potential at the earliest stages of entrepreneurship.

**Study 3** complements and completes the thesis' effort to capture the complexity of entrepreneurial team functioning during collective creative efforts. While Studies 1 and 2 focus on creative outcomes and the behavioral enactment of entrepreneurial predispositions, Study 3 advances understanding of nascent entrepreneurial teams by shifting attention to the creative process itself and the team climate within which this process unfolds. Precisely, Study 3 approaches entrepreneurial teams' creativity from *press* (team environment/climate) and *process* perspective. The study examines how configurations of team climate conditions (TCI) guide collective creativity efforts of entrepreneurial teams as they progress through the stages of creativity-based opportunity recognition process. The theoretical framework integrates social influence theory of group creativity and complexity theory. Using PLS-SEM, fuzzy set Qualitative Comparative Analysis, Necessary Condition Analysis, and data from 88 entrepreneurial teams from Mondragon Team Academy (Basque Country, Spain), the findings reveal necessary and sufficient configurations of team climate conditions that enable and constrain the opportunity recognition across preparation, conception, and elaboration stages. The study offers the first empirical exploration of the configurational role of team climate within the multi-stage creativity process in entrepreneurship. For practitioners, the results show that team climate functions as a dynamic coordination and regulation mechanism: when managed deliberately and

adapted to process demands, it can either unlock or suppress entrepreneurial teams' creative potential. Accordingly, the study provides concrete guidance on how contextual conditions can be strategically leveraged at different phases of creative collaboration to more effectively manage entrepreneurial team performance.

Together, these three studies examine the same phenomenon- entrepreneurial team creativity- from different yet complementary perspectives. As such, they collectively contribute to a deeper and multidimensional understanding of entrepreneurial team creativity by systematically integrating the *person*, *process*, *press*, and *product* dimensions and their interrelationships. By doing so, the thesis moves beyond one-dimensional approaches to creativity research and beyond the dominant focus on the solo entrepreneur in entrepreneurship studies, offering a more realistic account of how creativity unfolds in entrepreneurial teams. Methodologically, the integration of PLS-SEM, fuzzy set Qualitative Comparative Analysis (fsQCA), and Necessary Condition Analysis (NCA) enables a nuanced examination of entrepreneurial team functioning that captures both linear and configurational logic.

Only through the combination of the three studies does a central insight become fully visible: entrepreneurial team creativity is a fragile, complex phenomenon that emerges- or is constrained- through the joint effects of team-level entrepreneurial predispositions (TEO), synergistic and counterproductive behavioral interactions, cognitive boundary conditions of individual team members, and indispensable contextual bottlenecks and stage-contingent team climate configurations across the creative process. The core challenge unveiled by the thesis is therefore not how to stimulate entrepreneurial creativity, but how to prevent entrepreneurial teams from unintentionally blocking their own creative potential. This insight has direct implications for practice. Rather than treating practical implications as isolated recommendations tied to individual studies, the findings call for an integrative approach to interventions in entrepreneurial team management.

Accordingly, as a final integrative contribution, the thesis translates its empirical insights into an diagnostic and intervention manual for managing entrepreneurial team creativity. This manual synthesizes findings across all three studies into a theoretically grounded framework that enables entrepreneurial team members, team leaders, managers, and coaches to diagnose and actively prevent the mechanisms through which teams constrain their own creative potential. While the intervention manual is designed to support direct action within entrepreneurial teams, the thesis also offers broader, more strategic practical implications for other actors within the entrepreneurial ecosystem. Based on the integrated findings, the thesis provides evidence-informed recommendations for entrepreneurship education, incubation and acceleration programs, and policy design, highlighting how institutional structures and support mechanisms can either protect or unblock early-stage entrepreneurial creativity.

# Resumen

La tesis investiga el funcionamiento complejo de los equipos emprendedores (en fase naciente) a medida que participan en esfuerzos creativos colectivos para identificar oportunidades de mercado y generar ideas de negocio creativas (es decir, novedosas y útiles). A través de tres estudios interconectados, la investigación ofrece una comprensión integradora y completa de la creatividad en equipos emprendedores mediante el análisis de los equipos a lo largo de cuatro dimensiones interrelacionadas: *person* (persona; características de los miembros del equipo), *press* (entorno o clima del equipo), *process* (proceso; etapas del proceso creativo) y *product* (producto; resultado creativo o idea generada por el equipo). Fundamentada en el 4Ps of Creativity framework (modelo de las 4P de la creatividad: persona, entorno, proceso y producto), la tesis integra múltiples perspectivas teóricas complementarias, tales como la teoría Schumpeteriana de la destrucción creativa, la teoría de Complex Adaptive Systems (CAS) aplicada a equipos, la teoría de la ambidestreza, la perspectiva de la sinergia creativa en equipos, la teoría de la influencia social en la creatividad grupal y la teoría de la complejidad. Estas perspectivas se articulan junto con constructos clave como Team Entrepreneurial Orientation (TEO), Fixed-Growth Creative Mindset, Team-Perceived Heterogeneity, Team Climate Inventory (TCI), el Creativity-Based Opportunity Recognition Process y la Creative Idea. Metodológicamente, la tesis emplea técnicas cuantitativas avanzadas como Partial Least Squares Structural Equation Modeling (PLS-SEM), Necessary Conditions Analysis (NCA) y fuzzy set Qualitative Comparative Analysis (fsQCA) para identificar patrones tanto lineales como configuracionales subyacentes a la creatividad en equipos emprendedores.

El contexto empírico está compuesto por 88 equipos emprendedores del País Vasco, situados en Mondragon Team Academy (MTA), un ecosistema pionero de emprendimiento integrado en Mondragon Unibertsitatea (País Vasco, España), que sitúa el emprendimiento en equipo en el núcleo de su modelo educativo. Los jóvenes emprendedores de MTA se sumergen en un entorno altamente práctico y basado en el trabajo en equipo, en el que crean de forma colaborativa empresas reales y proyectos emprendedores. Este modelo distintivo genera un contexto en el que las predisposiciones emprendedoras compartidas, las interacciones interpersonales, el clima del equipo y los esfuerzos/procesos creativos colectivos implicados en la identificación de oportunidades de negocio se vuelven centrales. En este sentido, MTA proporciona un contexto ideal para observar científicamente las dinámicas complejas de los equipos emprendedores nacientes.

El **Estudio 1** examina la creatividad en equipos emprendedores desde la dimensión *product* del 4Ps of Creativity framework, conceptualizando la creatividad como una idea de negocio generada por un equipo de emprendedores. Al centrarse en los resultados creativos, el estudio analiza cómo las características de los miembros del equipo y las predisposiciones colectivas configuran el desempeño creativo, iluminando así la relación *persona-producto* dentro de la literatura sobre creatividad. Basándose en la teoría Schumpeteriana de la destrucción creativa, el estudio investiga si la Team Entrepreneurial Orientation (TEO)- definida como la predisposición colectiva de un equipo para descubrir nuevas oportunidades producto-mercado- mejora la capacidad de los equipos para generar oportunidades de mercado creativas en forma de ideas de negocio novedosas y de alta calidad. Para refinar esta relación, el estudio incorpora la Perceived Team Heterogeneity y los Individual Creative Mindsets (Growth-Creative y Fixed-Creative) como variables

moderadoras, permitiendo una comprensión contingente de cuándo los equipos emprendedores son más propensos a producir resultados creativos. Utilizando PLS-SEM y una muestra de 36 equipos emprendedores, los resultados revelan qué dirección creativa tienden a seguir y reproducir los equipos emprendedores por defecto. Empíricamente, la TEO muestra una tendencia sistemática de los equipos emprendedores a privilegiar trayectorias emprendedoras orientadas a la viabilidad y a la búsqueda de calidad en las ideas de negocio, frente a la persecución de la novedad radical o disruptiva. En cuanto a los efectos moderadores, la presencia de individuos con Fixed-Creative Mindset debilita la relación entre TEO y la calidad de la idea, mientras que la Perceived Team Heterogeneity y el Growth-Creative Mindset no muestran efectos moderadores significativos. En conjunto, el estudio cuestiona los supuestos teóricos que vinculan la orientación emprendedora con la creatividad radical y ofrece nuevos conocimientos tanto para académicos como para profesionales interesados en diagnosticar y gestionar las predisposiciones emprendedoras de los equipos que influyen en la generación de ideas de negocio creativas.

El **Estudio 2** profundiza aún más en la relación *persona-producto* dentro de la literatura sobre creatividad y ofrece un análisis más detallado de la TEO y su relación con los resultados novedosos y de calidad de los equipos emprendedores. Partiendo directamente de los hallazgos del Estudio 1, este estudio responde a la tendencia observada de los equipos emprendedores a privilegiar la búsqueda de viabilidad (resultados orientados a la calidad), investigando si este patrón direccional refleja sinergias subyacentes o dinámicas contraproducentes entre los comportamientos emprendedores a nivel de equipo. En lugar de conceptualizar la TEO como una predisposición agregada a nivel de equipo (como en el Estudio 1), este estudio la desagrega en comportamientos emprendedores distintos- proactividad, innovatividad, asunción de riesgos y autonomía- que interactúan dinámicamente durante el proceso de generación de ideas de negocio. Esta perspectiva conductual refleja de manera más fiel la realidad del funcionamiento de los equipos emprendedores, donde la interacción de comportamientos heterogéneos entre los miembros del equipo puede fomentar o limitar la emergencia de ideas de negocio creativas. Apoyándose en la ciencia de la complejidad (CAS), la teoría de la ambidestreza y la perspectiva de la sinergia creativa en equipos, el estudio examina cómo las interacciones entre los comportamientos TEO habilitan o dificultan la exploración de ideas novedosas y la explotación de conceptos de negocio de alta calidad. Utilizando datos de encuesta de los 88 equipos emprendedores nacientes (NETs) de Mondragon Team Academy y aplicando PLS-SEM (efectos de interacción), el análisis revela tanto interacciones conductuales sinérgicas como contraproducentes. Los resultados ofrecen información sobre cómo los NETs se autoorganizan, gestionan las tensiones entre exploración y explotación y navegan la incertidumbre a través de comportamientos emprendedores. El estudio proporciona orientación práctica para equipos emprendedores y educadores que buscan optimizar configuraciones conductuales, mitigar dinámicas obstaculizadoras, equilibrar los intercambios entre viabilidad y disrupción y, en última instancia, potenciar el potencial creativo de los equipos en las etapas más tempranas del emprendimiento.

El **Estudio 3** complementa y completa el esfuerzo de la tesis por capturar la complejidad del funcionamiento de los equipos emprendedores durante los esfuerzos creativos colectivos. Mientras que los Estudios 1 y 2 se centran en los resultados creativos y en la puesta en práctica conductual de las predisposiciones emprendedoras, el Estudio 3 avanza en la comprensión de los equipos emprendedores nacientes desplazando la atención hacia el propio proceso creativo y el clima del equipo en el que dicho proceso se desarrolla.

Concretamente, el Estudio 3 aborda la creatividad de los equipos emprendedores desde las perspectivas *press* (entorno/clima del equipo) y *process* (proceso). El estudio analiza cómo las configuraciones de las condiciones del clima de equipo (TCI) guían los esfuerzos creativos colectivos de los equipos emprendedores a medida que avanzan por las etapas del Creativity-Based Opportunity Recognition Process. El marco teórico integra la teoría de la influencia social en la creatividad grupal y la teoría de la complejidad. Mediante el uso de PLS-SEM, fsQCA, Necessary Condition Analysis, y datos de 88 equipos emprendedores de Mondragon Team Academy, los resultados revelan configuraciones necesarias y suficientes de condiciones de clima de equipo que habilitan y restringen el reconocimiento de oportunidades a lo largo de las etapas de preparación, concepción y elaboración. El estudio ofrece la primera exploración empírica del papel configuracional del clima de equipo dentro del proceso creativo multietapa en el emprendimiento. Para los profesionales, los resultados muestran que el clima de equipo funciona como un mecanismo dinámico de coordinación y regulación: cuando se gestiona deliberadamente y se adapta a las demandas del proceso, puede desbloquear o suprimir el potencial creativo de los equipos emprendedores. En consecuencia, el estudio proporciona orientación concreta sobre cómo las condiciones contextuales pueden aprovecharse estratégicamente en diferentes fases de la colaboración creativa para gestionar de forma más eficaz el desempeño de los equipos emprendedores.

En conjunto, estos tres estudios examinan el mismo fenómeno- la creatividad en equipos emprendedores- desde perspectivas diferentes pero complementarias. De este modo, contribuyen colectivamente a una comprensión más profunda y multidimensional de la creatividad en equipos emprendedores mediante la integración sistemática de las dimensiones *person*, *process*, *press* y *product*, así como de sus interrelaciones. Al hacerlo, la tesis supera los enfoques unidimensionales de la investigación sobre creatividad y el énfasis dominante en el emprendedor individual dentro de los estudios de emprendimiento, ofreciendo una explicación más realista de cómo se desarrolla la creatividad en los equipos emprendedores. Metodológicamente, la integración de PLS-SEM, fsQCA y NCA permite un análisis matizado del funcionamiento de los equipos emprendedores que captura tanto la lógica lineal como la configuracional.

Solo a través de la combinación de los tres estudios se hace plenamente visible una idea central: la creatividad en equipos emprendedores es un fenómeno frágil y complejo que emerge- o se ve restringido- por los efectos conjuntos de las predisposiciones emprendedoras a nivel de equipo (TEO), las interacciones conductuales sinérgicas y contraproducentes, las condiciones cognitivas limitantes de los miembros individuales del equipo y los cuellos de botella contextuales indispensables, así como por configuraciones de clima de equipo contingentes a las etapas del proceso creativo. El principal desafío revelado por la tesis no es, por tanto, cómo estimular la creatividad emprendedora, sino cómo evitar que los equipos emprendedores bloqueen involuntariamente su propio potencial creativo. Este hallazgo tiene implicaciones directas para la práctica y exige un enfoque de intervención integrador en la gestión de equipos emprendedores, en lugar de recomendaciones aisladas vinculadas a estudios individuales.

En consecuencia, como contribución integradora final, la tesis traduce sus hallazgos empíricos en un manual de diagnóstico e intervención para la gestión de la creatividad en equipos emprendedores. Este manual sintetiza los resultados de los tres estudios en un marco teóricamente fundamentado que permite a los miembros de los equipos

emprendedores, líderes de equipo, managers y coaches diagnosticar y prevenir activamente los mecanismos mediante los cuales los equipos restringen su propio potencial creativo. Aunque el manual está diseñado para apoyar la acción directa dentro de los equipos emprendedores, la tesis también ofrece implicaciones prácticas más amplias y estratégicas para otros actores del ecosistema emprendedor. A partir de los hallazgos integrados, la tesis proporciona recomendaciones basadas en la evidencia para la educación emprendedora, los programas de incubación y aceleración y el diseño de políticas públicas, destacando cómo las estructuras institucionales y los mecanismos de apoyo pueden proteger o desbloquear la creatividad emprendedora en etapas tempranas.

# Laburpena

Tesiak talde ekintzaileen (sortzen ari diren fasean) funtzionamendu konplexua ikertzen du, merkatu-aukerak identifikatzeko eta negozio-ideia sortzaileak (hau da, berritzaileak eta erabilgarriak) sortzeko sormen-ahalegin kolektiboetan parte hartzen duten heinean. Ikerketak talde ekintzaileen sormena modu integralean aztertzen du, elkarri lotutako hiru azterlanen bitartez. Horretarako, lau dimentsio nagusi hartzen ditu oinarri: pertsona (kideen ezaugarriak), giroa (testuingurua), prozesua (sormen-etapak) eta produktua (lortutako ideiak edo emaitzak). Sormenaren 4P-en eredua (pertsona, ingurunea, prozesua eta produktua) ardatz hartuta, tesi honek hainbat ikuspegi teoriko osagarri integratzen ditu. Besteak beste, Schumpeterren sormenezko suntsipena, taldeei aplikatutako Sistema Moldatzaile Konplexuen (CAS) teoria, ambidextrezia eta konplexutasunaren teoria jorratzen ditu. Era berean, talde-sormenaren eremuari dagozkion berariazko ikuspegiak ere biltzen ditu: sormen-sinergia eta eragin sozialaren teoria. Ikuspegi horiek eraikuntza garrantzitsuekin batera uztartzen, besteak beste, Ikuspegi horiek funtsezko eraikuntza teorikoekin uztartzen dira; besteak beste, Team Entrepreneurial Orientation (TEO), Fixed-Growth Creative Mindset, Team-Perceived Heterogeneity eta Team Climate Inventory (TCI) unitateak aztertzen ditu, baita Creativity-Based Opportunity Recognition Process eta Creative Idea kontzeptuak ere. Metodologiari dagokionez, tesiak teknika kuantitatibo aurreratuak darabiltza, hala nola, PLS-SEM, NCA eta fsQCA, talde ekintzaileen sormen-eredu linealak zein konfiguzionalak identifikatu eta sakonago ulertzeko.

Testuinguru enpirikoa Euskal Herriko 88 talde ekintzailek osatzen dute, Mondragon Team Academyn (MTA) kokatuak, Mondragon Unibertsitatean (Euskal Herria, Espainia) integratutako ekintzailetza-ekosistema aitzindaria, talde-ekintzailetza bere hezkuntza-ereduaren muinean kokatzen duena. MTAko gazte ekintzaileak ingurune oso praktikoa batean murgiltzen dira, talde-lanean oinarritua, non benetako enpresak eta proiektu ekintzaileak sortzen baitituzte elkarlanean. Eredu bereizgarri horrek testuinguru jakin bat sortzen du, non erdigunetzat hartzen baitira ekintzailetzarako joera partekatuak, pertsonen arteko elkarrekarinak, taldearen giroa eta negozio-aukerak identifikatzen parte hartzen duten sorkuntza-prozesu kolektiboak. Alde horretatik, MTAk testuinguru ezin hobea eskaintzen du sortzen ari diren talde ekintzaileen dinamika konplexuak zientifikoki behatzeko.

Lehen azterlanak talde ekintzaileen sormena ikertzen du, 4Ps of Creativity esparruko 'product' (produktua) dimentsioa ardatz hartuta. Ikuspegi honetatik, sormena talde ekintzaile batek sortutako negozio-ideia gisa kontzeptualizatzen du. Ormen-emaitzak ardatz hartuta, ikerlanak aztertzen du nola taldekideen ezaugarriak eta aldez aurretiko jarrera kolektiboak baldintzatzen duten sormen-jarduna. Horrela, sormenari buruzko literaturan pertsonaren eta produktuaren artean dagoen harremana argitzen laguntzen du. Schumpeterren suntsipen sortzailearen teorian oinarrituta, Team Entrepreneurial Orientation (TEO) delakoak (talde batek produktu-merkatu aukera berriak aurkitzeko duen joera kolektiboa) ekipoen gaitasuna hobetzen duen ikertzen du, negozio-ideia berritzaile eta kalitate handikoen bidez merkatu-aukera sortzaileak sortzeko. Erlazio hori fintzeko, Perceived Team Heterogeneity eta Individual Creative Mindsets (Growth-Creative eta Fixed-Creative) aldagai moderatzaile gisa hartzen ditu azterketak, eta, horri esker, talde ekintzaileek emaitza sortzaileak sortzeko joera handiagoa dutela uler daiteke ausaz. PLS-SEM eta 36 talde ekintzaileko lagin bat erabilita, emaitzek erakusten dute zer norabide sortzaile jarraitu eta erreproduzitu ohi duten talde ekintzaile lehenetsiek. Enpirikoki, TEOk erakusten du talde ekintzaileek badutela joera sistematiko bat negozio-ideien bideragarritasuna eta kalitatea bilatzera bideratutako ibilbide ekintzaileak pribilegiatzeko, nobedade erradikal edo disruptiboaren jazarpenaren aurrean. Efektu moderatzaileei

dagokienez, Fixed-Creative Mindset duten banakoak egoteak ahuldu egiten du TEOn eta ideiarene kalitatearen arteko harremana; Perceived Team Heterogeneity eta Growth-Creative Mindset banakoek, berriz, ez dute efektu moderatzaile nabarmenik erakusten. Oro har, ikerketak zalantzan jartzen ditu ekintzailetza-orientazioa eta sormen erradikala lotzen dituzten kasu teorikoak, eta ezagutza berriak eskaintzen dizkie, bai akademikoei, bai negozio-ideia sortzaileen sorreran eragina duten taldeen jarrera ekintzaileak diagnostikatzeko eta kudeatzeko interesa duten profesionalei.

Bigarren azterlanak pertsonen eta produktuen arteko harremanean sakontzen du sormenari buruzko literaturaren baitan. Horrez gain, TEOn (Taldea Ekintzaileen Orientazioa) analisi xeheagoa eskaintzen du, kontzeptu horrek talde ekintzaileen emaitza berriekin eta kalitatearekin duen lotura hertsia aztertuz. 1. azterlaneko aurkikuntzetatik zuzenean abiatuta, talde ekintzaileek bideragarritasunaren bilaketa (kalitatera bideratutako emaitzak) lehenesteko izan duten joerari erantzuten dio azterlan honek, eta norabide eredu horrek talde mailako portaera ekintzaileen arteko sinergiak edo dinamika kaltegarriak islatzen dituen ikertzen du. TEO talde-mailako aurretiko jarrera agregatu gisa kontzeptualizatu beharrean (1. azterketan bezala), azterketa honek jokabide ekintzaile desberdinetan bereizten du (proaktibitatea, berrikuntza, arriskuak hartzea eta autonomia), eta horiek interakzio dinamikoa dute negozio-ideiak sortzeko prozesuan. Jokabidearen ikuspegi horrek fideltasun handiagoz islatzen du talde ekintzaileen funtzionamenduaren errealitatea, non taldeko kideen arteko portaera heterogeneoen elkarrekin negozi-idea sortzaileen sorrera sustatu edo mugatu baitezake. Konplexutasunaren zientzia (CAS), anbizioaren teoriarik eta taldeetako sormen-sinergiaren ikuspegia, TEO portaeren arteko elkarrekintzek ideia berrien esplorazioa eta kalitate handiko negozio kontzeptuen esplorazioa nola gaitzen edo zailtzen duten aztertzen du ikerketak. Mondragon Team Academyren 88 talde ekintzaile sortu berrien (NETs) inkesta-datuak erabiliz eta PLS-SEM (elkarrekintza-efektuak) aplikatuz, analisiak jokabide-elkarrekintza sinergikoak nahiz kontrakoak erakusten ditu. Emaitzek argi uzten dute nola antolatzen diren NETak, bereziki esplorazioaren eta ustiapenaren arteko tentsioak kudeatzeko eta ziurgabetasunari jokabide ekintzaileen bidez aurre egiteko orduan. Azterlanak orientabide praktikoa ematen die talde ekintzaileei eta hezitzaileei, jokabidearen konfigurazioak optimizatu, dinamika oztokatzaileak arindu, bideragarritasunaren eta disrupzioaren arteko trukeak orekatu eta, azken batean, taldeek ekintzailetzaren etapa goiztiarrenetan duten sormen-potentziala bultzatu nahi baitute.

Hirugarren azterlanak tesiari osotasuna ematen dio, talde ekintzaileen funtzionamendu konplexua sakonago aztertzen baitu sormen-lanetan ari direnean. Lehen bi ikerketak emaitzetan eta jarrera ekintzaileen aplikazioan zentratzen diren bitartean, hirugarren honek urrats bat harago doa: sormen-prozesua bera eta taldeko giroa bihurtzen ditu ikergai, sortzen ari diren taldeen dinamikak hobeto ulertzeko. Zehazki, 3. azterketak talde ekintzaileen sormena lantzen du, press (taldearen ingurune/klima) eta process (prozesua) ikuspegietatik. Ikerlanak aztertzen du nola talde-giroaren (TCI) konfigurazioek gidatzen dituzten talde ekintzaileen sormen-ahalegin kolektiboak, Creativity-Based Opportunity Recognition Process-en etapetan aurrera egin ahala. Esparru teorikoak bi zutabe nagusi ditu oinarri: talde-sormenaren eragin sozialaren teoria eta konplexutasunaren teoria. Mondragon Team Academy-ko 88 talde ekintzailearen datuetan oinarrituta, eta PLS-SEM, fsQCA eta Necessary Condition Analysis (NCA) metodologiak erabiliz, ikerketa honek talde-giroaren konfigurazio zehatzak identifikatzen ditu. Emaitzek erakusten dute badirela konfigurazio beharrezkoak eta nahikoak prestakuntza, sorkuntza eta elaborazio etapetan aukerak hautemateko gaitasuna bultzatzen edo mugatzen dutenak. Horrela, lan honek lehen esplorazio enpiriko aitzindaria eskaintzen du talde-giroak ekintzailetzaren sormen-prozesu etapakoitzean duen rolari buruz. Ikuspuntu praktikoa batetik, emaitzek pentsarazten dute talde-giroa koordinazio- eta erregulazio-mekanismo dinamiko bat dela. Kudeaketa

prozesuaren eskakizunetara egokitzen denean, giro horrek talde ekintzaileen sormen-potentziala sustatu edo, aitzitik, kamustu egin dezake. Beraz, funtsezkoa da giroaren kudeaketa berariazkoa izatea sorkuntza-ahalmena bideratzeko. Ondorioz, azterlanak orientazio zehatza ematen du testuinguruko baldintzak estrategikoki aprobeitza daitezkeela sormenezko lankidetzaren hainbat fasetan, talde ekintzaileen lana modu eraginkorragoan kudeatzeko.

Oro har, hiru azterketa horiek fenomeno bera - sormena talde ekintzaileetan - aztertzen dute ikuspegi desberdin baina osagarrietatik. Horrela, talde ekintzaileetan sormena sakonago eta alderdi askotatik ulertzen laguntzen dute, person, process, press eta product dimentsioak eta haien arteko erlazioak sistematikoki integratuz. Hori egitean, tesiak gaintitu egiten ditu sormenari buruzko ikerketaren dimentsio bakarreko ikuspegiak eta ekintzailetza-ikasketen barruan banakako ekintzailearengan nagusitzen den enfasia, eta azalpen errealistagoa ematen du talde ekintzaileetan sormena nola garatzen den azaltzeko. Metodologiari dagokionez, PLS-SEM, fsQCA eta NCA integratzeak aukera ematen du talde ekintzaileen funtzionamenduaren analisi ñabartu bat egiteko, logika lineala eta konfigurazionala atzematen dituen.

Hiru ikerketen konbinazioak agerian uzten du tesi honen idea nagusia: talde ekintzaileen sormena fenomeno hauskorra eta konplexua da. Sormen hori hainbat faktorek baldintzatzen dute: talde-mailako jarrera ekintzaileek (TEO), elkarreragin sinergiko nahiz kaltegarriek, kognizio-muga indibidualek eta prozesuaren etapa bakoitzari lotutako botilalepoek. Beraz, erroka nagusia ez da sormena nola sustatu, baizik eta nola saihestu taldeek beren potentziala nahi gabe blokeatzea. Ondorioz, gomendio isolatuak alde batera utzi eta kudeaketa-ikuspegi integratzaile baten aldeko esku-hartzea proposatzen da.

Ondorioz, azken ekarpen integratzaile gisa, tesiak honek aurkikuntza enpirikoak diagnosi eta esku-hartze eskuliburu batean bihurtzen ditu, talde ekintzaileetan sormena kudeatzeko. Eskuliburu honek hiru azterlanen emaitzak biltzen ditu, teoria sendo batean oinarritutako esparru praktikoa baten barruan. Esparru honek tresna baliagarriak eskaintzen dizkie taldekideei, buruei, kudeatzaileei eta coachei, taldearen sormen-ahalmena kamusten duten mekanismoak diagnostikatzeko eta modu aktiboan prebenitzeko. Eskuliburuak taldeetan esku-hartze zuzena bultzatzea badu helburu, tesiak irismen handiagoa duten inplikazio estrategikoak ere eskaintzen dizkie ekosistema ekintzaileko gainerako eragileei. Lortutako ebidentzietan oinarrituta, gomendio zehatzak proposatzen ditu ekintzailetza-hezkuntzarako, inkubazio nahiz azelerazioprogrametarako eta politika publikoen diseinurako. Horrela, egitura instituzionalek eta laguntza-mekanismoek sormen ekintzailea etapa goiztiarrenetan nola babestu edo sustatu dezaketen argitzen du.

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# Glossary

## LIST OF ABBREVIATIONS

| Abbreviation       | Explanation                                               |
|--------------------|-----------------------------------------------------------|
| CAS                | Complex Adaptive Systems                                  |
| CON stage          | Conception Stage                                          |
| EO                 | Entrepreneurial Orientation                               |
| ELA stage          | Elaboration Stage                                         |
| Fixed-Creative M.  | Fixed Creative Mindset                                    |
| fsQCA              | fuzzy-set Qualitative Comparative Analysis                |
| GEM                | Global Entrepreneurship Monitor                           |
| Growth-Creative M. | Growth Creative Mindset                                   |
| GUESSS             | Global University Entrepreneurial Spirit Students' Survey |
| IEO                | Individual Entrepreneurial Orientation                    |
| MTA                | Mondragon Team Academy                                    |
| NCA                | Necessary Condition Analysis                              |
| NETs               | Nascent Entrepreneurial Teams                             |
| Novelty            | Novel Outcomes                                            |
| PLS-SEM            | Partial Least Squares Structural Equation Modeling        |
| PRE stage          | Preparation Stage                                         |
| PS                 | Participation Safety                                      |
| Quality            | Quality Outcomes                                          |
| SI                 | Support for Innovation                                    |
| TAutonomy          | Team Autonomy                                             |
| TCI                | Team Climate Inventory                                    |
| TEA                | Total Entrepreneurial Activity                            |
| TEO                | Team Entrepreneurial Orientation                          |
| TInnovativeness    | Team Innovativeness                                       |
| TO                 | Task Orientation                                          |
| TProactivity       | Team Proactivity                                          |
| TRisk-Taking       | Team Risk Taking                                          |
| VI                 | Vision                                                    |



CHAPTER 1  
**Introduction**



# 1. Introduction

This Chapter establishes the theoretical and empirical foundations of the thesis by contextualizing entrepreneurial team creativity within the broader discourse on entrepreneurship and creativity as collective and complex (multidimensional) phenomena. It identifies critical gaps in existing research and practice concerning how entrepreneurial teams collectively recognize business opportunities and generate creative business ideas. In response to these gaps, the Chapter articulates the research rationale and relevance, outlines an integrative perspective to frame the phenomenon under investigation, and delineates the objectives guiding the overall study and its respective three interconnected investigations (Study 1, Study 2, Study 3).

## 1.1. Research Background

### *Why observing entrepreneurial team creativity matters?*

Creativity has received increasing scholarly and practical attention over the past decades (Runco, 2004; Amabile, 2013; McKay et al., 2020). It is widely viewed as a valuable asset for individuals in their daily problem solving and their professional careers (Runco, 2004). Contemporary challenges are increasingly complex and interdependent, requiring collective rather than individual solutions. Individuals work collaboratively to generate creative ideas capable of addressing such multifaceted problems, as these cannot typically be solved by a single person (McKay et al., 2020). Organizations seek creative ideas to improve processes, develop new products and services, and maintain competitive advantage (Zhou & Shalley, 2003). At the societal level, creativity contributes to social and technological advancement, cultural development, and improvements in quality of life (Lubart et. al., 2013). In parallel, business leaders have recognized creativity and innovation are central drivers for economic success. Modern economies are progressively transforming into knowledge-based and creative economies, in which value creation increasingly depends on the production and development of ideas rather than solely on tangible products (Sawyer, 2003; Lubart et. al., 2013). For a matter of clarity, there is an important conceptual distinction between creativity and innovation. Theoretically, innovation encompasses two stages: the generation of new ideas and their implementation (Woodman et al., 1993; Amabile, 2013). Creativity, thus, refers to the first stage of the innovation process- idea generation- and can therefore be seen as a sub process of innovation. Scientists and practitioners increasingly argue that creativity and creative collaboration will be a growing part of the core skills requirements for many industries in the future of work (Reiter-Palmon et. al., 2012; World Economic Forum, 2020; McKay et al., 2020). It will even increase its importance due to socio economic trends and challenges such as e.g. globalization, increased competitiveness, information and communication technologies, shorter life cycles of product or increased necessity for global sustainable development (Reiter-Palmon et. al., 2012; 2011; World Economic Forum, 2020).

According to Preiss and Sternberg (2025), recent advances in artificial intelligence (AI) have further intensified scholarly and practitioner debates on the nature, value, and future role of creativity as human advantage. AI may support idea generation, but it cannot replace the human capacity required to recognize opportunities, integrate contextual knowledge, and

develop ideas into viable concepts (Preiss & Sternberg, 2025). While AI-based tools are increasingly capable of generating large volumes of ideas, such developments do not diminish the centrality of human cognitive and creative processes (Preiss & Sternberg, 2025). Rather, they foreground the enduring importance of sensemaking, elaboration, evaluation, and selection- processes through which humans interpret, refine, and distinguish novel and high-quality ideas from a pool of AI possibilities (Preiss & Sternberg, 2025). Not surprisingly, research on creativity is ranging from philosophy, psychology to management, leadership, business or entrepreneurship studies. Researchers (including the author of the thesis) from various domains try to understand the nature of creativity in order to enhance it either on personal or professional, team or the whole organizational level.

Within the entrepreneurial domain, Paulus and Yang (2000) and Gundry et al. (2016) emphasize that examining creativity is inherently valuable, given the complexity of business activities and the central role creativity plays in addressing contemporary economic challenges. Entrepreneurs or enterprises need to constantly discover, evaluate and exploit opportunities to introduce new ways of organizing, markets, processes, and (...) efforts that previously had not existed (Schjoedt & Kraus, 2009) or deal with uncertainty in changing global and competitive environment, which all require creativity and importantly more than just of one person. In fact, entrepreneurial work has become increasingly interdependent, leading scholars to argue that future business success depends less on the creative capacity of isolated individuals and more on the ability to mobilize the collective creative potential of teams (Florida & Goodnight, 2005; Rego et al., 2007; Schjoedt & Kraus, 2009). Collective team creativity enhances problem-solving capabilities by bringing together diverse perspectives that foster the development of novel and high-quality solutions and ideas (Paulus et al., 2020). This is particularly significant in (nascent) entrepreneurial teams, where creativity is essential for navigating the complexities of new venture creation (Gundry et al., 2016). Teams, therefore, have gathered great importance from scientific and practical perspective where the collective generation of new creative ideas/business opportunities is the foundation for successful entrepreneurship and the emergence of innovative entrepreneurial firms (Gundry et al., 2016). Nevertheless, there is still lack of sufficient understanding among practitioners and scholars about how (entrepreneurial) teams collectively engage in creative efforts and process to identify business opportunities and form new creative ideas for further product, services or business development (Gundry et al., 2016). Understanding these team level dynamics is crucial for advancing both theory and practice in nascent entrepreneurship, underscoring the need for more in-depth research in this area.

Empirical evidence at the global level further reinforces the relevance of observing the new venture creation phenomenon through a team-based lens. Walker and Dowd (2025) report that the share of ventures founded by a single individual (solo entrepreneur) remains smaller than those founded by teams. The analyses of large startup data indicate that although the proportion of solo-founded startups has risen (to around 35% of new companies in 2024), two-founder teams remain more common overall and especially in funded ventures where solo founders account for only a minority of venture-backed startups (e.g., only approx. 17% of venture-backed startups in 2024 were led by solo founders) while two-person teams retain the largest share of new companies (Walker & Dowd, 2025). These recent data about team entrepreneurship qualify and update earlier observations (e.g., Birley & Stockley, 2000; Schjoedt & Kraus, 2009; Steigertahl & Mauer, 2018) that founding teams are more typical than solo founders in new venture creation. While solo founding has

increased, team entrepreneurship remains the prevailing structure, especially among ventures with external investment and growth orientation. Consistent with this evidence, the Global Entrepreneurship Monitor (GEM) (Calvo et al., 2025) explicitly calls for moving beyond the traditional image of the lone entrepreneur, emphasizing that contemporary entrepreneurship increasingly reflects diverse profiles, motivations, and collaborative forms through which risk, resources, and capabilities are shared- potentially reducing fear of failure and facilitating entrepreneurial action.

At the national level, however, empirical patterns reveal a contrasting picture. Data from the Global University Entrepreneurial Spirit Students' Survey in Spain (GUESSS) (Ruiz-Navarro et al., 2024) show that most university-based entrepreneurial initiatives are still developed by single founders. Specifically, 55.1% of nascent entrepreneurs in Spain initiate their ventures as solo founders, while 31.2% do so with one co-founder. In contrast, a much smaller proportion of initiatives are developed by larger teams, with only 9.3% involving two co-founders and just 4.4% involving three or more partners. This persistent orientation toward individual or quasi-individual entrepreneurship contrasts sharply with national policy discourse- articulated by the Ministry of Science and Innovation-which explicitly calls for more collective forms of entrepreneurship (Ruiz-Navarro et al., 2024). Such a discrepancy suggests a structural bias that limits skill complementarity, increases perceived risk, and constrains the development of innovative and scalable entrepreneurial initiatives. Consequently, there is a clear need to examine how entrepreneurial teams emerge, function, and overcome the challenges associated with collective entrepreneurial action.

Beyond the organizational form of entrepreneurship, empirical evidence also points to limitations in the innovative quality of early-stage entrepreneurial activity, particularly at the nascent stage. The GUESSS Spain (Ruiz-Navarro et al., 2024) report indicates that, while entrepreneurial intentions among university students are widespread, the perceived innovativeness of nascent ventures remains moderate, with innovation tending to be incremental rather than radically novel. This pattern is consistent with EU and global GUESSS findings (Ruiz-Navarro et al., 2024), as well as with evidence from GEM Spain (Calvo et al., 2025), which shows that genuinely novel, high-impact innovations are relatively rare at both youth and adult entrepreneurial stages. Specifically, although many early-stage entrepreneurs introduce products or services that are somehow new to their local markets, only a small minority report innovation that are new to a broader scale, with less than 10% of early-stage entrepreneurs indicating world-level novelty in most economies.

Importantly, nascent entrepreneurs in the Basque Country, including young entrepreneurs from Mondragon University Business Faculty (MUE) (Tkacz & Hotchandani, 2024) perceive the innovative value of their projects as slightly lower than the Spanish average, further underscoring challenges related to the generation and development of novel and high-quality entrepreneurial ideas. At the same time, the GEM Basque Country (Saiz-Santos et al., 2025) report reveals that while opportunity perception remains high across countries, a substantial proportion of entrepreneurs refrain from entrepreneurial action due to fear of failure. In 2024, 48 of the 51 economies reported that at least one-third of opportunity-perceiving adults chose not to start a business for this reason. Regional evidence from the Basque Country reinforces the unveiled global entrepreneurship activity pattern. Earlier GEM report (Saiz et al., 2019) documented a decline in entrepreneurial dynamism in the Basque Country, with total entrepreneurial activity (TEA) decreasing from 5.8% in 2017 to

5.1% in 2018–2019, alongside a reduction in the share of entrepreneurial initiatives involving new products or services, which fell from 45.4% in 2016 and 44.3% in 2017 to 35.0% in 2018. These trends raised concerns regarding the sustainability and innovative capacity of the regional entrepreneurial ecosystem. More recent evidence (Saiz-Santos et al., 2025) indicates a slight stabilization and modest recovery of entrepreneurial activity in the Basque Country, with TEA reaching approximately 6% but emphasizing the shift from the quantity of entrepreneurial activity toward the quality of entrepreneurial action. Such shift is reflected in a growing proportion of initiatives with higher level of innovation in products or processes, higher growth aspirations, and stronger transformative orientation. This qualitative evolution suggests that the central challenge is no longer simply increasing entrepreneurial participation, but rather fostering creative, high-quality, and innovative entrepreneurial initiatives reducing risk of failure and increasing their long-term (transformative) potential.

In this contemporary entrepreneurship context, team-level entrepreneurship and the collective creative potential of entrepreneurial teams are increasingly recognized as central to increase quality of entrepreneurial activity at global, national and regional (Basque Country) level (Saiz-Santos et al., 2025; Calvo et al., 2025; Ruiz-Navarro et al., 2024; Tkacz & Hotchandani, 2024). Accordingly, a research focus on entrepreneurial teams operating within the experiential learning environments of Mondragon Team Academy (MTA) labs (Basque Country) is strategically justified. Mondragon University (Business Faculty, MUE) constitutes a critical empirical setting where team-based entrepreneurship is already more prevalent than the national average (Tkacz & Hotchandani, 2024). These settings provide a unique opportunity to observe team entrepreneurial activity “in the making”, allowing scholars to capture how young team entrepreneurs collectively explore opportunities, manage uncertainty, share responsibility and risk and develop creative business ideas. Studying such team-based processes and outcomes enables to capture both scientific and practical insights to foster entrepreneurial teams’ creativity responding to the current challenges of the entrepreneurial activity detected by GEM (Saiz-Santos et al., 2025; Calvo et al., 2025) and GUESSES (Ruiz-Navarro et al., 2024; Tkacz & Hotchandani, 2024). This research approach is critical for understanding the future trajectory of entrepreneurial activity in the region and enables anticipation of the entrepreneurial and creative capacities likely to shape the next generation of entrepreneurial initiatives in the Basque Country, with potential impact at the national (Spanish), and broader international levels.

## 1.2. Research Problem

### *Why entrepreneurial team creativity is still not well understood?*

Gundry et al. (2016) and Yuan (2019), among others still struggles to adequately explain how entrepreneurial teams collectively recognize and create business ideas. The complexity of team functioning- including behaviors, interactions and collective dynamics that shape idea generation as well as creativity-based opportunity recognition are scientifically difficult to capture, due to conceptual fragmentation, methodological limitations, and the inherent complexity of both creativity and team dynamics.

Creativity research has a heritage of more than 60 years and has generated a substantial and diverse body of literature. A systematic review by Said-Metwaly et al. (2018), examining 2,064 studies on creativity conceptualization and measurement, highlights the substantial theoretical and methodological diversity within the field. Although research has evolved from a primary focus on individual personality traits toward more process-oriented, cognitive, and integrative systemic approaches, this expansion has also intensified scholarly debate. As a result, the field remains characterized by conflicting interpretations of core constructs and limited consensus regarding the definition and measurement of creativity.

Efforts to develop a comprehensive understanding of creativity have resulted in substantial definitional ambiguity. Researchers use the term *creativity* to refer to fundamentally different aspects (Treffinger et al., 2002) that can reflect to at least one of four different perspectives: cognitive processes, personal characteristics of creative individuals, creative products or outcomes, and the context or environment in which individuals' function (Rhodes, 1961; Horn & Salvendy, 2006; Zeng et al., 2011; Said-Metwaly et al., 2018). As a consequence, creativity can be understood and defined as a product, person, press (environment) or process (Schuler et al., 2008). These perspectives are commonly summarized within the 4Ps framework-person, process, product, and press (environment)-introduced by Rhodes (1961) and still widely used in the creativity literature (Gruszka & Tang, 2017). However, a systematic review by Said-Metwaly et al. (2018) indicates that the majority of empirical studies adopt a predominantly one-dimensional perspective, focusing on only one component of creativity. Some studies conceptualize creativity through personality traits and individual characteristics (Schuler et al., 2008; Zeng et al., 2011). Others emphasize creative potential, typically assessed through divergent thinking tasks and cognitive process measures (Reiter-Palmon et al., 2008). Product-oriented perspectives, in contrast, evaluate creativity through the assessment of creative outputs, focusing on the novelty and usefulness of tangible ideas or artifacts (Ylitalo, 2017). The product approach is often considered comparatively objective, as it relies on observable outcomes that can be externally evaluated (Kozbelt et al., 2010). In parallel, a substantial body of research has examined environmental and contextual factors conducive to creativity (Anderson & West, 1998; Amabile, 2018). At the same time, prior studies have occasionally conflated components of creativity with creativity itself or with its outcomes, contributing to conceptual ambiguity (Batey, 2012; Said-Metwaly et al., 2018). In response to this fragmentation, Gruszka and Tang (2017) argue that creativity emerges from the convergence of multiple interacting components rather than from any single dimension alone. Approaches that focus exclusively on one aspect may therefore limit the ability to capture creativity as a multidimensional and dynamic phenomenon. This recognition has motivated calls for more integrative frameworks that account for the interaction among person, process, product, and press (Lubart et al., 2013; Batey, 2012; Gruszka & Tang, 2017).

These challenges are further amplified in the study of team creativity. Research examining creativity in teams is still in its early stages (Reiter-Palmon et al., 2012; Gundry et al., 2016). Creativity researchers have devoted majority of time to analyze and understand creativity of individuals (Kurtzberg & Amabile, 2001; Gong et al., 2013). Further, much of the experimental work on team creativity relied on laboratory-based brainstorming paradigms involving artificially assembled groups with no shared history, stable interaction patterns, or real performance stakes (Kurtzberg & Amabile, 2001). While such studies contributed important insights into cognitive and social mechanisms of group idea generation (Paulus

& Dzindolet, 2008), they offer only a partial and limited representation of creativity unfolding within real teams. Consequently, relatively little is known about team-level creative synergy, where creative ideas emerge from collective interaction rather than from isolated individual contributions (Said-Metwaly et al., 2018).

Although prior research has identified several antecedents of team creativity—such as team composition and diversity, social and cognitive processes, communication, trust, psychological safety, conflict, cohesion, team climate, and efficacy, empirical findings remain fragmented and sometimes contradictory (Reiter-Palmon et al., 2012; Yuan, 2019). Moreover, many of these variables have been examined primarily in relation to team performance or effectiveness, rather than creative outcomes specifically, limiting their explanatory power for understanding team creativity (Yuan, 2019). Further, recent research questions additive models that treat team creativity as the sum of individual contributions, emphasizing instead the importance of collective processes and emergent dynamics (McKay et al., 2020; Yuan, 2019). Finally, even though, teams have been for decades considered in team creativity literature to be more effective than individuals in generating creative and higher quality ideas (Gong et al., 2013; Said-Metwaly et al., 2018) being in a team itself does not guarantee performing better in generating creative ideas. Teams can have counterproductive behaviors or can have team level conditions or configurations of conditions that hinder the team performance (Yuan, 2019; McKay et al., 2020). Team creativity studies do not easily capture such complexity of team level dynamics yet (Said-Metwaly et al., 2018; McKay et al., 2020). Regardless, central to the team creativity perspective is the idea that a team may produce something that no individual member would have been able to generate alone. Such creative synergy may result from new cognitive inputs, combinations of personality characteristics, or interpersonal interactions that stimulate creativity (Kurtzberg & Amabile, 2001; Pirola-Merlo et al., 2002), which all makes the phenomena complex to examine.

The challenge of understanding team creativity becomes even more pronounced in the context of entrepreneurship. Although creativity has long been considered inherent to the entrepreneurial process, the existing literature has been predominantly conceptual and theory-driven (Palmer et al., 2015). Empirical research explicitly examining the relationship between creativity and entrepreneurship remains comparatively limited (Palmer et al., 2015; Kratzer & Mrožewski, 2020), especially with regard to creativity within entrepreneurial teams during the early stages of venture conception (Sabater, 2018). Phan (2010) sees creativity, as the engine that drives entrepreneurial discovery through cognitive process of discovering new patterns or combinations from familiar ideas, routines, and mental models. Shepherd and Patzelt (2011) emphasized the important role creativity plays in the entrepreneurial process of the introduction of new and often original products, processes, and services. In the same vein, Dayan (2013) understand entrepreneurial creativity as a capability of an entrepreneur or entrepreneurs to create improved or new product/service, process, which adds value over what existed previously.

Further, Shepherd and Krueger (2002) define a team as entrepreneurial only when it is oriented toward the creative search for opportunities, with the explicit motivation of bringing future goods and services into existence. A similar perspective is shared by Krawczyk-Bryłka (2016), who argues that entrepreneurial teams require members to be creative and open to knowledge sharing. Likewise, Schenkel and Garrison (2009) emphasize the importance of entrepreneurial orientation at the team level— including innovativeness, risk-

taking, proactiveness, and autonomy-as a prerequisite for creating new market entries. This view aligns with early insights from Schumpeter (1934), who conceptualized entrepreneurial orientation as a driver of radical and disruptive innovation, and with Lee et al. (2004), who explicitly frame entrepreneurship itself as a form of creativity. Importantly, however, a conceptual disconnect persists between creativity research and entrepreneurship research. Traditional creativity scholars have largely focused on creative ideas or idea generation, whereas entrepreneurship research predominantly employs the language of opportunities, business opportunities, and opportunity recognition. Opportunity recognition is widely regarded as pivotal for understanding entrepreneurship (Shane & Venkataraman, 2000; Ardichvili et al., 2003; Gartner et al., 2003, Hansen et al., 2011), yet creativity has typically appeared only as a component within opportunity models, rather than as an inherent basis of the entrepreneurial process (Sanz-Velasco, 2006, Hansen et al., 2011). Moreover, much of the existing empirical research on entrepreneurial creativity has been largely confined to the study of “creative entrepreneurs”, focusing on individual personality traits. Such approach offers only a partial and surface-level understanding of entrepreneurial creativity. They rarely examine actual creative performance, nor do they capture the collective creative entrepreneurial processes, team interactions, or contextual climates through which entrepreneurial ideas are generated, evaluated, and developed. As a result, prior research has tended to privilege individual-level characteristics over deeper, process-oriented and team-level analyses.

Taken together, these limitations point to a central research problem: entrepreneurial team creativity remains insufficiently conceptualized, empirically examined, and methodologically captured as a complex collective and multidimensional phenomenon. Entrepreneurial teams operate as complex systems (Woodman et al., 1993; Reiter-Palmon et al., 2012; McKay et al., 2020) in which creative outcomes and processes emerge from interactions among individuals, collective behaviors and predispositions, and contextual conditions. Yet much of the existing research (Said-Metwaly et al., 2018; Yuan, 2019; McKay et al., 2020) continues to rely mainly on linear, one dimensional-centered approaches that are ill-suited to capturing interdependencies, equifinality, or causal asymmetry. Addressing this gap requires the integration of creativity and entrepreneurship theories with mixed methodological approaches (linear, regression analysis and nonlinear analysis) capable of reflecting team complexity and multiple pathways through which creative opportunity recognition and business idea generation unfold or are constrained.

This overarching research problem manifests in several interrelated empirical and conceptual gaps that are addressed across the three studies comprising this thesis. Specifically, existing research provides limited insight into (a) how team-level entrepreneurial orientation predispositions jointly shape creative business idea generation (b) how individual factors (growth and fixed creative mindsets) and team-perceived heterogeneity condition the effect of team level predisposition on the collective generation of business ideas c) how entrepreneurial team behaviors interact dynamically to foster or hinder creative idea generation, and (d) how creative processes of opportunity search emerge under different configurations of team-level climate conditions. Each study in this thesis addresses one of these gaps more profoundly explained in Chapter 4, while collectively contributing to a more comprehensive theoretical and practical understanding of entrepreneurial team creativity explained in Chapter 5.

## 1.3. Research Rationale and Relevance

### *Why our study on entrepreneurial team creativity is important?*

The rationale for conducting this thesis stems from several theoretical, methodological, and practical imperatives that justify the importance for deeper investigation into how entrepreneurial teams recognize opportunities and generate creative business ideas.

**Theoretically**, this thesis responds to the dominance of overly narrow perspective to study entrepreneurial creativity and to the limited use of integrative analysis to understand entrepreneurial creativity as a complex and team-level phenomenon. Although the 4Ps of Creativity framework (Rhodes, 1961) is one of the most established and widely used frameworks in creativity research, it has been applied predominantly at the individual level, with limited systematic application to team-level creativity, particularly in entrepreneurial contexts. Addressing this gap constitutes a central theoretical rationale of the thesis and provides the organizing backbone for the entire research design. By extending the 4Ps framework to the entrepreneurial team level, the thesis offers a structured and integrative lens for capturing the multidimensional nature of collective entrepreneurial creativity and for examining how person, press, process, and product-related factors interact within teams. The thesis conceptualizes entrepreneurial teams as complex social systems characterized by collective behaviors, interactions and dynamic processes. In doing so, it intentionally moves beyond personality-based assessment of creative entrepreneurs and the individual-centric bias of understanding team creativity a sum of individual traits. The three sequential studies capture the complexity of entrepreneurial creativity as a team-based phenomenon, responding to the relatively little research on team level creativity in entrepreneurial context in comparison to excessive research of creativity of solo entrepreneurs. By drawing on a sample of real entrepreneurial teams rather than artificially constructed laboratory groups, the study enhances the validity and scientific reliability of insights into how creativity unfolds in authentic team settings. This approach reduces the risk of oversimplified conclusions that may not accurately reflect real-world entrepreneurial team functioning. Importantly, the thesis advances the literature by developing an integrative conceptual foundation for entrepreneurial team creativity that connects and mobilizes insights from multiple theoretical traditions. Anchored in the 4Ps of Creativity framework (Rhodes, 1961), the study draws selectively on theories from (team) creativity, entrepreneurship and team performance research to illuminate different facets of team-based creative action and to explain the relationships among the four dimensions. These perspectives include e.g. Schumpeterian (1934) views on creative destruction to explain entrepreneurs predispositions towards new value creation, complexity-oriented approaches such as Complex Adaptive Systems (CAS) (Hoozeboom & Wilderom, 2020; Ramos-Villagrasa et al., 2018) to capture dynamic team interactions, and ambidexterity theory (Jha et al., 2024; Koch et al., 2024) to account for the tension between exploration and exploitation in idea development. In addition, relational and contextual mechanisms are addressed through social influence theory on group creativity (Paulus & Dzindolet, 2008). Rather than treating these perspectives in isolation, the thesis weaves them together through a set of empirically grounded constructs-such as Team Entrepreneurial Orientation (TEO), creative mindset, team-perceived heterogeneity, team climate, and the creativity-based opportunity recognition process-to explain how entrepreneurial teams collectively generate and refine creative ideas. In doing so, the study not only integrates theories and constructs across creativity, entrepreneurship, and team

performance literatures, but also advances a more cohesive theoretical understanding of entrepreneurial team creativity, thereby addressing a long-standing conceptual gap between (team) creativity and (team) entrepreneurship fields.

**Methodologically**, the thesis explicitly acknowledges and accommodates the complexity of team-level dynamics inherent in collective creative efforts by applying methods and analytical tools designed to capture such complexity. In other words, the methods applied are justified by the nature of the phenomenon itself. First, the study relies on collective, perception-based measures rather than conventional individual-level scales or simple additive aggregation models, thereby aligning measurement with the collective nature of team creativity. This approach allows team phenomena to be assessed as shared and emergent properties rather than as the sum of individual attributes. Second, the thesis employs quantitative analytical techniques such as Partial Least Squares Structural Equation Modeling (PLS SEM) to examine patterns of team behaviors, interactions, moderating effects and their relationships with team-level outcomes. To further address causal complexity, the research integrates fuzzy-set Qualitative Comparative Analysis (fsQCA) to identify configurations of team-level climate conditions that are sufficient for the presence- or negation- of team creative process stages. Complementarily, Necessary Condition Analysis (NCA) is employed to determine the specific levels or thresholds at which conditions must be present to allow for a certain outcome, identifying those factors whose insufficiency acts as a bottleneck for the creative process. Taken together across three empirical studies, this multi-method methodological design offers a distinctive and robust approach to scientifically examining entrepreneurial team functioning, providing nuanced insights into how complex combinations of team-level factors shape collective creativity and opportunity-related processes.

**From a practical perspective**, the thesis offers empirically grounded insights into contemporary entrepreneurial activity, which is increasingly characterized by team-based venture contexts. The research is based on in-depth observations of entrepreneurial teams operating within the Mondragon Team Academy (MTA) Basque Labs (Irun, Oñati, and Bilbao), generating an original team-level database that includes measures of team entrepreneurial orientation and behaviors, team climate, the creativity-based opportunity recognition process, team creative output (novelty and quality), creative mindsets (growth versus fixed), and perceived functional heterogeneity. Findings derived from these empirical observations provide actionable insights that can equip practitioners- such as entrepreneurial team members, team leaders, managers, and coaches- with evidence-based strategies for diagnosing, managing, and enhancing entrepreneurial team creativity. Each of the three studies yields distinct yet complementary implications that, when integrated, are translated into a integrative diagnostic and intervention manual designed to help teams/teams managers identify and actively prevent the mechanisms through which their creative potential becomes constrained. This manual offers concrete intervention logics targeting behavioral, cognitive, and contextual team-level factors that shape creative opportunity search and idea development. Beyond direct team-level intervention, the thesis also derives more strategic practical recommendations for other actors within the entrepreneurial ecosystem. In particular, the integrated findings can inform entrepreneurship education institutions, incubation and acceleration programs, and policy-oriented initiatives on some support mechanisms that can either protect or unintentionally suppress early-stage entrepreneurial creativity. While the empirical setting is rooted in MTA, the thesis does not limit its practical relevance to this context alone. With appropriate caution

regarding generalization, the findings, the intervention manual, and the associated strategic recommendations are applicable to entrepreneurial teams and support institutions operating in structurally and culturally comparable environments, particularly in team-based entrepreneurship contexts and early-stage venture ecosystems. The study thus contributes transferable knowledge relevant beyond the Basque Country. Finally, at a broader level, the thesis aligns with strategic objectives aimed at strengthening the quality of entrepreneurial initiatives, team-based venture creation, and innovation capacity. By informing more effective entrepreneurial team management, the research has the potential to support long-term improvements in entrepreneurial activity and innovation outcomes- responding directly to current challenges identified in regional, national, and international entrepreneurship reports of GEM (Saiz-Santos et al., 2025; Calvo et al., 2025) and GUESSS (Ruiz-Navarro et al., 2024; Tkacz & Hotchandani, 2024) and contributing to sustained economic growth.

## 1.4. Objectives

The primary objective of the thesis is to develop a deeper understanding of entrepreneurial teams by identifying the team level factors that influence their early and nascent functioning during the new venture creation stage, mainly recognition of business opportunities and generation of creative business ideas. More precisely, the main objective is to capture the multidimensional nature of entrepreneurial team creativity during the business conception phase, encompassing person/team, context/environment, process, and product (business idea) dimensions contributing to the integrative strategy of team creativity management/enhancement. The Studies 1, 2, and 3 capture these four dimensions through their specific objectives.

Accordingly, the primary objective of Study 1 is:

**RO1:** To examine the impact of collective predispositions, such as team entrepreneurial orientation (TEO), on the generation of business ideas that are both novel and useful for the market, as well as the moderating effects of individual factors (growth and fixed creative mindsets) and team-perceived heterogeneity on the collective generation of business ideas (Study 1, Appendix 1).

Study 1 establishes a foundational understanding of how collective entrepreneurial predispositions translate into creative outputs and challenges the assumption that team entrepreneurial orientation (TEO) inherently leads to radical creativity, thereby motivating the need for a more behaviorally nuanced analysis. RO1 in Study 1 primarily addresses the product and person dimensions of the 4Ps of Creativity framework (Rhodes, 1961)

RO2 in Study 2 complements RO1 in Study 1 by shifting the analytical focus from static collective predisposition of TEO to dynamic behavioral interactions of TEO, thereby offering deeper insight into how entrepreneurial teams manage behavioral tensions, and navigate uncertainty during early-stage creative efforts.

Accordingly, the primary objective of Study 2 is:

**RO2:** To identify synergistic and counterproductive interplay of entrepreneurial behaviors that enable or hinder the exploration of novel ideas and the exploitation of high-quality business concept (Study 2, Appendix 2).

While RO1 (Study 1) and RO2 (Study 2) focus primarily on person and product relationship, Study 3 extends the analysis to the press (team environment) dimension and creative process of the 4Ps of Creativity framework (Rhodes, 1961). It examines how team climate conditions shape collective creativity across the multi-stage creativity-based opportunity recognition process.

Accordingly, the primary objective of Study 3 is:

**RO3:** To identify the necessary and sufficient team climate conditions (TCI) that enable or constrain the emergence of creative opportunity recognition across its preparation, conception and elaboration stages (Study 3, Appendix 3).

Taken together, the three studies and respective objectives **RO1**, **RO2** and **RO3** offer a comprehensive and integrative explanation of entrepreneurial team creativity, systematically integrating person, process, press, and product perspectives. By integrating these dimensions, the thesis advances understanding of how entrepreneurial team creativity can be diagnosed, managed, and enhanced which can be translated into actionable results and strategies.

Hence, the final specific objective of the thesis is the following:

**RO4:** To generate actionable insights and evidence-based recommendations for key actors involved in nascent entrepreneurial team development- including entrepreneurial teams themselves, team coaches/managers and institutional support actors such as e.g. incubators and accelerators. These insights aim to support management of team-level predispositions, behavioral interactions, and contextual conditions in order to enhance entrepreneurial team creativity, particularly in collective opportunity recognition and creative business idea generation. This research objective is addressed through the design of an integrative diagnostic and intervention manual, which integrates empirical findings from all three studies and translates them into coordinated intervention logic (see Chapter 5, Table 5.1).

## 1.5. Thesis Structure

This thesis is structured as a compendium of three interrelated studies that collectively address the overarching research problem and objectives outlined in the previous sections. Rather than presenting independent or parallel investigations, the three studies are intentionally sequenced and theoretically connected, each examining a distinct yet complementary dimension of entrepreneurial team creativity. Together, they form an integrated and integral inquiry into how entrepreneurial teams generate, regulate, and constrain creative outcomes and processes.

The content of the thesis is organized into **six chapters**, which guide the reader from the Theoretical/conceptual foundations of the research, through methodological design and

empirical findings, to the integrative theoretical, practical, and concluding insights of the thesis.

- **Chapter 1** introduces the research problem, objectives, and rationale of the thesis, situating the study within the broader literature on entrepreneurship, creativity, and team research, and articulating the need for an integral approach to entrepreneurial team creativity.
- **Chapter 2** presents a comprehensive theoretical review and the conceptual framework underpinning the thesis. This chapter introduces the core theoretical perspectives- such as the 4Ps of Creativity framework and complementary theories- and systematically connects them with the key constructs examined in the thesis, including entrepreneurial orientation, team creativity, team climate, and the creativity-based opportunity recognition process.
- **Chapter 3** describes the general methodological approach adopted across the three studies. It details the empirical context, sample characteristics, data collection procedures, measurement development, and analytical techniques employed, with particular attention to the complexity-aware quantitative methods used to capture team-level dynamics.
- **Chapter 4** presents summaries of the three empirical studies, each written in article format. The studies are organized to reflect their conceptual progression: i) Study 1 examines creative outcomes and team-level predispositions; ii) Study 2 explores behavioral interactions/team dynamics and creative outcomes iii) Study 3 investigates the role of team climate in creative process regulation across stages of creativity-based opportunity recognition.
- **Chapter 5** integrates the findings of the three studies and discusses their combined theoretical, empirical, and practical contributions. Rather than treating each study in isolation, this chapter synthesizes insights across studies to address the research objectives (RO1-RO3) and culminates in the development of an integrative diagnostic and intervention manual for managing entrepreneurial team creativity (RO4).
- **Chapter 6** concludes the thesis by outlining its limitations, future research directions, and final conclusions. This chapter reflects on the thesis as a whole, emphasizes the integrative and systemic value of the research, and highlights avenues for further theoretical, methodological, and intervention-based research.

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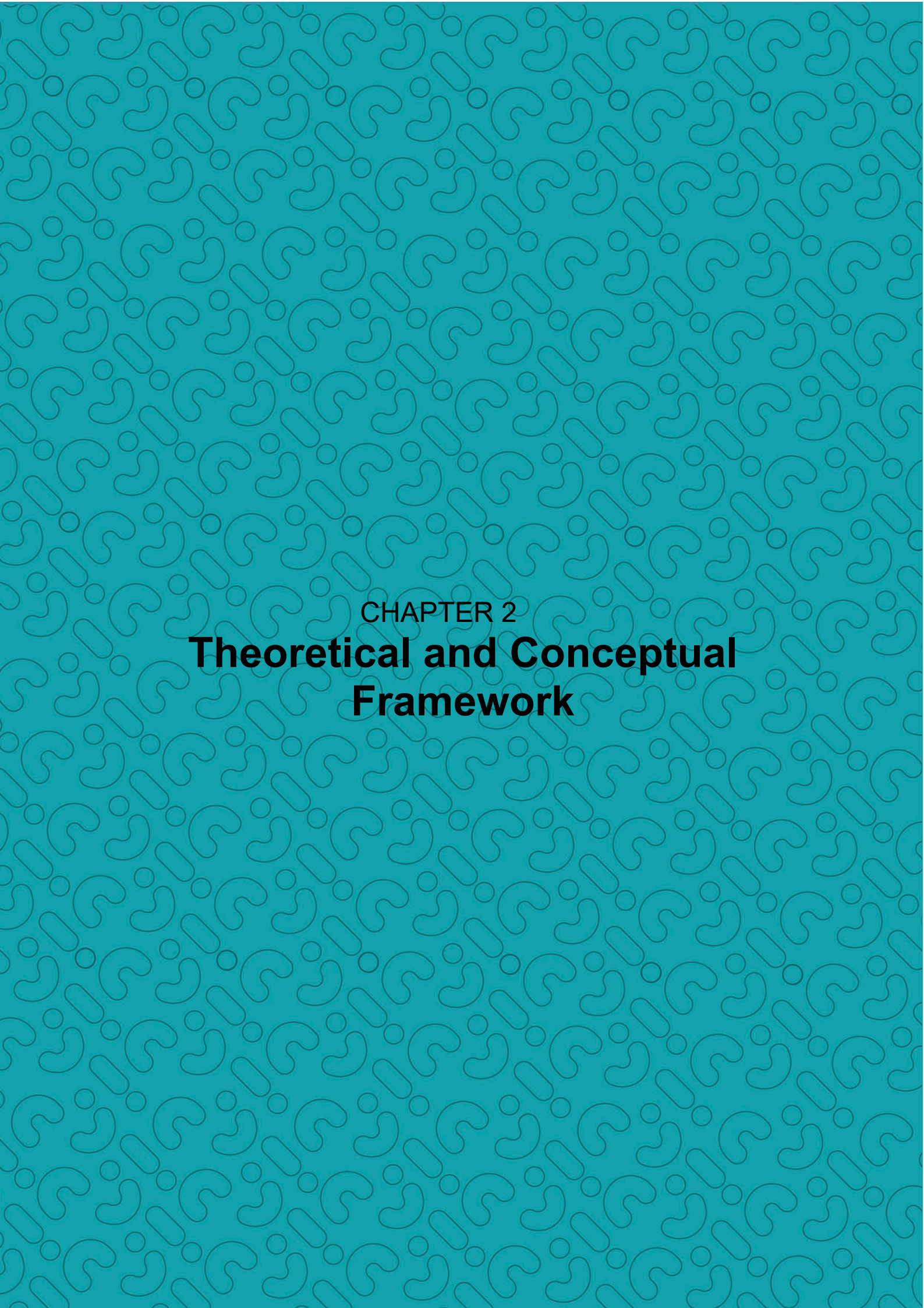
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CHAPTER 2

# **Theoretical and Conceptual Framework**



## 2. Theoretical and Conceptual Framework

This Chapter presents the theoretical and conceptual framework that underpins the thesis and provides the foundation for examining and explaining the complex relationships among team-level constructs in the context of entrepreneurial team creativity.

For clarity, Section 2.1.1 introduces the 4Ps of Creativity framework (Rhodes, 1961) as the primary organizing framework of the thesis, integrating the person, press, process, and product dimensions into a unified structure. Sections 2.1.2 and 2.1.3 then present the complementary theoretical perspectives that explain the key relational pathways examined in the thesis- namely, the person-product relationship and the press-process relationship in entrepreneurial team creativity. Together, these sections establish the theoretical foundations for the empirical studies. The integration of these theoretical perspectives is presented in 2.1.4. In addition, Figure 2.1 provides a visual representation of the complete theoretical framework and illustrates how the dimensions and theories are systematically interconnected.

Section 2.2 presents the conceptual framework of the thesis. It begins in Section 2.2.1 by conceptualizing the context of the study. Conceptualizing the context is essential, as it conditions the selection and interpretation of the constructs included in the research model. Sections 2.2.2-2.2.5 then conceptualize the four core constructs representing the person, press, process, and product dimensions of entrepreneurial team creativity. For each construct, these sections outline its origins in the literature, key characteristics, and the way it is conceptualized and operationalized within the thesis. Moderating constructs are introduced within the 2.2.6. section as contingent conditions affecting relationships among the core constructs, rather than as standalone concepts.

Finally, section 2.3 presents the integrated theoretical and conceptual framework of the thesis. This section aligns theories and constructs within the three empirical studies and their respective research objectives (RO1-RO3), explaining how different relationships among the constructs are examined across studies. By articulating the integrative logic of the framework, this section clarifies how specific theories and constructs are selectively and progressively mobilized in each study to illuminate different facets of entrepreneurial team creativity. As both are anchored in the 4Ps of Creativity framework (Rhodes, 1961), the integrated framework demonstrates how theories and constructs jointly explain the overall logic of the thesis. Figure 2.2 visualizes the integrated conceptual and theoretical framework, while Figures 2.3-2.6 present the theoretical and conceptual frameworks corresponding to each individual study.

### 2.1. General Theoretical Framework

This section presents the general theoretical framework of the thesis grounded in the 4Ps of Creativity framework (Rhodes, 1961) and multiple theoretical perspectives. The integration of these theories offers a comprehensive and interdisciplinary framework that bridges the literatures on creativity, entrepreneurship, and team performance.

### 2.1.1. 4Ps of Creativity- the Principal Framework

The 4Ps of Creativity framework, proposed by Rhodes (1961), is one of the most influential and enduring frameworks in creativity research and serves as the primary organizing architecture of this thesis. It structures the overall research model and guides the systematic examination of entrepreneurial team creativity across the three interrelated studies.

Rhodes (1961) conceptualized creativity as a multidimensional phenomenon comprising four interrelated perspectives: person, press, process, and product. The person dimension refers to traits, abilities, cognitive styles, motivations, mindsets, and predispositions associated with creative performance. The product dimension concerns the observable outcomes of creative activity, such as ideas, solutions, or artifacts. The process dimension focuses on the cognitive and generative mechanisms through which ideas are produced, evaluated, and refined. The press dimension captures the environmental and contextual forces that enable or constrain creativity. Importantly, Rhodes (1961) argued that creativity cannot be meaningfully understood by isolating any single dimension, as creative outcomes (product) emerge from the interaction between individuals or collectives (person), their mental activity (process), and the environment in which they operate (press). Although introduced more than six decades ago, contemporary creativity research continues to reflect this foundational logic- most commonly by defining creativity in terms of creative product, while implicitly assuming the involvement of the remaining dimensions (Gruszka & Tang, 2017). As noted by Gruszka and Tang (2017), creative products frequently occupy a central position within the 4Ps framework, as the other dimensions- person, process, and press- are often conceptualized and examined in relation to their contribution to the emergence of creative outcomes.

Despite its theoretical robustness, empirical applications of the 4Ps framework reveal an uneven distribution of attention across the four dimensions. Historically, person- and product-oriented approaches have dominated the field, whereas process and press have received comparatively less systematic examination (Runco, 2004; Hansen et al., 2011). A substantial body of research has focused on identifying individual-level attributes associated with creativity, resulting in extensive scholarship on personality traits, cognitive styles, and motivation (Gruszka & Tang, 2017). The product approach has also been prevalent, partly because tangible creative outputs lend themselves more readily to evaluation and measurement (Kozbelt et al., 2010). In contrast, process-oriented approaches are inherently more complex, as they seek to explicate how creative cognition unfolds (Hansen et al., 2011). Similarly, press-oriented research examines the physical and/or social conditions under which creativity emerges, recognizing that contextual forces typically operate indirectly- by shaping person- and process-related mechanisms, making their effects contingent, dynamic, and often difficult to disentangle (Gruszka & Tang, 2017).

Gruszka and Tang (2017) further note that the four Ps are often examined in isolation, with limited empirical integration across dimensions. While person-product relationships have been investigated, they have frequently relied on perceptual or self-reported indicators of creativity rather than on independent evaluations of tangible creative products (Runco & Jaeger, 2012). Likewise, the press-process relationship is theoretically acknowledged but rarely examined explicitly (Hansen et al., 2011). In response, Gruszka and Tang (2017) call for confluence approaches that integrate multiple dimensions of creativity, arguing that the enduring relevance of the 4Ps framework lies in its capacity to accommodate the complexity

of creativity while remaining flexible across domains and levels of analysis.

With regard to the level of analysis, the 4Ps framework has been predominantly operationalized at the individual level, particularly in person- and process-oriented research. Although the press and product dimensions have occasionally been extended to group or organizational contexts (Anderson et al., 2014), the systematic integration of all four dimensions at the team level remains limited (Gruszka & Tang, 2017; Reiter-Palmon & Paulus, 2019). Team creativity research has indeed moved beyond strictly individual approaches and incorporated collective-level constructs (McKay et al., 2020). However, it frequently examines isolated dimensions-such as team composition (Bell, 2007), diversity (van Knippenberg et al., 2004), or team climate (Strobel, 2023)- rather than explicitly integrating person, press, process, and product within a unified team-level framework. Moreover, many studies conceptualize team creativity as a function of aggregated individual characteristics, thereby maintaining a predominantly person-centered logic (Paulus & Nijstad, 2003). Yet, as emphasized by Yuan (2019), individual creativity- even when aggregated at the team level- does not automatically translate into collective creativity. Consequently, more recent research increasingly emphasizes shared perceptions, collective orientations, team climates, and collaborative processes as manifestations of creativity at the team level (Yuan, 2019). Such approaches often adopt group-referent perspectives that capture how team members perceive and enact collective characteristics (Dampérat et al., 2016). These perspectives underline that in team contexts, creative products represent the culmination of collective cognitive, social, and contextual processes rather than the simple aggregation of individual contributions.

Further, despite these advances, the 4Ps framework has not been systematically mobilized within the entrepreneurship domain. This omission is striking, given that entrepreneurship is inherently creative (Kratzer & Mrozewski, 2020): entrepreneurs search for opportunities within specific social contexts and generate novel and valuable outcomes. Although creativity and entrepreneurship are theoretically intertwined, empirical studies integrating creativity frameworks with entrepreneurial phenomena remain limited (Hansen et al., 2011), and are particularly scarce at the entrepreneurial team level and in relation to collective entrepreneurial processes (Kratzer & Mrozewski, 2020).

Responding to these, this thesis explicitly mobilizes the 4Ps framework in combination with complementary theories from team creativity, entrepreneurship, and team performance research, using it as an integrative architecture. Specifically, it connects: i) person-entrepreneurial team collective predispositions, behavioral interactions, and cognitive boundary conditions; ii) press- contextual regulation of entrepreneurial teams' process through team climate; iii) process- the staged entrepreneurial creative process of opportunity search and recognition; and iv) product- creative business ideas as collective outcomes of entrepreneurial team effort. The framework thus functions as a guiding logic for theoretical integration between creativity and (team) entrepreneurship.

More precisely, the thesis deepens two relational pathways identified as theoretically important yet empirically underdeveloped in creativity research (Runco, 2004; Hansen et al., 2011): the person-product relationship (examined in Studies 1 and 2) and the press-process relationship (examined in Study 3). The complementary theories introduced in sections 2.1.2 and 2.1.3 are therefore selected to explicate these relational mechanisms at the entrepreneurial team level, enabling a holistic understanding (section 2.1.4.) of

entrepreneurial team creativity through the full logic of the four interdependent dimensions.

## **2.1.2. Person- Product Theoretical Framework**

### **2.1.2.1. Schumpeter's Theory of Creative Destruction**

Schumpeter's (1934) theory of creative destruction conceptualizes entrepreneurship as a primary driver of economic change and market disequilibrium. Within this perspective, novelty is regarded as a central mechanism of economic development, with entrepreneurs acting as agents of change who introduce innovations that replace or transform existing offerings, thereby "creatively destroying" established paradigms. In this sense, entrepreneurs are viewed as creators who introduce new combinations that disrupt existing products, services, technologies, or market structures. Building on this foundation, more recent interpretations of the Schumpeterian perspective (Croitoru, 2012) emphasize that the notion of creative destruction remains embedded in the entrepreneurial role, continuing to inform contemporary analyses of the entrepreneurial phenomenon.

In contemporary entrepreneurship research, Schumpeter's (1934) theory has strongly influenced the development of the Entrepreneurial Orientation (EO) construct, which till today captures the extent to which entrepreneurial actors or units display predispositions toward entrepreneurial action (Lumpkin & Pidduck, 2021). In particular, Schumpeter (1934) emphasizes innovativeness, proactiveness, and risk-taking as core behavioral manifestations of entrepreneurial behavior (Covin & Slevin, 1989; Lumpkin & Dess, 1996) to actively pursue novel opportunities and challenge existing market structures.

Within the thesis, Schumpeter's (1934) perspective provides an important theoretical lens for Study 1 linking entrepreneurial predispositions to the nature of creative outcomes generated by entrepreneurial teams. The logic of creative destruction suggests that entrepreneurial actors should be predisposed by default to generate novel and potentially disruptive outputs, rather than merely refining or reproducing existing solutions. This perspective, therefore, provides the theoretical foundation for examining whether entrepreneurial teams actually have a tendency to produce disruptive, novelty-oriented ideas, or whether their creative outputs tend to follow more incremental and feasibility-oriented trajectories.

### **2.1.2.2. The Creative Synergy Perspective on Team Creativity**

The creative synergy perspective of team creativity, conceptualizes creativity as an collective phenomenon arising from interaction, collaboration, and shared sensemaking among team members rather than from individual brilliance or the simple aggregation of individual creative traits (Kurtzberg & Amabile, 2001). According to this perspective, teams are capable of producing creative outcomes that no individual member could have generated independently, as creativity emerges through the dynamic interplay of diverse skills, perspectives, and cognitive contributions (Sabater, 2018). The concept of creative synergy departs from individual-centric views of creativity by emphasizing non-additivity and emergence. Rather than treating team creativity as the sum of individual creative abilities, this perspective highlights how interaction patterns, coordination mechanisms, and the integration of heterogeneous perspectives shape collective creative performance (Taggar,

2002; Kurtzberg & Amabile, 2001).

Within the thesis, this perspective shifts attention from individual traits toward collective predispositions and behavioral interactions within entrepreneurial teams. Specifically, it supports conceptualizing team-level entrepreneurial predispositions (see 2.2.2.) not merely as an aggregation of individual entrepreneurial tendencies but as a collective (Study 1), interaction-based predisposition (Study 2).

Furthermore, the creative synergy perspective implies a contingent relationship between individual inputs and team-level creative outcomes. Individual traits or cognitive orientations contribute to team creativity only when team-level conditions enable their effective integration and utilization (Kurtzberg & Amabile, 2001). When teams lack the capacity or willingness to integrate diverse contributions, individual characteristics may fail to translate into collective creative performance (Baer et al., 2008). This perspective therefore provides the theoretical basis for examining how individual-level factors (see 2.3.6.) interact with collective entrepreneurial predispositions to influence the generation of creative business ideas (Study 1).

### **2.1.2.3. Complex Adaptive System (CAS) Theory of Teams**

Complex Adaptive Systems (CAS) theory (Akgün et al., 2014; Ramos-Villagrasa et al., 2018) provides a theoretical foundation for understanding teams as dynamic systems composed of interdependent agents whose interactions give rise to emergent collective behaviors that cannot be reduced to individual attributes alone. Rather than operating through linear cause-effect relationships, CAS perspectives emphasize self-organization, adaptation, and emergence as defining properties of collective systems (Hoogeboom & Wilderom, 2020; Ramos-Villagrasa et al., 2018). Applied to team contexts, this perspective assumes that: (i) teams are not simple aggregates of individuals, (ii) collective behavior emerges from patterns of interaction among team members, (iii) outcomes are contingent and dynamic, and (iv) teams continuously adapt to uncertainty, tensions, and environmental constraints (Pype et al., 2018; Ramos-Villagrasa et al., 2018).

Within the thesis, CAS theory provides an important lens for understanding teams as systems of interacting agents whose behavioral interactions shape collective outcomes. Consequently, creative products- such as business ideas- are understood as dynamic system-level outcomes, resulting from the interaction of entrepreneurial behaviors rather than from isolated individual contributions. This complexity perspective is particularly relevant for analyzing i) how entrepreneurial teams self-organize and navigate tensions inherent to business idea creation; ii) how different interactions of entrepreneurial behaviors within teams may lead to qualitatively different creative outcomes.

### **2.1.2.4. Ambidexterity Theory in Teams**

Ambidexterity theory explains how teams manage the fundamental tension between exploration and exploitation (Dean, 2022). Exploration refers to activities oriented toward novelty, experimentation, variation, and discovery, whereas exploitation emphasizes refinement, efficiency, implementation, and the improvement of existing knowledge and solutions (Radomska & Wołczek, 2020). The central argument of ambidexterity theory is

that sustained effectiveness depends on the ability to pursue both-either simultaneously or sequentially-despite their competing demands for attention and resources.

Applied to entrepreneurial and team contexts (Dean, 2022), ambidexterity theory highlights the risk of becoming trapped in one-sided strategic orientations. An excessive focus on exploration may produce highly original ideas that lack feasibility or market value, whereas an overreliance on exploitation may generate high-quality but conventional solutions that fail to introduce meaningful novelty. In team-based settings, ambidexterity does not necessarily emerge solely through structural arrangements but may also arise through behavioral coordination and interaction patterns among team members. Different combinations of entrepreneurial behaviors may therefore stimulate exploration-oriented activities or exploitation-oriented refinement, particularly under conditions of uncertainty and resource constraints (Dean, 2022).

Within the thesis, ambidexterity theory informs that entrepreneurial teams enact ambidexterity through their collective behavioral predispositions and interactions. In this theoretical lens, creative business ideas generated by entrepreneurial teams reflect the extent to which teams successfully navigate through different entrepreneurial behaviors the exploration-exploitation tension and combine novelty with quality.

### **2.1.3. Press- Process Theoretical Framework**

#### **2.1.3.1. Social Influence Model of Group Creativity**

The social influence model of group creativity (Paulus & Dzindolet, 2008) conceptualizes creativity as a dynamic, socially embedded process. One of the key insights of the model is that group creativity emerges through processes that are continuously shaped by the group context. An important for the thesis set of influences consists of situational variables, especially group climate. Paulus and Dzindolet (2008) argue that group members will be intrinsically motivated to search, share, elaborate ideas only when the social environment in a team is e.g. psychologically safe, participative with shared goals/vision, commitment, clarity of norms. The model's central principle is that group climate does not directly produce creative outcome, but instead regulates the cognitive, motivational, and social mechanisms of creative process including collaboration, voicing ideas, attention to others' ideas, persistence, and future willingness to contribute.

The social influence model of group creativity (Paulus & Dzindolet, 2008), therefore, primarily explains the press- process relationship in the thesis. From this perspective, group climate (press) constitutes a key situational variable that can enable or inhibit the creative process. Importantly, the model explicitly recognizes the dynamic and complex nature of the relationship between group climate and creative process, as contextual conditions influence whether and if members express ideas, how and if these ideas are attended to, combined, and developed within the group. Consequently, variations in team climate can significantly shape the trajectory and effectiveness of collective idea generation and elaboration processes.

### 2.1.3.2. Complexity Theory

Complexity theory adopts a configurational perspective that emphasizes how combinations of conditions jointly produce outcomes, rather than isolating the net effects of individual variables (Parente & Federo, 2019). Configurations are specific combinations of causal conditions that produce the outcome of interest (Rihoux & Ragin, 2009). In this view, phenomena are understood as collections of interconnected attributes that must be analyzed holistically, rather than as independent or separable elements.

Furthermore, unlike traditional methods, which focus on identifying the net effect of individual variables, complexity theory (Parente & Federo, 2019) emphasizes how conditions interact to produce or negate outcomes. A central principle of this perspective is equifinality, meaning that multiple, distinct configurations of conditions may lead to the same outcome (Nikou et al., 2024). In addition, the notion of conjunction highlights that outcomes arise from the simultaneous presence and interdependence of multiple conditions, rather than from any single factor in isolation (Schneider & Wagemann, 2012). Complexity theory is increasingly applied in entrepreneurship research (Nikou et al., 2024) to capture the complex, nonlinear, and context-dependent nature of entrepreneurial phenomena, particularly in team settings (Linder et al., 2025).

In this thesis, complexity theory provides the foundation for examining how configurations of team-level contextual conditions shape the creative process in entrepreneurial teams. This approach is complemented by several perspectives from the team literature, each illuminating different mechanisms through which contextual conditions influence collective processes. First, Edmondson's (1999; 2008) team learning perspective highlights how foundational conditions, such as psychological safety and shared vision, enable early-stage collaboration. Second, Hackman's (1987; 2002) team effectiveness framework explains how different contextual conditions support teamwork across phases. Third, the phase-contingent perspective on team creativity (Paulus et al., 2020) emphasizes that distinct combinations of conditions are required for divergent and convergent phases, and may both enable and constrain creativity depending on the stage.

Together, these perspectives align with the core assumptions of complexity theory by emphasizing that no single condition is sufficient to explain entrepreneurial team creativity. Instead, the creative entrepreneurial process emerges from configurations of interdependent conditions whose effects are contingent and potentially equifinal. This provides a strong foundation for analyzing how different combinations of team climate conditions shape the unfolding of the entrepreneurial team creative process.

### 2.1.4. Person-Product & Press-Process Integrative Theoretical Framework

This thesis integrates several theoretical perspectives to capture the multi-layered and dynamic nature of entrepreneurial team creativity (see Figure 2.1). Rather than treating these perspectives as independent explanations, they are combined into a coherent framework that explains how entrepreneurial team creativity is driven through team-level predispositions, interactions, and contextual conditions.

Schumpeter's (1934) theory of creative destruction conceptualizes entrepreneurs as agents of change with an inherent entrepreneurial orientation that enables them to introduce new combinations, transform markets, and create economic value. From this perspective, entrepreneurial predispositions represent behavioral tendencies that orient entrepreneurs toward discovery and exploration, thereby providing the motivational basis for the generation of creative business ideas. While this perspective explains why entrepreneurs pursue creative outcomes, it does not account for how such outcomes are generated collectively within teams.

The creative synergy perspective on team creativity (Kurtzberg & Amabile, 2001) addresses this limitation by emphasizing that team creativity arises not from the simple aggregation of individual traits, but from synergistic interactions among team members. In this view, creative outcomes in entrepreneurial teams emerge from collective predispositions (Study 1) and behavioral synergy (Study 2), rather than from isolated individual contributions. Building on this interaction perspective, Complex Adaptive Systems (CAS) theory conceptualizes entrepreneurial teams as dynamic systems composed of interdependent agents whose interactions generate collective outcomes (Akgün et al., 2014; Ramos-Villagrasa et al., 2018). From this perspective, creative outcomes arise from patterns of interaction and adaptive coordination among team members and cannot be reduced to individual attributes. Such interactions also involve inherent behavioral tensions that lead to the generation of different outcomes (Study 2).

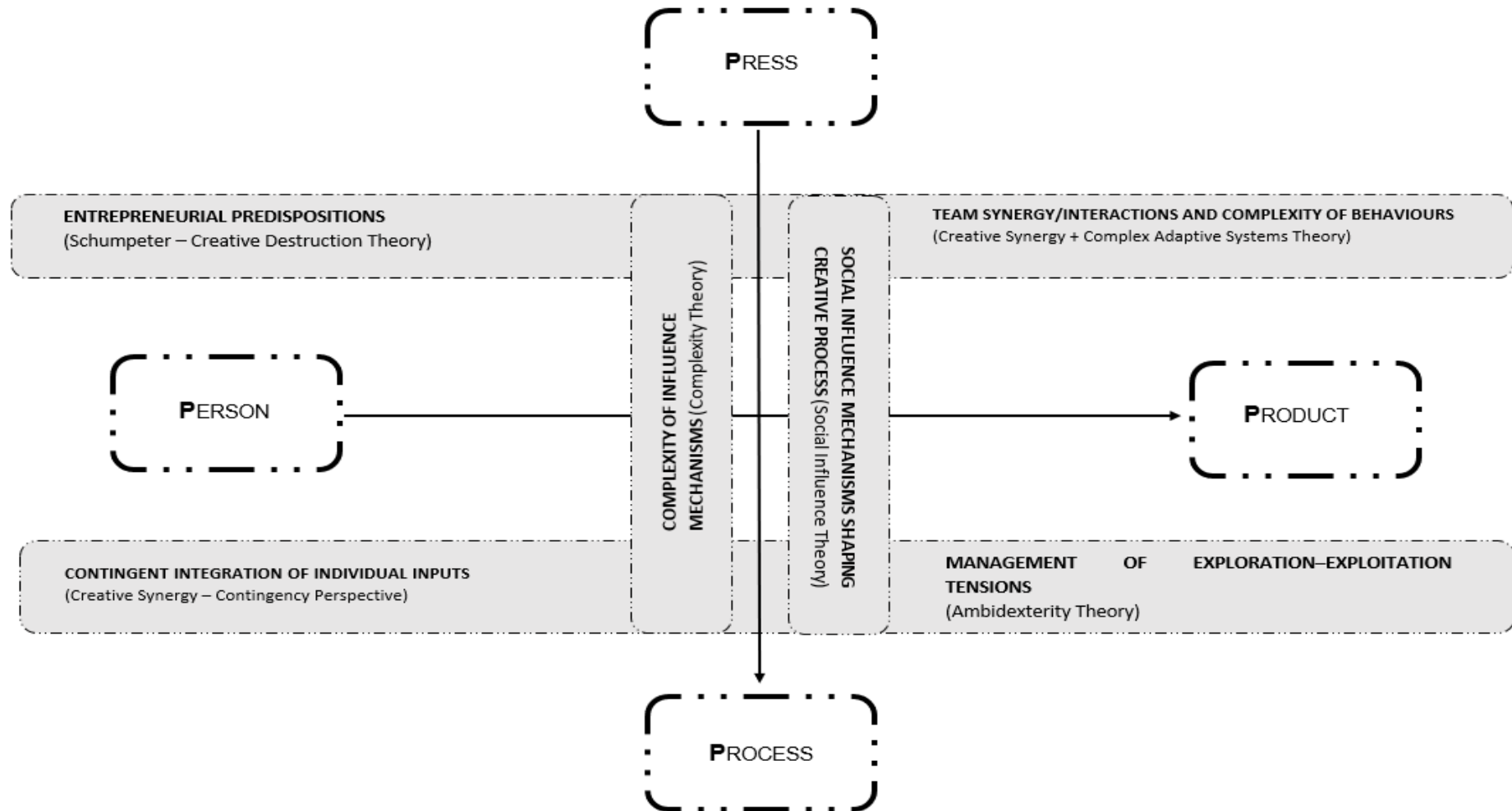
Ambidexterity theory (Dean, 2022) further complements this view by explaining that variation in team-level outcomes depends on how teams manage tensions, particularly between exploration and exploitation. Accordingly, the way entrepreneurial teams balance these competing orientations influences whether resulting business ideas emphasize novelty, feasibility (quality), or a combination of both (Study 2). Importantly, this integrative framework does not disregard the role of individual inputs. Rather, drawing on the contingency perspective of team creative synergy (Kurtzberg & Amabile, 2001), the thesis proposes that individual characteristics contribute to team creativity only when they are effectively recognized, integrated, and supported by collective team dynamics. Consequently, individual differences influence creative outcomes indirectly through team-level predispositions and interaction processes that enable their integration into collective creative efforts (Study 1).

Finally, the social influence model of group creativity (Paulus & Dzindolet, 2008) provides the foundation for understanding the role of contextual conditions in shaping the creative process. From a complexity theory perspective, team climate is not a static background condition but a system of interacting forces that dynamically influences how ideas are identified, shared, evaluated, and elaborated. These contextual conditions operate in a non-linear and phase-dependent manner, enabling or constraining different stages of the creative process (Study 3).

The integration of these theoretical perspectives is essential to meaningfully address the complexity of entrepreneurial team creativity and to develop an explanatory framework capable of capturing how team-level collective antecedents shape both the generation of creative outcomes and the emergence of the opportunity recognition process. Collectively, they establish the theoretical foundation for (i) examining how entrepreneurial predispositions, individual inputs, and interaction dynamics within teams contribute to the

generation of creative business ideas, and (ii) understanding how team climate conditions affect the emergence of the creative process of opportunity recognition in entrepreneurial teams

**FIGURE 2.1.**  
Complete Theoretical Framework



**Note:** Own elaboration

## 2.2. General Conceptual Framework

This section presents the general conceptual framework of the thesis by outlining and describing the key constructs incorporated into the research model. Beyond defining these constructs, the section explicitly justifies their inclusion by explaining how each contributes to the understanding of entrepreneurial team creativity. Specifically, Team Entrepreneurial Orientation (TEO) represents the person dimension, capturing the collective predispositions and behavioral tendencies of team members that orient them towards creative efforts. The Team Climate Inventory (TCI) represents the press dimension, reflecting the contextual and social conditions that shape/regulate how team members collaborate during creative efforts. The creativity-based opportunity recognition process represents the process dimension, conceptualized as the collective process through which entrepreneurial teams explore, generate, and refine potential opportunities. Finally, the creative business idea represents the product dimension, capturing the tangible collective outcome of entrepreneurial team creativity in the form of business ideas evaluated in terms of novelty and quality.

### 2.2.1. Conceptualizing the context

The context of analysis is nascent entrepreneurial teams (NETs)- understood as teams composed of two or more individuals who are jointly committed to the creation of a new venture and who operate at the earliest stages of the entrepreneurial process, prior to formal market entry (Sabater, 2018). While early entrepreneurship research has largely focused on individual founders, an emerging body of literature recognizes that new ventures are increasingly founded by teams, making nascent entrepreneurial teams a critical unit of analysis for understanding how new organizations emerge (Sabater, 2018).

Observing NETs is particularly crucial because the earliest stages of entrepreneurship are formative: decisions, behaviors, and interactions at this point strongly influence the team functioning. Nascent entrepreneurship is characterized by active engagement in venture creation without having yet reached operational stability, such as the payment of wages or salaries for a sustained period (GEM, 2023). At this nascent stage, entrepreneurial activity centers primarily on opportunity recognition and idea development rather than on performance outcomes. Nascent entrepreneurial teams operate under high uncertainty, limited resources, and fluid role structures, making collective creativity a central mechanism of value creation (Sabater, 2018). Teams offer a unique advantage in this context, as they enable the combination of diverse skills, perspectives, behaviors, fostering creative synergy that individuals alone are unlikely to achieve (Kurtzberg & Amabile, 2001).

Importantly, entrepreneurial teams are conceptually distinct from simple groups. Unlike groups, teams constitute social units characterized by shared commitment, mutual accountability, and interdependent work toward common goals (Katzenbach & Smith, 2003). Entrepreneurial teams extend this definition by emphasizing a proactive and creative orientation toward opportunity search and venture creation (Shepherd & Krueger, 2002). Accordingly, nascent entrepreneurial teams can be conceptualized as socially embedded collectives of individuals who jointly assume executive responsibility in the founding and pre-startup phases and who are oriented toward the creative generation of future goods and services (Sabater, 2018). Taken together, NETs represent a highly complex context of analysis, theoretically rich yet underexplored context in which entrepreneurial behaviors,

creative process, and complexity converge.

### 2.2.2 Team Entrepreneurial Orientation

Team Entrepreneurial Orientation (TEO) is defined as a collective, team-level entrepreneurial predisposition that shapes how entrepreneurial teams discover, interpret, and exploit new product-market opportunities during the early stages of venture creation. The construct is rooted in the broader Entrepreneurial Orientation (EO) literature, which, after nearly five decades of development, has become one of the most extensively studied streams in entrepreneurship research (Wales et al., 2021).

The foundational conceptualization of EO by Covin and Slevin (1989) defined EO as a pattern of innovative, proactive, and risk-taking behaviors through which entrepreneurial entities generate new value. Lumpkin and Dess (1996) later expanded the construct by proposing competitive aggressiveness and autonomy as additional dimensions. While subsequent studies have applied different combinations of these dimensions (Wales et al., 2013), a core purpose of introducing EO into the entrepreneurship literature was to explain why certain entrepreneurial entities are more likely than others to engage in actions that result in new market entry (Covin & Slevin, 1989; Lumpkin & Dess, 1996). It is also aligned with the common assumption across EO research that creativity is an integral component of entrepreneurial action and that EO-related behaviors act as catalysts for adapting creativity in the process of new entry development (Schumpeter, 1934; Yi et al., 2021). Despite this conceptual proximity, the relationship between EO and creative performance outcomes, particularly at early stages of entrepreneurship, remains insufficiently specified in the literature. Existing studies offer mainly indirect insights through EO-innovation research (Rauch et al., 2009), consistently showing that higher EO is associated with greater product or market innovation across different contexts. Similarly, prior research suggests that the launch of “new-to-the-world” products (Pérez-Luño et al., 2011), engagement in new value creation activities (Zhai et al., 2018), and opportunity discovery (Donbesuur et al., 2020) are positively related to EO. However, these studies often rely on downstream performance indicators or managerial perceptions and rarely examine the creative quality and novelty of business ideas themselves, particularly in nascent entrepreneurial teams.

Recent conceptual developments have explicitly called for a re-examination and evolution of EO. The dimensions of entrepreneurial orientation (EO) were initially conceived as reflecting a single, unidimensional strategic posture that embeds entrepreneurship (Covin & Slevin, 1989; Wiklund & Shepherd, 2003). In contrast, later work conceptualizes EO as a set of distinct dimensions that combine into context-dependent configurations (Lumpkin & Pidduck, 2021). This perspective underpins the recent view, which emphasizes entrepreneurial beliefs and behaviors that may, but do not necessarily, lead to new value creation (Lumpkin & Pidduck, 2021). By recognizing the inherent uncertainty and potential adverse outcomes of entrepreneurial action (Covin et al., 2020), this interpretation of EO supports the unidimensional and multidimensional context-portable nature of EO. Further, Lumpkin and Pidduck (2021) argued that if EO is to remain a meaningful representation of what being entrepreneurial means, it must adapt to the increasingly diverse manifestations and venues of entrepreneurship. Similarly, Linton (2016) critiques the dominant universalistic assumption in EO research that higher EO invariably leads to higher performance, calling instead for a contingency-oriented perspective that explains when, how, and under which conditions EO is beneficial. These critiques point to the need to

reconsider both the level of analysis and the context in which EO is studied. Kollmann et al. (2017) proposed extending EO research beyond the firm level to downstream levels of analysis, including the individual, team, entrepreneurial team, and emerging young firm. Along similar lines, Lumpkin and Pidduck (2021) emphasized that EO should be integrated into research on firm birth and nascent entrepreneurship, focusing on what occurs prior to and during firm formation rather than solely on established organizational outcomes. Capturing EO at the team level and during the early entrepreneurial phase allows for a more nuanced understanding of how entrepreneurial predispositions shape the path toward new entry and supports a more contingency-based view of EO.

Empirical research on how EO-related behaviors operate within teams remains limited. While individuals within teams may choose to deploy entrepreneurial behaviors grounded in EO (Covin et al., 2020), the common practice of aggregating individual EO (IEO) scores to represent team-level EO (TEO) does not adequately capture whether such behaviors are collectively enacted, coordinated, and integrated to influence team outcomes. Accordingly, in this thesis, TEO is conceptualized as a perceptual, team-level construct, reflecting team members' shared perceptions of the collective manifestation of entrepreneurial behaviors within the team (Fellnhofer et al., 2017), rather than as a simple aggregation of individual orientations. Further, TEO is operationalized as a multidimensional behavioral construct, comprising: (i) innovativeness, referring to the team's tendency to support creativity, experimentation, and the development of novel approaches to products, services, or markets; (ii) proactiveness, reflecting the team's forward-looking orientation, initiative-taking, and anticipation of emerging opportunities; (iii) risk-taking, capturing the team's collective willingness to commit resources under uncertainty and act despite the possibility of failure; and (iv) autonomy, referring to the team members' capacity to act independently in pursuing entrepreneurial initiatives.

### 2.2.3. Team Climate Inventory

Team climate is understood as a shared, team-level perception of the social and contextual conditions that shape how entrepreneurial teams interact, collaborate, and engage in creative work. The concept of team climate for creativity and innovation originates from organizational psychology and innovation research, where scholars (Anderson & West, 1998; Amabile, 2013) have long recognized that creativity and innovation depend not only on individual abilities, but also on the social environment in which teams operate.

Research on team creativity consistently shows that a wide range of social and contextual forces can either foster or inhibit creative processes within groups/teams (Paulus et al., 2020). Teams engaged in collaborative creative efforts have the potential to generate a high volume of high-quality ideas, but that this potential is far from guaranteed (McKay et al., 2020). Prior studies have identified multiple influences on team creativity, including collective efficacy (Taggar, 2019), social identity processes (Haslam et al., 2019), network structure (Yuan, 2019), communication patterns (Dennis et al., 2019), and social norms (Goncalo et al., 2015). Complementary research from the team performance literature further highlights the importance of team cognition, shared experiences, coordination processes (Klotz et al., 2014; Mol et al., 2015), as well as social interaction and information exchange (Schjoedt & Kraus, 2009). Of particular relevance for the thesis is the iterative and socially constructed nature of the creative process in teams (Paulus & Dzindolet, 2008; Strobel, 2023). Creative ideas do not emerge in isolation, but evolve through cycles of interaction, feedback, elaboration, and evaluation among team members. This perspective

underscores the central role of the team's social environment- referred to as team climate- as a key enabler or constraint of creative collaboration (Strobel, 2023).

This supportive environment is captured through the Team Climate Inventory (TCI), which is based on the four-factor framework of team climate for innovation developed by Anderson and West (1998). The TCI provides one of the most influential frameworks for understanding how contextual conditions shape collective creativity and innovation in teams. The TCI framework conceptualizes team climate as a socially constructed, team-level phenomenon, reflecting shared perceptions of the work environment that influence how team members interact, exchange ideas, and coordinate collaborative work. Specifically, the framework identifies four key dimensions of team climate that regulate collaborative processes within teams. These dimensions are: (i) vision, defined as "(...) higher-order goal and motivating force at work" (West, 1990, p. 310), providing direction and meaning to collective creative efforts; (ii) participative safety, reflecting the extent to which team members feel psychologically safe to contribute ideas, voice concerns, and suggest unconventional approaches without fear of negative judgment (Anderson & West, 1998; Edmondson, 1999); (iii) task orientation, originally described as a climate for excellence, emphasizing shared commitment to high standards, critical evaluation, and continuous improvement (West, 1990); and (iv) support for innovation, encompassing "the expectation, approval and practical support of attempts to introduce new and improved ways of doing things" (West, 1990, p. 315), indicating how much teams encourage, value, and actively engage with innovative contributions.

Each of these four dimensions plays a distinct yet complementary role in shaping team functioning. Since its development, the TCI (Anderson & West, 1998) has become one of the most widely used and validated instruments for assessing team climate for creativity/innovation (Strobel, 2023). Empirical research has linked TCI to a variety of group-level processes and outcomes, including group learning, cohesion, and creative ideation (Hülsheger et al., 2009; Paulus & Dzindolet, 2008; Strobel, 2023). Theoretically, the four dimensions are conceived as interdependent and/or mutually reinforcing, jointly fostering a climate in which team members feel encouraged to share ideas, align around a shared vision, pursue high standards, and support one another's innovative efforts (Anderson & West, 1998; Edmondson, 2008; van Knippenberg, 2013).

However, despite this theoretical interdependence, much of the empirical literature has examined TCI dimensions either individually (Hülsheger et al., 2009) or as a single aggregated construct (Paulus & Dzindolet, 2008; Strobel, 2023). Such approaches overlook how different combinations of climate dimensions may shape team processes in distinct ways, particularly across different phases of the creative process. In this vein, the thesis conceptualizes TCI not as a static or uniformly influential factor, but as a dynamic contextual system whose influence depends on how its dimensions combine and interact across stages of the creative process.

#### **2.2.4. Creativity-Based Opportunity Recognition Process**

Opportunity recognition is defined as a creativity-based, multistage process through which entrepreneurial teams collectively identify, interpret, and develop potential business opportunities. This conceptualization is grounded in classical theories of the creative process (Csikszentmihalyi, 1996; Wallas, 1926; Hills et al., 1999) and reflects a growing consensus in both creativity and entrepreneurship research that entrepreneurial creativity

unfolds through iterative cognitive and behavioral transitions, rather than as isolated moments of insight (Hansen et al., 2011).

Early entrepreneurship scholars explicitly adopted creativity theory to explain opportunity recognition. Hills et al. (1999) and Lumpkin et al. (2004) drew on foundational models of the creative process developed by Helmholtz (1891, cited in Wallas, 1926) and later refined by Csikszentmihalyi (1996), proposing a five-stage creativity-based opportunity recognition process consisting of preparation, incubation, insight, evaluation, and elaboration. These stages capture the cognitive progression from initial problem engagement through idea generation and refinement. Lumpkin et al. (2004) further grouped these stages into two broader phases of opportunity recognition: discovery and formation, where discovery encompassed preparation, incubation, and insight, and formation comprised evaluation and elaboration—closely aligning with Wallas's (1926) notion of verification as idea refinement (Lubart, 2001). Hansen et al. (2011) empirically tested this framework and relabeled the discovery phase as conception, while retaining formation as the second phase. Their findings showed that while the two-phase model (conception and formation) was theoretically parsimonious, it exhibited lower construct reliability than the original five-stage model, and they explicitly acknowledged that opportunity recognition may take alternative structural forms depending on context. This provides important conceptual space for refinement, particularly when shifting from individual-level to team-level analysis.

Although opportunity recognition research has traditionally emphasized individual cognition, such as prior knowledge, alertness, and pattern recognition (Baron, 2006), there is increasing recognition that entrepreneurial opportunities are often developed in team settings, where collective sensemaking, interaction, and coordination play a central role (Klotz et al., 2014). Despite this, explicit empirical studies of team-level opportunity recognition processes remain scarce (Koch, 2017). Hence, the thesis, drawing on team creativity literature and analogous collective creative processes (e.g., ideation) (Paulus et al., 2020), offers a conceptualization of the team-level creativity-based opportunity recognition process.

The process-contingent framework for team creativity proposed by Paulus et al. (2020) provides an important foundation for understanding how collective creative processes unfold. The framework conceptualizes team creativity as a multi-phase process in which teams move from early engagement with a problem toward idea generation and subsequently to evaluation, selection, and refinement of ideas. Research on team creativity frequently conceptualizes creativity as unfolding through three broad stages: problem construction, collaborative ideation, and convergence (Kohn & Smith, 2011; Reiter-Palmon & Robinson, 2009; Paulus et al., 2020). These stages span the process from defining the problem space, through generating ideas, to converging on and developing the most promising solutions (Kohn & Smith, 2011).

By integrating this multi-stage collective creative process from the team creativity literature into an entrepreneurship context, the thesis provides a compelling basis for refining the creativity-based opportunity recognition framework proposed by Hansen et al. (2011) for use in team-based entrepreneurial settings. Accordingly, in this thesis, the opportunity recognition process is reconceptualized at the team level as a three-stage creative process, consisting of preparation, conception, and elaboration. This refinement preserves the conceptual foundations of the original model (Hansen et al., 2011) while aligning it more

closely with empirical insights from team creativity research and the realities of entrepreneurial teamwork.

The process begins with i) Preparation stage (Hansen et al., 2011), which aligns closely with the problem construction phase in group creativity literature. Preparation is inherently an iterative learning process, involving exploration, discussion, and reflection through which teams collectively frame and define the creative challenge (Edmondson, 2008; Reiter-Palmon & Robinson, 2009). In entrepreneurial contexts, this stage involves identifying and articulating an imprecisely defined market need (Chen & Yang, 2009, p. 400), often described as recognizing a “pain” in the market (Sanz-Velasco, 2006). This shared framing is critical, as discrepancies in problem representation can undermine subsequent creative collaboration; ii) The second stage, conception (Hansen et al., 2011), encompasses the cognitive processes of incubation and insight and corresponds to the idea generation phase in the cognitive science of group creativity (Paulus et al., 2020). During incubation, conscious effort is temporarily suspended, allowing unconscious processing, divergent thinking, and the reorganization of mental representations to occur (Csikszentmihalyi, 1996; Lubart, 2001; Wallas, 1926). Insight then refers to the moment when a potential opportunity emerges into awareness- often experienced as a sudden realization or “aha” moment (Csikszentmihalyi, 1996; Csikszentmihalyi & Sawyer, 1995; Wallas, 1926). At the team level, such insights are frequently triggered or amplified by social interaction, collective reflection, and exposure to others’ ideas; iii) The final stage, elaboration, focuses on the development and refinement of emerging ideas into more viable entrepreneurial opportunities. While Lumpkin et al. (2004) and Hansen et al. (2011) originally conceptualized formation as comprising both evaluation and elaboration, the thesis treats elaboration as the primary focus of this phase and does not conceptualize evaluation as a distinct, standalone stage. This refinement aligns with principles of design thinking, which emphasize rapid prototyping, experimentation, and learning-by-doing, rather than formal evaluation steps (Liedtka, 2015). In entrepreneurial startup contexts, ideas are typically assessed through real-time feedback, customer interaction, and iterative experimentation (Csikszentmihalyi, 1996; Sanz-Velasco, 2006). Evaluation thus occurs implicitly within elaboration, making elaboration both a creative and evaluative activity (Liedtka, 2015).

Viewed through this lens, opportunity recognition emerges as a collective, multistage creative process with shifting cognitive, social, and motivational demands. Different stages require different forms of interaction, communication, and contextual support, implying that teams must continuously adjust their collaborative environment to sustain creative progress (McKay et al., 2020). Consistent with team creativity research, the opportunity recognition process is therefore conceptualized as iterative, socially embedded, and shaped by team-level contextual conditions, rather than as a purely individual cognitive phenomenon (Paulus & Dzindolet, 2008; Strobel, 2023).

### 2.2.5. Creative Idea

Creative Idea represents the primary creative outcome of entrepreneurial team activity during the business conception phase. It is conceptualized as a team-generated business idea that reflects the team’s ability to explore, interpret, and develop market opportunities in a way that produces outcomes that are both novel and useful (high-quality) (Amabile, 2013). The creative idea is, therefore, not treated as a static artifact, but as the culmination of collective creative efforts, shaped by team-level predispositions and behavioral interactions.

This conceptualization is grounded in mainstream creativity theory, which defines creativity as the generation of ideas that are both novel and useful (Amabile, 1997, 2013; Sternberg, 1999; Runco & Jaeger, 2012). Across creativity research, a broad consensus has emerged that creative products/ideas must be both novel and useful (Sternberg & Lubart, 1999). These two criteria constitute what Runco and Jaeger (2012) describe as the “gold standard” definition of creativity i) novelty refers to the degree to which an idea departs from existing solutions, practices, or market offerings, capturing the originality, distinctiveness, and transformative potential of a business idea; ii) usefulness (often operationalized as quality) reflects the extent to which the idea is appropriate, feasible, and valuable within a given domain, capturing the usefulness, feasibility, coherence, and market relevance of the idea. In a nutshell, creativity scholars (Amabile, 2013; Batey, 2012) emphasize that both dimensions are necessary: ideas that are novel but not useful are considered impractical, whereas ideas that are useful but not novel fail to generate new value.

Within entrepreneurship research, these two dimensions have long been recognized as central to entrepreneurial value creation. A business idea may introduce originality or market disruption, but its acceptance depends on its perceived usefulness, feasibility, and relevance to market needs (Della Corte & Del Gaudio, 2017). Conversely, ideas that are highly feasible but merely replicate existing solutions contribute little to entrepreneurial innovation (Della Corte & Del Gaudio, 2017). This duality closely mirrors Schumpeter’s (1934) distinction between creative destruction and incremental adaptation, reinforcing the relevance of both novelty and quality as core evaluative criteria for entrepreneurial ideas.

The operationalization of the Creative Idea construct in this thesis is further informed by prior systematic work on the measurement of creative outputs in entrepreneurial and innovation contexts. Dean et al. (2006), in their comprehensive review of creativity and innovation measurement, emphasize that creative ideas should be assessed using multidimensional criteria that explicitly distinguish originality from value-related attributes. Their work highlights novelty and usefulness as the most robust and widely applicable dimensions for evaluating creative outputs, particularly in early-stage idea generation where market performance indicators are not yet observable. Complementing this perspective, Ylitalo (2017) reviews value-based metrics for idea evaluation and argues that early entrepreneurial ideas should be assessed not only for originality, but also for their anticipated value, reflected in feasibility, coherence, and potential relevance for stakeholders and markets. This approach is particularly suited to nascent entrepreneurship, where ideas exist prior to implementation and must be evaluated based on informed judgment rather than realized outcomes. Together, these streams of research support the use of novelty and quality as theoretically grounded and methodologically appropriate dimensions for capturing creative ideas in entrepreneurial teams. By drawing on these established measurement traditions, the thesis ensures that the Creative Idea construct reflects both the originality and the value-creation potential of team-generated business ideas.

The literature further suggests that novelty and quality are not produced through identical mechanisms which increments the complexity of the creative outcome. Exploration-focused effort has been shown to correlate positively with novel outcomes, whereas exploitation-focused effort tends to produce ideas that are more refined, feasible, and market-oriented (Jha et al., 2024; Steele et al., 2021). Managing this tension is central to creativity in entrepreneurial contexts and the theory of ambidexterity (2.1.2.4) (Dean, 2022). Importantly,

the mainstream componential creativity theory (Amabile 1997; 2013) also stresses that creative outcomes are socially evaluated, not objectively determined. This principle is particularly relevant in entrepreneurship, where the perceived creativity of a business idea depends on expert judgments regarding its novelty, feasibility, and market relevance.

In the thesis, the Creative Idea corresponds to the product dimension, representing the observable creative outcome of entrepreneurial team creativity. Creative Idea construct is operationalized as a team level outcome, capturing both: novelty, reflecting originality, paradigm-relatedness, and the potential to introduce new market approaches; and quality, reflecting feasibility, coherence, relevance, and potential market value (Dean et al., 2006; Ylitalo, 2017). This operationalization allows the thesis to distinguish between radical versus incremental creativity, as well as between ideas that are imaginative but impractical and those that are viable but conventional. Further, consistent with the team creativity synergy (Kurtzberg & Amabile, 2001) and CAS (Akgün et al., 2014; Ramos-Villagrasa et al., 2018) perspective adopted in the thesis, the creative product is not treated as an isolated endpoint. Such approach enables a more precise examination of how different team-level predispositions, individual inputs or complex interactions lead to different creative outcomes across the studies (Study 1 & Study 2).

## 2.2.6. Moderating Conditions in the Conceptual Framework

In addition to the core constructs, the conceptual framework incorporates selected moderating conditions that reflect the contingent nature of entrepreneurial team creativity. These moderators do not constitute primary dimensions of creativity within the 4Ps of Creativity framework (1961), but rather explain variability in how team-level entrepreneurial predispositions translate into creative outcomes under different team compositions and cognitive orientations. By introducing moderators, the thesis explicitly moves beyond universalistic assumptions and adopts a contingency perspective on entrepreneurial team creativity.

### *Team-Perceived Heterogeneity*

Team-perceived heterogeneity (Campion et al., 1993; Fellnhofer et al., 2017) captures team members' shared perceptions of diversity in perspectives, knowledge, experiences, and information within the entrepreneurial team. Prior research on work groups and teams suggests that deep-level heterogeneity can function as a valuable informational resource, particularly when teams are engaged in complex, non-routine, and creative tasks (van Knippenberg et al., 2013). Heterogeneous teams possess a broader pool of cognitive resources, which can enhance opportunity exploration, solution quality, and creative recombination of ideas (Heavey et al., 2009; To et al., 2021). Within entrepreneurship research, heterogeneity has been shown to leverage entrepreneurial orientation by enriching the informational base upon which entrepreneurial behaviors are enacted (Kollmann et al., 2017). Building on this insight, the thesis conceptualizes team-perceived heterogeneity as a moderating condition that influences the strength of the relationship between team level predispositions and creative outcomes. This perspective recognizes team level entrepreneurial predispositions may translate into more novel or higher-quality creative ideas when teams perceive themselves as cognitively diverse, while its effects may be attenuated in more homogeneous teams.

### *Individual Creative Mindset*

Individual creative mindset refers to team members' beliefs about the nature of creativity, specifically whether creativity is viewed as a fixed trait or as a malleable capability that can be developed through effort (O'Connor et al., 2013; Karwowski, 2014). Creativity research suggests that these beliefs shape individuals' motivation to engage in creative tasks, persist in the face of uncertainty, and contribute ideas to collective processes. Individuals with a growth creative mindset are more likely to view creative challenges as opportunities for learning and experimentation, whereas those with a fixed mindset may disengage from creative effort when uncertainty or risk is high (Karwowski, 2014). Hence, the thesis conceptualizes individual creative mindset as a contingent moderator of team-level effects. Accordingly, individual creative mindset is introduced as a condition that shapes how effectively team entrepreneurial predispositions translates into creative idea generation.

## **2.3. The Integrated Conceptual and Theoretical Framework**

### *How constructs and theories fit together?*

Grounded in the 4Ps of Creativity framework (Rhodes, 1961), this thesis examines entrepreneurial team creativity as a multidimensional and collective phenomenon encompassing the person/team, press (context), process, and product (creative business idea) dimensions, as well as the relationships among them. Rather than treating these dimensions or their associated theories in isolation, the thesis adopts an integrative conceptual and theoretical framework (Figure 2.2.) in which complementary theoretical perspectives (section 2.2) are strategically combined to explain how these dimensions interact in entrepreneurial teams. This integrative approach enables the three interrelated studies to address the research objectives (RO1-RO3) and to capture the complexity of creative collaboration in nascent entrepreneurial teams necessary to reach the final objective (RO4), explaining how team-level predispositions, behaviors, contextual conditions, and processes jointly shape opportunity recognition and creative business idea generation.

### *Study 1 & 2*

Amabile (1997, 2013) conceptualization of creativity provides the foundational logic for defining and operationalizing creative outcomes across the thesis, particularly in Studies 1 and 2. By analytically distinguishing creativity (idea generation) from innovation (idea implementation), this framework allows the research to focus explicitly on early-stage entrepreneurial creativity, namely the generation of business ideas, rather than on later stages of venture/innovation development. In addition, this perspective informs the research design by justifying the evaluation of team creative outputs by domain experts, consistent with the principle that creativity is socially judged within a domain. This approach ensures conceptual consistency in how creative products-novelty and quality of business ideas- are defined and measured across the empirical studies.

In Study 1 (**RO1**), TEO is conceptualized as a collective entrepreneurial predisposition rather than a simple aggregation of individual traits. Grounded in the original EO framework (Covin & Slevin, 1989; Lumpkin & Dess, 1996) and adapted to the team level (Fellnhofer et

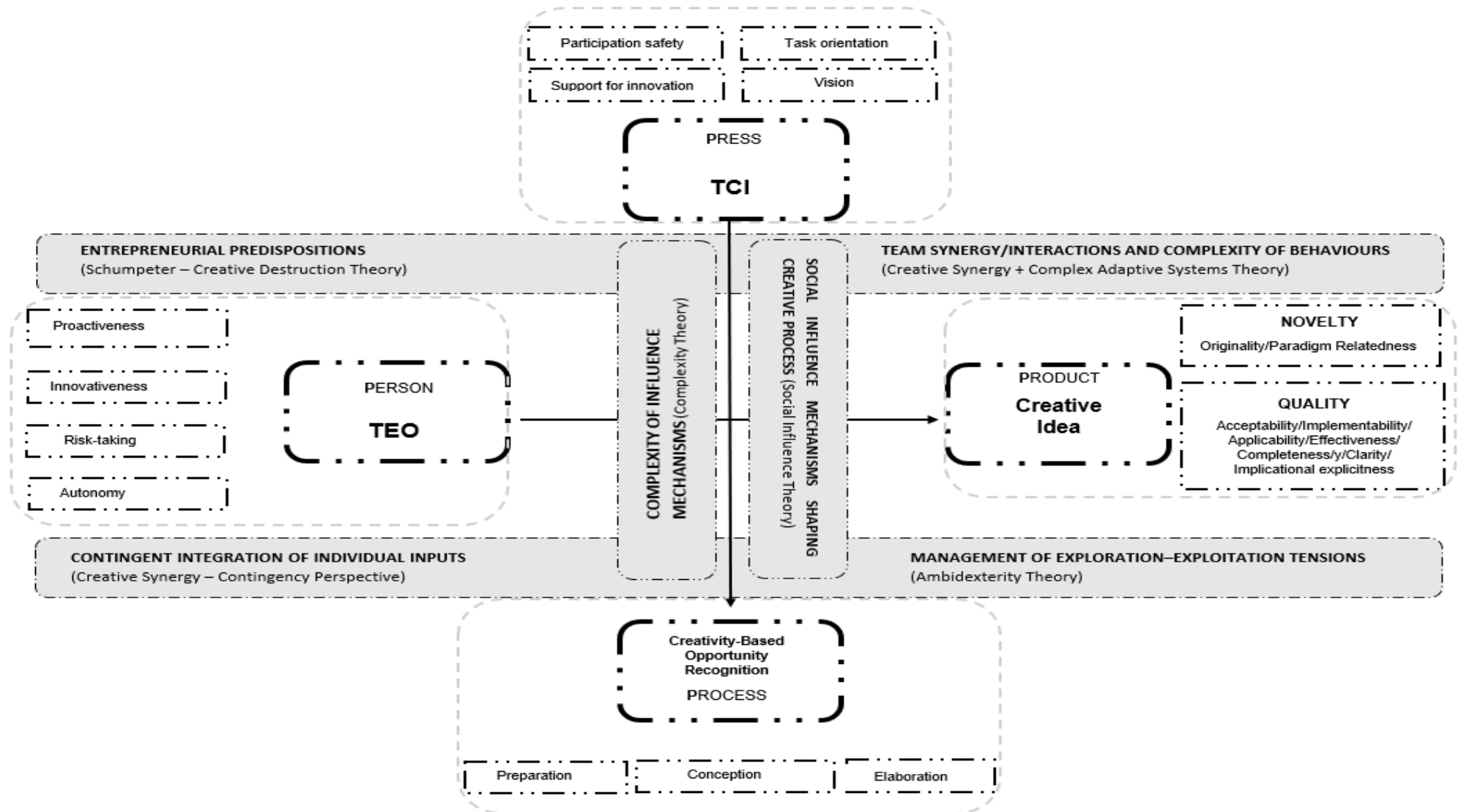
al., 2017), TEO represents a shared, collectively manifested orientation toward proactiveness, innovativeness, risk-taking, and autonomy. Drawing on the team creative synergy perspective (Kurtzberg & Amabile, 2001), this study posits that TEO reflects the team's joint entrepreneurial tendency. Schumpeter's (1934) theory of creative destruction serves as the primary theoretical anchor for this study, allowing TEO to be conceptualized as an entrepreneurial predisposition oriented toward generating business ideas with the potential to disrupt or reconfigure markets, rather than merely improving existing offerings. Using this lens, Study 1 critically examines the often-implicit assumption in entrepreneurship research that entrepreneurial orientation necessarily leads to radical creativity and new market creation. In this way, Schumpeter's (1934) theory directly supports **RO1** by empirically assessing whether team-level entrepreneurial orientation actually translates into the type of novel creative outcomes (ideas) implied by creative destruction. Finally, to understand the conditions under which the translation occurs, Study 1 draws on the contingency view of team creativity (Baer et al., 2008; Kurtzberg & Amabile, 2001). Within this perspective, individual characteristics influence team creative outcomes only to the extent that team-level predispositions enable their integration and development (Baer et al., 2008; Kurtzberg & Amabile, 2001). This logic provides the theoretical justification for introducing individual creative mindsets (growth vs. fixed) (Karwowski, 2014) and perceived heterogeneity (Campion et al., 1993; Felinhofer et al., 2017) as moderating variables, allowing Study 1 to examine the specific boundary conditions that determine when TEO effectively translates into creative business ideas (see Figure 2.3).

Study 2 (**RO2**) introduces interactional logic by integrating creative synergy theory (Kurtzberg & Amabile, 2001), Complex Adaptive Systems (CAS) theory (Pype et al., 2018; Ramos-Villagrasa et al., 2018), and ambidexterity theory (Dean, 2022) to explain entrepreneurial team creativity as a dynamic and tensional phenomenon. In this study, TEO is disaggregated into its behavioral dimensions- innovativeness, proactiveness, risk-taking, and autonomy- following recent behavioral conceptualization of EO (Lumpkin & Pidduck, 2021). These behaviors are conceptualized as interdependent tendencies whose joint effects may be synergistic or counterproductive, depending on how they combine in practice. The creative synergy perspective positions team creativity as a collective phenomenon that emerges when teams integrate, elaborate, and build upon team-level behavioral contributions, producing outcomes that no individual member could generate alone. This perspective challenges additive models of team creativity and justifies the focus on behavioral interactions in Study 2. CAS theory (Pype et al., 2018; Ramos-Villagrasa et al., 2018) further strengthens this perspective by explaining why such interaction effects arise. By emphasizing self-organization, and adaptation in systems composed of interdependent agents, CAS theory explains why creative outcomes cannot be predicted from single behavioral inputs and why teams may arrive at different creative outcomes through different interaction patterns. Ambidexterity theory (Dean, 2022) complements these perspectives by providing a mechanism-based explanation for how interacting entrepreneurial behaviors shape different types of creative outcomes, clarifying how teams balance exploration and exploitation and why some behavioral configurations foster novelty, others favor refinement and quality, and some constrain creativity altogether. Together, these theories directly support **RO2** by explaining creative outcomes as complex system-level properties of interaction oriented entrepreneurial teams (Figure 2.4.)

### Study 3

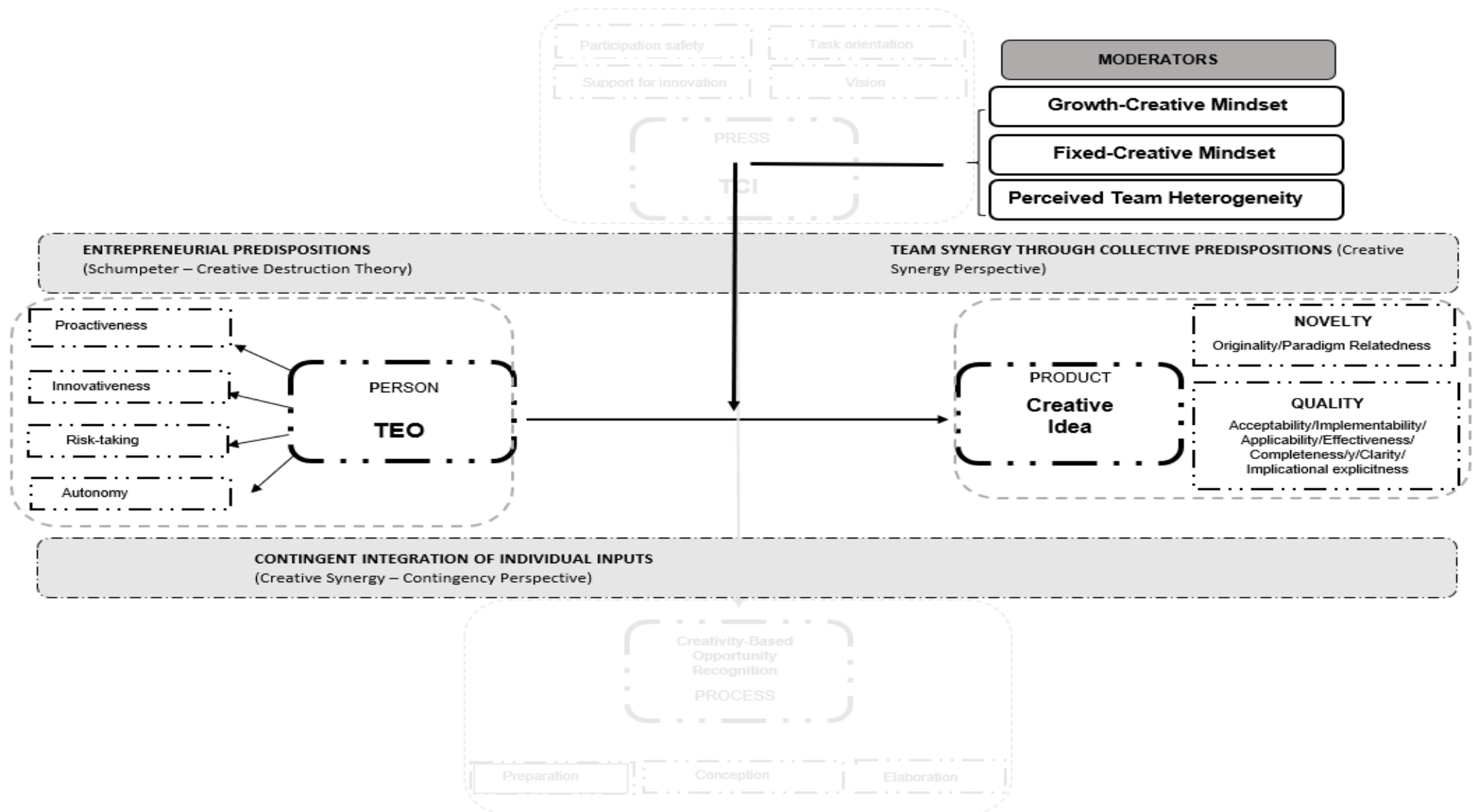
Study 3 (**RO3**) shifts the analytical focus to the contextual (press) and process dimensions of entrepreneurial team creativity. Drawing on Anderson and West's (1989) four-factor framework of Team Climate for Innovation (TCI), the study conceptualizes team climate as a set of theoretically grounded contextual conditions. However, rather than assuming uniform or additive effects, Study 3 adopts a complexity theory (Parente & Federo, 2019) perspective to examine how different climate dimensions combine and operate across stages of the creativity-based opportunity recognition process (Figure 2.5). The phase-contingent perspective on team creativity (Paulus et al., 2020) provides the underlying three-stage process rationale for creativity-based opportunity recognition, emphasizing that contextual team-level conditions do not exert uniform effects across the creative process. Building on this logic, the social influence model of group creativity (Paulus & Dzindolet, 2008) offers the primary process-sensitive foundation for Study 3 by explaining how team climate enables or inhibits idea generation, sharing, evaluation, and elaboration during the collective creative process. In line with complexity theory, Study 3 examines how different configurations of team climate conditions unfold the preparation, conception, and elaboration stages of the entrepreneurial team creative process (Figure 2.5). This approach allows for the identification of multiple pathways (equifinality) and interdependent effects (conjunctural causation) through which team climate shapes the creative process across stages.

**FIGURE 2.2.**  
Integrated Conceptual and Theoretical Framework



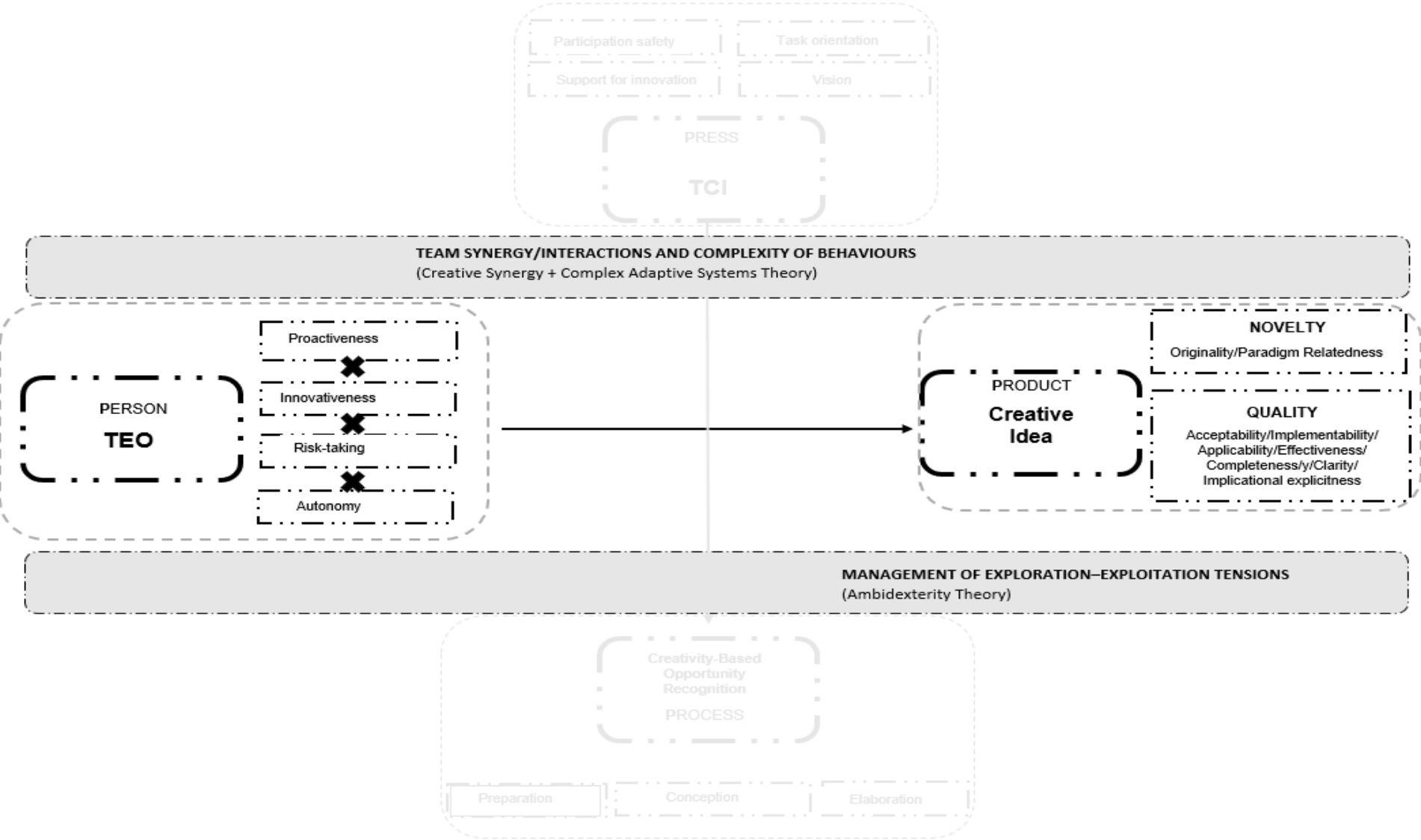
**Note:** own elaboration

**FIGURE 2.3.**  
Conceptual and Theoretical Framework Study 1



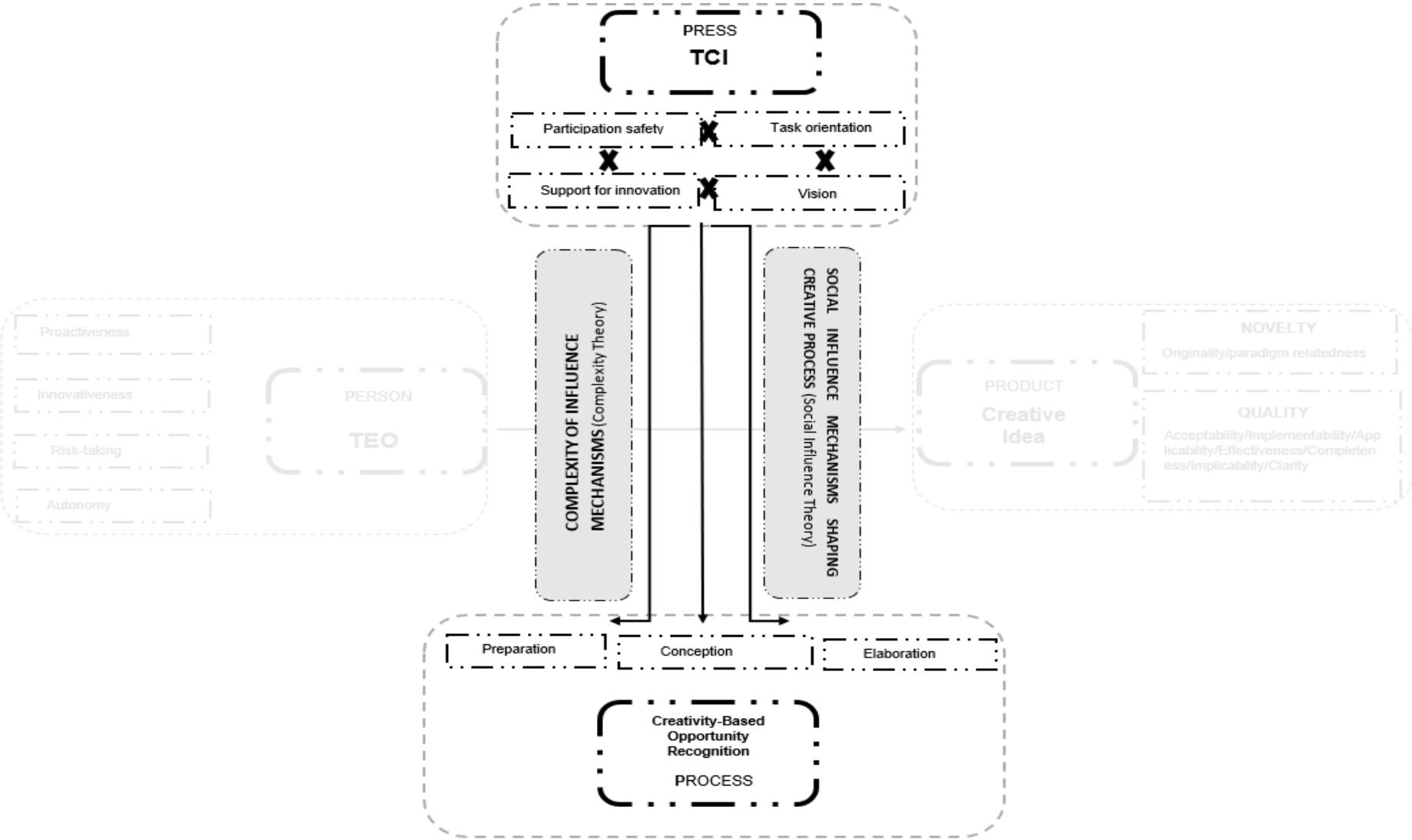
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**FIGURE 2.4.**  
Conceptual and Theoretical Framework Study 2



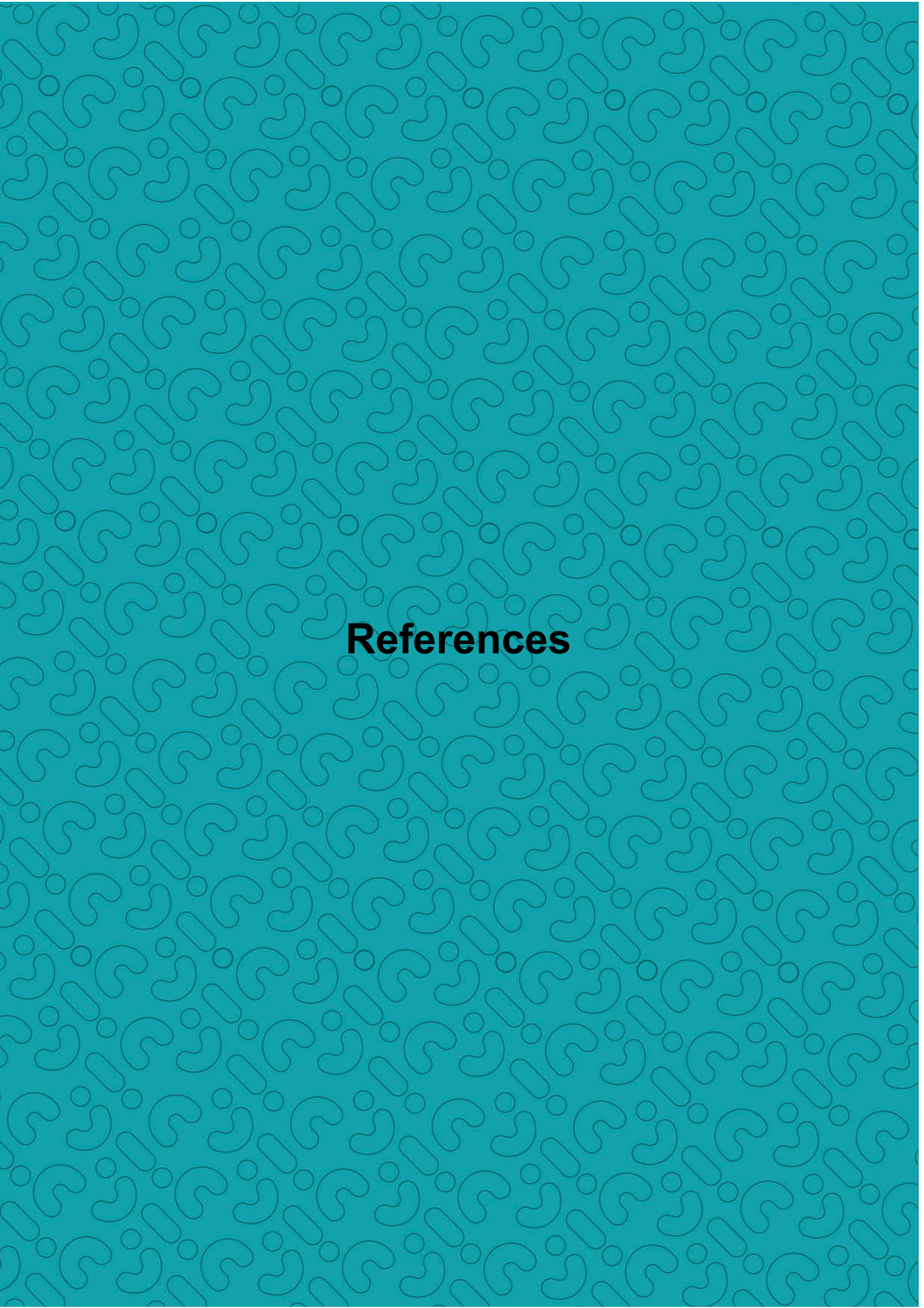
**Note:** own elaboration

**FIGURE 2.5.**  
Conceptual and Theoretical Framework Study 3



**Note:** own elaboration





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CHAPTER 3

# **Research Design and Methodology**



## 3. Research Design and Methodology

### 3.1 Methodological Approach

The methodological approach adopted in this thesis is primarily explanatory, reflecting the complex and collective nature of entrepreneurial team creativity. Explanatory research seeks to identify and explain the relationships between theoretically grounded constructs and is particularly appropriate when the research problem is well-defined and theory-driven (Bell et al., 2022; Henseler, 2018). In this thesis, the explanatory focus is directed toward understanding how team-level predispositions, behaviors, contextual conditions, and processes and creative outcomes jointly explain how nascent entrepreneurial teams identify opportunities and generate business ideas.

At the same time, the thesis explicitly acknowledges that entrepreneurial team creativity is complex, contingent, and equifinal, meaning that similar creative outcomes or creative process may emerge through different combinations or interactions of conditions. To address this complexity, the thesis adopts a multi-study research design, combining variance-based and set-theoretic analytical approaches. This design allows the research to move beyond simple linear explanations and capture also interaction effects and configurational patterns.

To investigate the multidimensional nature of entrepreneurial team creativity, the thesis employs a sequential three-study design, in line with recommendations for studying complex and emerging phenomena (Edmondson & McManus, 2007). Although the studies are independent, each one focuses on distinct dimensions of the entrepreneurial creativity phenomenon, collectively contributing to a more comprehensive understanding of the topic:

- Study 1 examines the linear relationship between team-level entrepreneurial predispositions and creative outcomes, focusing on the person-product relationship and incorporating contingent moderators.
- Study 2 deepens the person-product analysis by examining interactions among entrepreneurial behaviors, adopting a complexity and ambidexterity perspective to explain how creative outcomes emerge from behavioral configurations.
- Study 3 shifts attention to the press-process relationship, investigating how combinations of team climate conditions enable or constrain the emergence of different stages of the creativity-based opportunity recognition process.

Together, the three studies provide a coherent yet differentiated (methodological) examination of entrepreneurial team creativity across the person/team, press, process, and product dimensions of the 4Ps of Creativity framework (Rhodes, 1961).

#### 3.1.1. Team-Level Focus in Methodological Rationale

A defining methodological feature of this thesis is its explicit focus on entrepreneurial team creativity as a team-level phenomenon. Observing creativity at the team level conditions the

entire methodological approach. It requires precise and advanced methodological strategies capable of capturing collective features such as shared perceptions, interaction patterns, coordinated behaviors, collective processes or team level climate conditions. Therefore, adopting a team-level perspective substantially increases the analytical complexity of the research design.

The methodological approach responds in its design to the two following challenges:

- Entrepreneurial team creativity is an inherently intangible and therefore such creative collaboration within entrepreneurial teams cannot be directly observed or measured through single indicators. Instead, it must be captured through carefully selected constructs, multi-item measures, and analytical techniques capable of detecting and evidencing complex mechanisms of team functioning. This complexity of the observed phenomenon makes quantitative approaches sufficient for capturing the systematic regularities and contingent relationships that characterize team dynamics. The thesis adopts a quantitative research approach, which is appropriate for testing theory-driven relationships, examining interaction and configurational effects (Clark et al., 2021). Quantitative methods enable the analysis of patterns across multiple entrepreneurial teams.
- Team-level phenomena are inherently more complex than individual-level constructs because they arise from interdependence and interaction among members. As such, additive approaches that simply sum or average individual characteristics risk misrepresenting what actually occurs within teams. To address this challenge, the thesis deliberately employs team-referent and perception-based measures that reflect how entrepreneurial behaviors, climate conditions, and processes are enacted and experienced collectively within teams. Therefore, primary data were collected using survey-based instruments, which are well suited for capturing team members' perceptions of collective behaviors, climate conditions, and processes (Fowler, 2014). Survey research is particularly appropriate in team performance research, where shared perceptions and group-referent measures are required to capture team-level functioning (Delice et al., 2019).

## 3.2. Analytical Framework

To address the research objectives and to respect the team-level phenomenon, the thesis employs a pluralistic analytical framework that combines causal-predictive logic, necessity logic and configurational necessity and sufficiency logic. This combination reflects the theoretical premise that entrepreneurial team creativity cannot be adequately explained by a single causal logic.

### 3.2.1. PLS structural equation modeling (PLS-SEM)

The primary analytical approach adopted in this thesis is grounded in composite-based modeling, the conceptual foundation for Partial Least Squares Structural Equation Modeling (PLS-SEM). This causal-predictive approach focuses on identifying composite variables and structural relationships that maximize the explained variance of endogenous constructs. By estimating relationships through an iterative sequence of ordinary least

squares regressions, this logic addresses how changes in independent variables associate with variations in dependent measures (Hair et al., 2022). Such an approach is particularly appropriate for theory testing and refinement when the objective is to explain the conditions under which specific creative outcomes are determined, while simultaneously assessing the model's predictive power. To operationalize this logic, the thesis employs Partial Least Squares Structural Equation Modeling (PLS-SEM) as the main variance-based analytical technique in Studies 1 and 2, and as a preparatory measurement step in Study 3.

PLS-SEM is especially well suited for the present research for several interrelated reasons. First, entrepreneurial team creativity is an intangible, multi-dimensional phenomenon that cannot be directly observed. Instead, it must be captured through constructs (e.g., team entrepreneurial orientation, team climate, creative outcomes) that represent the theoretical concepts and are measured via multiple indicators. PLS-SEM enables the modeling of such unobservable phenomena by estimating relationships between latent constructs while explicitly accounting for measurement error through weighted composites (Hair et al., 2022; Henseler, 2021). Second, observing creativity at the team level substantially increases analytical complexity. Team-level phenomena are not simple aggregates of individual attributes but reflect collective perceptions, interaction patterns, and shared behavioral orientations. PLS-SEM is particularly appropriate in this context because it allows researchers to model higher-order and multidimensional constructs and test moderation mechanisms across levels of analysis. Third, PLS-SEM is appropriate for explanatory research aimed at understanding theoretically grounded relationships among constructs (Hair et al., 2011; Sarstedt et al., 2023). This aligns with the thesis objective of explaining how entrepreneurial team predispositions, individual conditions, and behavioral interactions shape creative outcomes.

PLS-SEM analysis follows the recommended two-step assessment procedure (Hair et al., 2022). First, the measurement models are evaluated in terms of indicator reliability, internal consistency, convergent validity, and discriminant validity. Second, the structural models are assessed by examining path coefficients, explained variance, effect sizes, and moderation effects where applicable.

Overall, PLS-SEM provides a rigorous and theoretically consistent analytical foundation for examining direct effects, interaction effects, and cross-level contingencies in entrepreneurial team creativity. At the same time, its limitations in capturing equifinality and causal asymmetry motivate the complementary use of fsQCA, which is introduced next as a configurational sufficiency approach rather than a competing method.

### **3.2.2. Configurational Logic: Fuzzy-set Qualitative Comparative Analysis (fsQCA)**

To complement the variance-based sufficiency logic employed through PLS-SEM, the thesis adopts fuzzy-set Qualitative Comparative Analysis (fsQCA) as a configurational analytical approach in Study 3. FsQCA is particularly well suited for examining entrepreneurial team creativity as a complex, context-sensitive, and non-linear phenomenon, where creative process emerges from combinations of conditions rather than from isolated net effects.

FsQCA is grounded in set-theoretic logic, shifting the analytical focus from estimating the strength of relationships between variables to identifying configurations of conditions that are sufficient or necessary for presence and negation of the outcome (Ragin, 2009; Fainshmidt et al., 2020). Rather than asking whether a condition has a statistically significant effect (as in PLS SEM logic), fsQCA addresses how different conditions jointly operate to produce an outcome or negate the occurrence of the outcome. This makes fsQCA especially appropriate for research questions concerned with equifinality, conjunctural causation, and causal asymmetry, all of which are central to understanding entrepreneurial team creativity.

There is strong rationale for using fsQCA in this thesis. First, fsQCA enables the examination of configurational sufficiency, meaning that multiple distinct combinations of conditions can lead to the same outcome (equifinality). This aligns directly with the thesis's theoretical position that entrepreneurial team creativity does not follow a single optimal pathway, but instead can emerge through different constellations of team climate conditions depending on the stage of the creative process. Second, fsQCA explicitly accounts for conjunctural causation, recognizing that conditions rarely operate independently. In entrepreneurial teams, contextual conditions such may reinforce or substitute for one another. FsQCA allows these interdependencies to be modeled explicitly, uncovering patterns of complementarity and substitution among conditions (Lo et al., 2020; Kraus et al., 2018). Third, fsQCA embraces causal asymmetry, meaning that the causal recipes leading to the presence of an outcome are not simply the inverse of those leading to its absence. This is particularly relevant for Study 3, which examines not only configurations that enable stages of the creativity-based opportunity recognition process, but also configurations that lead to their non-occurrence. Such asymmetry cannot be captured through correlational techniques alone. Forth, fsQCA makes it possible to uncover complex configurational among conditions (Lo et al., 2020) especially in entrepreneurship and innovation research (Kraus et al., 2018; Nikou et al., 2024). The contemporary research in entrepreneurship (Nikou et al., 2024; Linder et al., 2025) underlined that the complexity of entrepreneurial phenomenon needs to be captured by methodologies that investigate the phenomenon through a configurational lens.

The use of fuzzy sets requires the calibration of the outcome and studied conditions, in which raw data are transformed into set membership scores to reflect the degree of a case's inclusion in a defined set (Nikou et al., 2024; Pappas et al., 2021; Ragin, 2009). For calibrating the conditions and the outcome, the 95th percentile was applied as the threshold for full inclusion, the 5th percentile as the threshold for full exclusion, and the mean as the point of maximum ambiguity. The calibration process was conducted in the fsQCA 4.1 software, which allows for precise adjustments of breakpoints to align with the theoretical and empirical properties of the dataset

The core analytical tool in fsQCA is the truth table, which enumerates all logically possible combinations of conditions and assesses their empirical consistency with the outcome (Ragin, 2009). Through truth table analysis, irrelevant conditions- those appearing in both presence and absence of the outcome- are identified and eliminated (Pappas et al., 2021).

### **3.2.3. Necessity Analysis Logic: NCA**

In addition to sufficiency-based and configurational analyses, the thesis employs Necessary Condition Analysis (NCA) as a complementary analytical approach grounded in necessity

logic (Dul, 2016; 2023). NCA is applied in Study 3 to identify conditions that are indispensable for the occurrence of specific stages of the creativity-based opportunity recognition process.

NCA has emerged as a valuable methodological extension in management and entrepreneurship research, with growing applications across domains such as strategic management, innovation, human resource management, and entrepreneurship (Dul et al., 2023). Unlike traditional variance-based methods, which focus on identifying factors that increase the likelihood or level of an outcome, NCA addresses a fundamentally different causal question: which conditions must be present for an outcome to be possible at all. As such, NCA complements sufficiency-based approaches by uncovering non-compensatory bottlenecks that cannot be offset by other favorable conditions. Methodologically, NCA reveals ceiling effects and necessity relationships that are often overlooked by correlational or regression-based analyses (Dul, 2016, 2024a). A condition is considered necessary when high levels of the outcome cannot occur unless the condition exceeds a certain minimum level. Importantly, a necessary condition does not guarantee the outcome; rather, it represents a prerequisite without which the outcome cannot materialize. This distinction aligns closely with the thesis's conceptualization of entrepreneurial team creativity as a constrained and conditional process.

For the necessity analysis, NCA was conducted using the NCA package in R (Dul, 2024b). Consistency and effect size criteria were applied in accordance with established methodological guidelines to determine whether conditions qualify as necessary for each stage of the opportunity recognition process.

### **3.2.4. Combined PLS, fsQCA and NCA logic**

Together, PLS-SEM, fsQCA, and NCA form an integrated analytical strategy that reflects the complexity of the studied phenomenon. PLS-SEM explains how independent variables are associated with creative outcomes, including direct, moderating, and interaction effects. fsQCA reveals how conditions combine to produce or inhibit the creative process, while NCA identifies the minimum thresholds of conditions that cannot be substituted. This pluralistic methodological approach is particularly well suited to capturing the collective, emergent, and processual nature of entrepreneurial team creativity.

## **3.3. Empirical Research Context**

The empirical research context of this thesis is nascent entrepreneurial teams (as conceptualized in section 2.3.1.). The selected for scientific observations teams operate within Mondragon Team Academy (MTA). This context was deliberately selected because it offers a rare, methodologically robust setting for observing entrepreneurial team creativity as a real, ongoing, and collective phenomenon rather than as an abstract or simulated activity. MTA constitutes a distinctive educational-entrepreneurial environment in which entrepreneurial teams are formed at the very beginning of the venture creation process and are required to engage in real entrepreneurial activity from the outset. Entrepreneurs work in stable, self-managed teams, launch legally registered junior enterprises, and develop business ideas under conditions of high uncertainty, limited resources, and minimal predefined structure. This makes MTA particularly suitable for studying early-stage

entrepreneurial creativity, where opportunity recognition, idea generation, and refinement are central rather than peripheral activities.

Several criteria motivated the selection of this context.

- **Criteria 1:** the MTA setting enables the observation of entrepreneurial teams at a genuinely nascent stage, prior to formal startup consolidation. Unlike studies conducted in established firms or corporate project teams, this context allows the thesis to focus on creativity during the business conception phase, when teams are still exploring, interpreting, and shaping opportunities rather than executing predefined strategies. This aligns directly with the thesis's focus on creativity-based opportunity recognition and creative business idea generation.
- **Criteria 2:** entrepreneurial activity in MTA is team-based by design. Teams are the primary unit of action, decision-making, and accountability. This structural feature avoids the methodological limitations associated with artificially constructed teams or post hoc aggregation of individual responses, which are common critiques in team creativity research. As a result, MTA provides a naturalistic context for examining entrepreneurial teams.
- **Criteria 3:** MTA teams operate under real market conditions. Business ideas are developed, tested, refined, and evaluated through actual interaction with customers, partners, and external stakeholders. Creative outputs are therefore not hypothetical or laboratory-based but embedded in practical entrepreneurial constraints. This enhances the validity of the study design and supports the use of expert evaluations of creative outcomes, consistent with componential creativity theory (Amabile, 2013).
- **Criteria 4:** the MTA context/dynamics allows for observation of entrepreneurial collaboration. Teams have a shared history of interaction, reflection, experimentation, and learning, which is essential for studying climate, behavioral configurations, and creative processes. This differentiates the context of MTA teams from short-term project groups or ad hoc student teams.
- **Criteria 5:** while the empirical setting is specific, the underlying team dynamics, creative challenges, and opportunity recognition processes observed in MTA are characteristic of many nascent entrepreneurial teams operating in comparable educational, incubator, or early venture environments. With appropriate caution regarding generalization, the findings are therefore analytically transferable to other contexts characterized by early-stage team entrepreneurship and cultural proximity.

### 3.4. Data Collection and Experiment Procedure

The timeframe of the data collection was chosen to coincide with the MTA teams' idea-generation exercise (conducted between November 2019 and January 2022). The timing of data collection was chosen to coincide with the process and completion of teams' business idea development task, ensuring that responses reflected current team functioning, behaviors, and perceptions. All 327 entrepreneurs were invited to fill out a

survey at the end of the experiment (after submitting their final business idea). In team research, survey-based questions are a common methodological tool for data collection as they are ideal especially for capturing perceptions and measuring perceived behaviors among team members (Delice et al., 2019). The provision of complete anonymity is presumed to facilitate collection of more accurate data by minimizing social desirability pressures (Lelkes et al., 2012). All respondents were informed of their voluntary participation and anonymity and they gave their written informed consents. They then rated the scales of shared perceptions, perceived collective behaviors, team climate conditions, creativity-based opportunity recognition process, perceived heterogeneity and individual creative mindset.

Second, we used a panel of seventeen expert judges to rate the Novelty and Quality of the business ideas of 88 entrepreneurial teams for the Study 1 and 2. Each team submitted one final business idea. The panel of experts was applied based on creativity research method (Amabile, 2013) where the assessment of creative outcomes is commonly conducted by experts in the relevant domain. This method is based on the premise that individuals familiar with certain domain can reliably judge the creativity of work within that field. The selected experts had entrepreneurial expertise, meaning that they had appropriate experience and knowledge to make the evaluation. All the experts were informed of their voluntary participation and anonymity and they gave their written informed consents. On average, each expert judge evaluated approximately five business ideas.

Before official data collection, we conducted a pre-testing with five participants who were representatives of entrepreneurial teams and expert judges. The purpose of the pre-testing phase was to evaluate the clarity, comprehensibility, and functionality of the survey instruments. Based on the feedback gathered during pre-testing, we adjusted the wording of two questions to enhance clarity and reduce ambiguity.

The ethical approval was obtained by the Research Ethics Committee of Mondragon Unibertsitatea- the Doctoral program of Advanced Management and Social Economy at Faculty of Business Studies, Mondragon Unibersitatea.<sup>1</sup>

### 3.5. Sample Characteristics

The participants of the Study 1,2 and 3 belong to the entrepreneurship ecosystem of Mondragon Team Academy (MTA), which forms part of Mondragon University in the Basque Country, Spain (details in 3.2.) The sample is taken from all 3 co-working labs in the Basque Country: Irún, Oñati, Bilbao.

#### *Study 1- Sample*

The total population size consists of 120 entrepreneurs (57 women and 63 men). The study applied a probability sampling meaning that every member of the population had a chance of being selected. To have the entrepreneurial teams properly represented in the sample it was necessary to have at least 50% of response rate per team (e.g. 2 responses from 4-member team or 1 response from 2-member team) and the average total number of team members per team could not be less than 2 members. It resulted in 78 entrepreneurs out

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<sup>1</sup> The ethical board approval number: IEB-20241002A.

of 120 entrepreneurs in total. The team entrepreneurs (38 women, 40 men) worked in entrepreneurial teams (13 in Oñati, 13 in Bilbao and 10 in Irun) made up of minimum 2 members, which gives 36 teams out of 50 in total. The details of the sample are in Table 3.1.

**TABLE 3.1.**  
Study 1- Same Characteristics

|                  | SAMPLE POPULATION |     | %     |
|------------------|-------------------|-----|-------|
| n. Entrepreneurs | 78                | 120 | 65%   |
| n. Female        | 38                | 57  | 67%   |
| n. Male          | 40                | 63  | 63%   |
| Age (20-25)      | 76                | 118 | 64%   |
| Age (> 25)       | 1                 | 1   | 100%  |
| Age (<20)        | 1                 | 1   | 100%  |
| n. Teams         | 36                | 50  | 72%   |
| n. Team Bilbao   | 13                | 16  | 81%   |
| n. Team Oñati    | 13                | 17  | 76.5% |
| n. Team Irun     | 10                | 17  | 59%   |
| Avg. Year/Exp.   | 3.4               | 3.5 | ----- |
| Avg. Member/Team | 2.16              | 2.4 | ----- |

**Note:** n: number; n. Team Bilbao: number of teams in Bilbao Lab; n. Team Oñati: number of teams in Oñati Lab; n. Team Irun: number of teams in Irun Lab; Avg.Year/Exp: Average year of work experience as an entrepreneurial team; Avg. Member/Team: Average number of members per team

### *Study 2 and Study 3- Sample*

The total population comprised 112 teams comprising 327 entrepreneurs (172 female, 153 male and 2 non-binary). The average number of members per team in the population was 2.9. The study applied a probability sampling, meaning that each team in the population had a chance of being selected. In order to ensure that the entrepreneurial teams were properly represented in the sample, a response rate of at least 50% per team was required (i.e. two responses from a 4-member team or one response from 2-member team). The average response rate was 1.6 members per team, i.e. 55.2% of the members. This gave us 145 out of 327 entrepreneurs (44%)- 73 women, 71 men and 1 non-binary- and 88 entrepreneurial teams out of a total 112 (79%). The details of the sample are shown in Table 3.2. Before starting the study, we calculated the minimum number of participants required. Using G-Power 3.1.9.7 for an 80% power and 5% significance level, the minimum sample required was 109. The minimum required sample was much lower than the sample used in this research.

**TABLE 3.2.**  
Study 2 and 3- Sample Characteristics

|                           | SAMPLE POPULATION percent |       |       |
|---------------------------|---------------------------|-------|-------|
| n. Entrepreneurs          | 145                       | 327   | 44 %  |
| n. Female                 | 73                        | 172   | 42 %  |
| n. Male                   | 71                        | 153   | 46 %  |
| n. non-binary             | 1                         | 2     | 50 %  |
| Age (<20)                 | 2                         | 5     | 40 %  |
| Age (20-25)               | 142                       | 321   | 44 %  |
| Age (> 25)                | 1                         | 1     | 100 % |
| n. Teams (total)          | 88                        | 112   | 79 %  |
| n. Teams Bilbao           | 30                        | 36    | 83 %  |
| n. Teams Oñati            | 39                        | 44    | 89 %  |
| n. Teams Irun             | 19                        | 32    | 59 %  |
| Avg. Member Response/Team | 1.6                       | ----- | ----- |
| Avg. Member/Team          | -----                     | 2.9   | ----- |

**Note:** n: number; Avg. Member Response/Team: Average number of members response per team; Avg. Member /Team: Average number of members per team

### 3.6. Measures and Scales

The measures applied in this study are quantitative and are adapted from previously validated scales. The Table 3.3. presents the summary of all measures. Tables 3.4.- 3.10 presents the items of all measures.

#### Team Entrepreneurial Orientation (TEO)

The TEO construct is measured through a slightly modified 14-item scale partially proposed by Hughes et al. (2007) and fully adapted by Fellnhofer et al. (2017). The scale is originally based on Lumpkin and Dess (1996) and Covin and Slevin (1989). The primary three TEO measures, such as proactivity, risk-taking, and innovativeness, have been applied from Hughes et al. (2007) and adapted by Fellnhofer et al. (2017) to work-group contexts. The autonomy measure has been applied from Lumpkin and Dess (1996), and adapted by Fellnhofer et al. (2017) to work-group contexts. All measures applied the 5-point Likert scale. The measurement method of TEO in both studies (Study 1 & Study 2) applies the team member's perception approach towards their team (e.g., "My team excels at identifying opportunities"). This approach to measurement omits the aggregate models of individual EO (IEO) to calculate team EO (TEO).

### **Team Climate Inventory (TCI)**

The construct is measured by a shorter-14 item tool originally designed by Anderson and West (1998) in a format of 38-item tool. Kivimäki and Elovainio (1999) developed a 14-item version of the TCI composed of items from each of the four scales from the original tool (vision, participation safety, task orientation and support for innovation). Few studies have examined the psychometric properties of the short version of the TCI and findings generally indicate satisfactory internal consistency for the total TCI score as well as the four subscales. Exploratory and confirmatory factor analyses of cross-cultural samples (e.g., Kaiser et al., 2016) reveal a four-factor solution consistent with West's (1990) four-factor model. Overall, available evidence suggests that the 14-item version of the TCI may provide a viable alternative in situations when time or other constraints make administering the original 38-item TCI impractical. Taking into consideration the complexity of the research model (number of total items) and the sample of entrepreneurs the thesis applies the shorter 14-item TCI construct.

### **Creativity-Based Opportunity Recognition Process**

The construct of creativity-based opportunity recognition process is measured on the basis of Csikszentmihalyi (1996)-inspired model and then reformulated and empirically tested by Hansen et al. (2011). The original construct of Hansen et al. (2011) includes 5 process stages: preparation, incubation, insight, evaluation, elaboration. The original questionnaire was extensively pre-tested and modified based on feedback from focus groups and a convenience sample of 47 entrepreneurs (Hansen et al., 2011). The items were selected based on the best fit with the description of each element by Csikszentmihalyi (1996). The authors of the tool (Hansen et al., 2011) tested the internal reliability for the constructs in the two-factor and one-factor models and found coefficient alphas to be considerably lower, suggesting good fit of five-factor model. The fit statistics indicate that the five-factor model is moderately good to measure opportunity recognition process. The authors of the model, suggested to apply different number of dimensions based on the context of the study. In our thesis we apply, therefore, 3 process stages and we deleted the items from evaluation stage based on the previously explained conceptualization of creative process in our research (2.3.4.). In addition, in the original model the item referent is individual with mix of a few items with group referent. The thesis applied synchronization of the items referent to team based.

### **Creative Idea**

The construct is measured by a scale on the basis of systematic review of measurement of creative output (Dean et al., 2006) and the value metrics measurement in idea generation (Ylitalo, 2017). The model suggested by Dean et al. (2006) was examined by a variety of fit measures to determine the appropriateness. The results indicated strong support for the integrity of the tool (Dean et al., 2006). The scale measures creative idea/outcome using two dimensions: novelty and quality. Novelty includes originality and paradigm relatedness (the degree to which the idea is, for example, rare or surprising and whether it preserves or modifies the current paradigm). Quality includes workability (the degree to which the idea is easily implemented), relevance (the degree to which the idea solves a problem), and specificity (the completeness and clarity of the idea).

## Moderators:

### Individual Creative Mindset

The construct is measured on a 10-item scale proposed and validated by Karwowski (2014). It analyzes the participant's perception of the nature of creativity (Growth-Creative Mindset e.g. "Everyone can create something great at some point if he or she is given appropriate conditions" or Fixed-Creative Mindset e.g. "Some people are creative, others are not—and no practice can change it") on a 5-point Likert scale.

### Team-Perceived Heterogeneity

The construct is measured on a 4-item scale adapted from Campion et al. (1993) and used by Fellnhöfer et al. (2017). The measurement method applies the perception approach of individuals towards their team (e.g., "The members of my team vary widely in their areas of expertise"). Previous measurements by Fellnhöfer et al. (2017) have shown that individuals' perceptions are reflected in the Team-Perceived Heterogeneity.

**TABLE 3.3.**

Summary of Product/Person measures

| Dimension | Construct     | Variables            | Description                                                                                                                                          |
|-----------|---------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product   | Creative Idea | Originality          | The degree to which the idea is not only rare but is also ingenious, imaginative, or surprising (Dean et al., 2006)                                  |
|           |               | Paradigm relatedness | The degree to which an idea preserves or modifies a paradigm. The degree to which ideas are transformational (PM) (Dean et al., 2006; Ylitalo, 2017) |
|           |               | Acceptability        | The degree to which the idea is socially, legally, or politically acceptable (Dean et al., 2006; Ylitalo, 2017)                                      |
|           |               | Implementability     | The degree to which the idea can be easily implemented (Dean et al., 2006; Ylitalo, 2017)                                                            |
|           |               | Applicability        | The degree to which the idea clearly applies to the stated problem (Dean et al., 2006; Ylitalo, 2017)                                                |
|           |               | Effectiveness        | The degree to which the idea will solve the problem (Dean et al., 2006; Ylitalo, 2017)                                                               |
|           |               | Clarity              | The degree to which the idea is clearly communicated with regard to grammar and word usage (Dean et al., 2006; Ylitalo, 2017)                        |

|                    |            |                            |                                                                                                                                                                                                                                                                                                                                       |
|--------------------|------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    |            | Completeness               | The number of independent subcomponents into which the idea can be decomposed, and the breadth of coverage with regard to who, what, where, when, why, and how (Dean et al., 2006; Ylitalo, 2017)                                                                                                                                     |
|                    |            | Implicational explicitness | The degree to which there is a clear relationship between the recommended action and the expected outcome (Dean et al., 2006; Ylitalo, 2017)                                                                                                                                                                                          |
| <b>Person/Team</b> | <b>TEO</b> | (Team)<br>Proactiveness    | Team's tendency of taking initiative, anticipating and acting on future needs by seeking new opportunities which may or may not be related to the present line of operations, introduction of new products/brands (Lumpkin & Dess, 1996; Covin & Slevin, 1989; Fellnhofer et al., 2017).                                              |
|                    |            | (Team)<br>Risk Taking      | Team's tendency to engage in high-risk projects, willingness to pursue opportunities that have a substantial likelihood of producing losses or significant performance discrepancies (Lumpkin & Dess, 1996; Covin & Slevin, 1989; Fellnhofer et al., 2017).                                                                           |
|                    |            | (Team)<br>Innovativeness   | Team's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services or technological processes, as well as the pursuit of creative, unusual, or new solutions to problems and needs (Lumpkin & Dess, 1996; Covin & Slevin, 1989; Fellnhofer et al., 2017). |
|                    |            | (Team)<br>Autonomy         | Entrepreneurial sense is the independent action by team members to bring forth a vision or idea and then see it through to completion (Lumpkin & Dess, 1996; Covin & Slevin, 1989; Fellnhofer et al., 2017).                                                                                                                          |

**TABLE 3.4.**

Summary of Press/Process measures and Moderators

| Dimension    | Construct | Variable | Description                                                                                                         |
|--------------|-----------|----------|---------------------------------------------------------------------------------------------------------------------|
| <b>Press</b> | TCI       | Vision   | Team members' views on the clarity, sharedness, attainability and value of team objectives. (Anderson & West 1998). |

|                |                                                  |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|--------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                |                                                  | Participation Safety              | Team participation (e.g. influence over decision-making, information sharing) and psychological safety and support (e.g. to try out new ideas) (Anderson & West 1998).                                                                                                                                                                                                                                                                    |
|                |                                                  | Task Orientation                  | Team emphasis on critical reflection and on monitoring quality. The sub-scale includes items such as monitoring each other's work, provision of practical ideas and help, appraisal of weaknesses. (Anderson & West 1998).                                                                                                                                                                                                                |
|                |                                                  | Support for Innovation            | Approval and practical support of attempts to introduce new and improved ways of doing things: articulated and enacted support (Anderson & West 1998).                                                                                                                                                                                                                                                                                    |
| <b>Process</b> | Creativity-based Opportunity recognition process | Preparation                       | The entrepreneurs' ability to acquire and access market knowledge by listening to customers, immersing themselves in an industry, or getting to know the customer (Csikszentmihalyi 1996, Endres & Woods, 2007; Hansen et al., 2011).                                                                                                                                                                                                     |
|                |                                                  | Conception                        | Incubation<br>The entrepreneurs' willingness to explore possibilities, focus on things other than the problem at hand and engage different knowledge domains or contexts. (Csikszentmihalyi 1996, Endres & Woods, 2007; Hansen et al., 2011).<br>Insight<br>Insight is measured by how ideas came forth – such as serendipitously, accidentally or from other people. (Csikszentmihalyi 1996, Endres & Woods, 2007; Hansen et al., 2011). |
|                |                                                  | Elaboration                       | Elaboration is measured by actions used to make the idea work. The entrepreneur must pay close attention to and incorporate their feelings about the idea, make changes based on new problems that arise, especially from customer feedback and generally interact with the outside world (Csikszentmihalyi 1996, Endres & Woods, 2007; Hansen et al., 2011).                                                                             |
|                |                                                  |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Moderator      | Heterogeneity                                    | Perceived Heterogeneity           | Individuals perception on team (functional) heterogeneity (e.g. expertise or complementarity) a tool used by Fellnhöfer et al. (2017).                                                                                                                                                                                                                                                                                                    |
| Moderator      | Mindset                                          | Creative Mindset (Growth & Fixed) | The individual belief that creativity is smth that is inborn and stable or smth that can be increased by practice and persistence. The                                                                                                                                                                                                                                                                                                    |

diagnosis of this characteristic can be also a predictor of individual's and team's future behavior in terms of creativity and capacity of creativity enhancement (Karwowski, 2014)

**TABLE 3.5.**

Items of Team Entrepreneurial Orientation (TEO)

| <b>Team Entrepreneurial Orientation (adapted from Fellnhofer et al., 2017)</b> |                                                                                                                                                                                 |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Team Proactivity 1                                                             | My team initiates actions to which others respond                                                                                                                               |
| Team Proactivity 2                                                             | My team excels at identifying opportunities.                                                                                                                                    |
| Team Proactivity 3                                                             | My team always tries to take the initiative in every situation (e.g., against competitors, in projects and when working with others).                                           |
| Team Risk Taking 1                                                             | People in our team are encouraged to take calculated risks with new ideas.                                                                                                      |
| Team Risk Taking 2                                                             | Our team emphasizes both exploration and experimentation for opportunities and takes bold, wide-ranging actions to achieve the objectives.                                      |
| Team Risk Taking 3                                                             | When confronted with decisions involving uncertainty, my team typically adopts a bold posture.                                                                                  |
| Team Innovativeness 1                                                          | Our team places a strong emphasis on innovative and creative ideas in its methods of operation.                                                                                 |
| Team Innovativeness 2                                                          | Our team is often the first coming up with new ideas related to new products, services, in-company processes, methods or other innovative improvements related to our business. |
| Team Innovativeness 3                                                          | In the last years, our team actively introduced improvements and innovations that have been usually quite dramatic.                                                             |
| Team Autonomy 1                                                                | In our team, working independently is considered to enhance creative thinking.                                                                                                  |
| Team Autonomy 2                                                                | While working autonomously, we as a team ensure adequate coordination to minimize inefficiencies and duplication of efforts.                                                    |
| Team Autonomy 3                                                                | In our team we have a proper balance between patience and tolerance for autonomy of individuals and the forbearance to reduce or eliminate initiatives that are not succeeding. |
| Team Autonomy 4                                                                | We as a team implement necessary structural changes to stimulate new ideas.                                                                                                     |
| Team Autonomy 5                                                                | We as a team foster the necessary culture, rewards, and processes to support product and service champions.                                                                     |

**TABLE 3.6.**

Items of Team Climate Inventory TCI

| <b>Team Climate Inventory (adapted from Anderson &amp; West, 1989)</b> |                                                                  |
|------------------------------------------------------------------------|------------------------------------------------------------------|
| Vision                                                                 | <i>How far are you in agreement with your teams' objectives?</i> |

|                        |                                                                                                                                  |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Vision                 | <i>To what extend do you think your teams' objectives are clearly understood by other members of the team?</i>                   |
| Vision                 | <i>To what extend do you think your teams' objectives can actually be achieved?</i>                                              |
| Vision                 | <i>How worthwhile do you think these objectives are to the team company?</i>                                                     |
| Task Orientation       | <i>Are team members prepared to question the basis of what the team is doing?</i>                                                |
| Task Orientation       | <i>Does the team critically appraise potential weaknesses in what it is doing in order to achieve the best possible outcome?</i> |
| Task Orientation       | <i>Do members of the team build on each other's ideas in order to achieve the best possible outcome?</i>                         |
| Support for Innovation | <i>People in this team are always searching for fresh, new ways of looking at problems</i>                                       |
| Support for Innovation | <i>In this team we take the time needed to develop new ideas</i>                                                                 |
| Support for Innovation | <i>People in the team cooperate in order to help develop and apply new ideas</i>                                                 |
| Participative Safety   | <i>We have a 'we are together' attitude</i>                                                                                      |
| Participative Safety   | <i>People keep each other informed about work-related issues in the team</i>                                                     |
| Participative Safety   | <i>People feel understood and accepted by each other</i>                                                                         |
| Participative Safety   | <i>There are real attempts to share information throughout the team</i>                                                          |

**TABLE 3.7.**

Items of Creativity-Based Opportunity Recognition Process

| <b>Creativity- Based Opportunity Recognition Process (adapted from Hansen et al., 2011)</b> |                                                                                                                           |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Preparation                                                                                 | <i>My team listen extremely well to what customers say they want and don't want as a way of identifying opportunities</i> |
| Preparation                                                                                 | <i>In my team we identify good opportunities usually by "immersion" in a particular industry and marketplace</i>          |
| Preparation                                                                                 | <i>We knew who the first customers would be before working on &amp; developing our first product/service</i>              |
| Incubation                                                                                  | <i>My team enjoys thinking about and/or looking for new business opportunities</i>                                        |
| Incubation                                                                                  | <i>We often think of new business ideas when we are totally relaxed, doing something unrelated to business</i>            |
| Incubation                                                                                  | <i>Our venture/project idea, or closely related one, was actually seen in another context</i>                             |
| Insight                                                                                     | <i>The idea behind this business just seemed to suddenly appear to us</i>                                                 |
| Insight                                                                                     | <i>We believe that our venture idea came for an accidental process that just happened to uncover the concept</i>          |
| Insight                                                                                     | <i>Other people bring new venture business ideas to us</i>                                                                |
| Elaboration                                                                                 | <i>My team knows that the most important thing is to believe in the idea</i>                                              |
| Elaboration                                                                                 | <i>On entering the market with idea prototype, we made major changes based on customer feedback</i>                       |

|             |                                                                                                                        |
|-------------|------------------------------------------------------------------------------------------------------------------------|
| Elaboration | <i>It is easier to see the real opportunities after we begin to enter a new market (compared with before we start)</i> |
|-------------|------------------------------------------------------------------------------------------------------------------------|

**TABLE 3.8.**  
Items of Creative Idea

| <b>Novelty and Quality (adapted from Dean et al., 2006 and Ylitalo, 2017)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Novelty</b>                                                                | <p>Originality<br/><i>The degree to which the idea is not only rare but is also ingenious, imaginative, or surprising</i></p> <p>Paradigm relatedness<br/><i>The degree to which an idea preserves or modifies a paradigm</i></p>                                                                                                                                                                                                   |
| <b>Quality: Workability</b>                                                   | <p>Acceptability<br/><i>The degree to which the idea is socially, legally, or politically acceptable</i></p> <p>Implementability<br/><i>The degree to which the idea can be easily implemented</i></p>                                                                                                                                                                                                                              |
| <b>Quality: Relevance</b>                                                     | <p>Applicability<br/><i>The degree to which the idea clearly applies to the stated problem</i></p> <p>Effectiveness<br/><i>The degree to which the idea will solve the problem</i></p>                                                                                                                                                                                                                                              |
| <b>Quality: Specificity</b>                                                   | <p>Completeness<br/><i>The number of independent subcomponents into which the idea can be decomposed, and the breadth of coverage with regard to who, what, where, when, why, and how</i></p> <p>Implicational explicitness<br/><i>The degree to which there is a clear relationship between the recommended action and the expected outcome</i></p> <p>Clarity<br/><i>The degree to which the idea is clearly communicated</i></p> |

**TABLE 3.9.**  
Items of Perceived Team Heterogeneity

| <b>Team-Perceived Heterogeneity (adapted from Campion et al., 1993 and Fellnhofer et al., 2017)</b> |                                                                        |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Team-Perceived Heterogeneity 1                                                                      | <i>The members of my team vary widely in their areas of expertise.</i> |
| Team-Perceived Heterogeneity 2                                                                      | <i>The members of my team have variety of different backgrounds.</i>   |

|                                |                                                                                     |
|--------------------------------|-------------------------------------------------------------------------------------|
| Team-Perceived Heterogeneity 3 | <i>The members of my team have skills and abilities that complement each other.</i> |
| Team-Perceived Heterogeneity 4 | <i>The members of team are diverse in terms of their professional experience.</i>   |

**TABLE 3.10.**

Items of Individual Creative Mindset

| <b>Individual Creative Mindset (adapted from Karwowski, 2014)</b> |                                                                                                                             |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Growth-Creative Mindset 1                                         | <i>Everyone can create something great at some point if he or she is given appropriate conditions.</i>                      |
| Fixed-Creative Mindset 1                                          | <i>You either are creative or you are not- even trying very hard you cannot change much.</i>                                |
| Growth-Creative Mindset 2                                         | <i>Anyone can develop his or her creative abilities up to a certain level.</i>                                              |
| Fixed-Creative Mindset 2                                          | <i>You have to be born a creator- without innate talent you can only be a scribbler.</i>                                    |
| Growth-Creative Mindset 3                                         | <i>Practice makes perfect- perseverance and trying hard are the best ways to develop and expand one's capabilities.</i>     |
| Fixed-Creative Mindset 3                                          | <i>Creativity can be developed, but one either is or is not a truly creative person.</i>                                    |
| Growth-Creative Mindset 4                                         | <i>Rome was not built in a day- each creativity requires effort and work, and these two are more important than talent.</i> |
| Fixed-Creative Mindset 4                                          | <i>Some people are creative, others are not- and no practice can change it.</i>                                             |
| Growth-Creative Mindset 5                                         | <i>It does not matter what creativity level one reveals- you can always increase it.</i>                                    |
| Fixed-Creative Mindset 5                                          | <i>A truly creative talent is innate and constant throughout one's entire life.</i>                                         |



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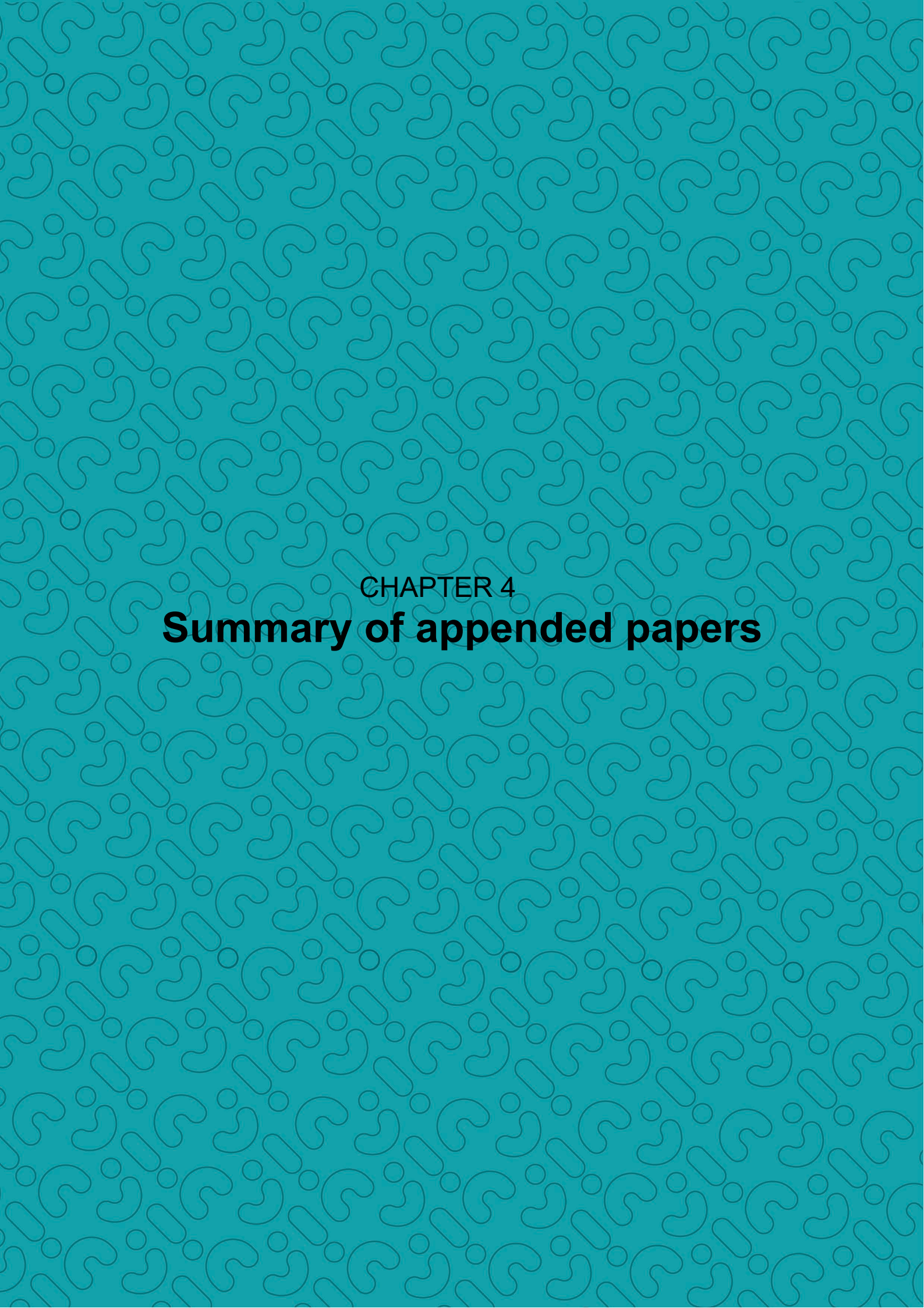
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CHAPTER 4

# **Summary of appended papers**



## 4. Summary of the appended papers

This Chapter provides brief and technical summaries of the three distinct papers, each corresponding to one of the studies that collectively address the research questions of this thesis. Brief summary of the three studies is also included in Figure 4.1.

### 4.1. Summary of Study 1

The following section provides a summary of Study 1. The complete study is presented in Appendix 1.

#### **Title of Study 1:**

Is Team Entrepreneurial Orientation important in generating creative business ideas? The moderating role of team-perceived heterogeneity and the individual creative mindset.

#### **Research questions:**

**RQ1.** Does Team Entrepreneurial Orientation (TEO) facilitate the generation of creative business ideas in terms of novelty and quality?

**RQ2.** Under which conditions does TEO translate into creative outcomes for entrepreneurial teams? Do team-perceived heterogeneity and individual creative mindset (growth vs. fixed) moderate the relationship between TEO and creative business ideas?

#### **Summary of the theoretical framework and hypotheses:**

Study 1 is theoretically grounded in the entrepreneurial orientation (EO) literature and explicitly reconnects EO with its Schumpeterian roots in creativity and creative destruction (Schumpeter, 1934). While EO has been widely studied at the firm and individual levels- primarily in relation to innovation, growth, or financial performance- creativity as a distinct outcome, particularly within entrepreneurial teams, has received limited attention. This omission is especially notable given that the genesis of entrepreneurship lies in the generation of business ideas prior to firm formation. Addressing this gap, the study conceptualizes EO at the team level (Team Entrepreneurial Orientation) (TEO) responding to recent calls to move EO research downstream from the firm level (Kollmann et al., 2017) and upstream toward nascent entrepreneurship and firm birth (Lumpkin & Pidduck, 2021). Capturing TEO during the early, pre-organizational phase allows for a more precise understanding of how entrepreneurial predispositions shape teams' paths toward new entry- understood here as the generation of creative business ideas- rather than post hoc organizational outcomes. Creative idea is conceptualized as a team-level product, operationalized through two core dimensions derived from componential creativity theory (Amabile, 2013) i) novelty, reflecting originality and departure from existing market solutions; and ii) quality, reflecting feasibility, coherence, and market relevance. This distinction enables the study to examine whether entrepreneurial teams are predisposed toward radical (novel) versus incremental (quality-oriented) business ideas or both.

Team Entrepreneurial Orientation (TEO) is conceptualized as a shared, perceptual team-level construct, reflecting team members' collective perceptions of the manifestation of entrepreneurial behaviors within the team (Fellnhofer et al., 2017), rather than as a simple

aggregation of individual orientations. This conceptualization aligns with the view of entrepreneurial teams as collective actors whose outcomes emerge from shared interpretations and coordinated action. Drawing on the contingency perspective of team creativity (Kurtzberg & Amabile, 2001; Baer et al., 2008), the study further argues that entrepreneurial predispositions do not automatically translate into creative outcomes. Individual traits may fail to contribute to team creativity when teams lack the capacity-or willingness- to integrate and leverage these inputs. Accordingly, two moderating conditions are introduced: i) team-perceived heterogeneity, capturing perceived diversity of knowledge, experience, and perspectives within the team; and ii) individual creative mindset (growth vs. fixed), capturing beliefs about the malleability of creativity and individuals' openness to developing creative capability. By integrating team-level entrepreneurial predispositions with individual cognitive boundary conditions, Study 1 develops a contingent, multi-level explanatory framework specifying when and how TEO contributes to creative business idea generation.

#### Hypotheses:

- **H1 (+):** Team Entrepreneurial Orientation is positively related to the novelty of a business idea.
- **H2 (+):** Team Entrepreneurial Orientation is positively related to the quality of a business idea.
- **H3 (+):** Team-perceived heterogeneity strengthens the relationship between TEO and novelty.
- **H4 (+):** Team-perceived heterogeneity strengthens the relationship between TEO and quality.
- **H5 (+):** Growth-creative mindset strengthens the relationship between TEO and novelty.
- **H6 (+):** Growth-creative mindset strengthens the relationship between TEO and quality.
- **H7 (-):** Fixed-creative mindset weakens the relationship between TEO and novelty.
- **H8 (-):** Fixed-creative mindset weakens the relationship between TEO and quality.

#### Methodology:

Study 1 adopts a quantitative, explanatory research design based on data collected from entrepreneurial teams operating within the Mondragon Team Academy ecosystem in the Basque Country, Spain. The sample comprises 78 entrepreneurs nested within 36 entrepreneurial teams, all of whom participated in a naturalistic, team-based business idea generation process conducted over a three-month period. The study captures creativity outcomes in a realistic entrepreneurial context, avoiding artificially constructed laboratory settings.

Data were collected through a two-step procedure. First, team members completed a survey measuring Team Entrepreneurial Orientation (TEO), team-perceived heterogeneity, and individual creative mindset. Second, the creative outcomes of each team- specifically the novelty and quality of their final business idea- were independently evaluated by expert judges familiar with the domain. Established and validated measurement scales were employed for all constructs.

The hypotheses were tested using PLS-SEM in SmartPLS (Ringle et al., 2015). This approach was used to estimate the direct relationship between Team Entrepreneurial Orientation (TEO), specified as a higher-order construct, and creative idea outcomes, namely novelty and quality. In addition, PLS-SEM allowed for the testing of moderation effects, such that team-perceived heterogeneity and individual creative mindset (growth & fixed) were modeled as moderators of the relationship between TEO and collective creative outcomes.

### **Results and contributions:**

The findings reveal a clear and systematic pattern in entrepreneurial team creativity. Team Entrepreneurial Orientation (TEO) is positively related to the quality of business ideas but not to their novelty. Entrepreneurially oriented teams have tendency to generate ideas that are workable, relevant, and well-developed, rather than ideas that are radically novel or disruptive. This suggests that TEO facilitates product–market entry through refinement, adaptation, or improvement of existing ideas rather than through the creation of entirely new market opportunities. In other words, entrepreneurially oriented teams tend to privilege feasibility-seeking, refinement-oriented entrepreneurial paths, rather than pursuing radical or disruptive novelty. Importantly, this pattern reflects a directional bias in entrepreneurial team predispositions, indicating the type of entrepreneurial logic that teams tend to reproduce by default during nascent stage of entrepreneurship. Regarding boundary conditions, the presence of individuals with a fixed creative mindset significantly weakens the positive relationship between TEO and idea quality, highlighting the role of cognitive rigidity as a constraint on collective creative performance. In contrast, growth creative mindset and team-perceived heterogeneity show no significant moderating effects.

Overall, Study 1 contributes to entrepreneurship and creativity literature in several ways. First, it empirically validates TEO as a meaningful construct at the entrepreneurial team level and demonstrates its differentiated effects on creative outcomes. Second, it challenges the widespread theoretical assumption (Schumpeter, 1934) that entrepreneurial orientation inherently promotes radical creativity. Instead, it positions TEO as a bounded collective predisposition that channels teams toward incremental, quality-oriented creative outcomes. Third, by integrating individual creative mindset into a team-level model, the study advances a contingency-based understanding of entrepreneurial team creativity, emphasizing that individual cognitive barriers- such as fixed mindsets- can obstruct collective entrepreneurial action. Study 1 lays the foundation for the further studies of the thesis. By empirically demonstrating that entrepreneurial teams privilege quality-oriented over novelty-oriented creative paths, the study identifies a foundational tension in entrepreneurial team creativity that subsequent studies seek to explain.

## 4.2. Summary of Study 2

The following section presents a summary of Study 2. The complete study is included in Appendix 2.

**Title:**

Understanding the interplay of entrepreneurial orientation behaviors- does it hinder or facilitate creating new venture ideas by nascent entrepreneurial teams?

**Research question:**

**RQ:** How do the TEO behaviors of nascent entrepreneurial teams (NETs) interact to balance exploration and exploitation in the development of novel and high-quality venture concepts?

**Summary of the theoretical framework and hypotheses:**

This study builds on the entrepreneurial orientation (EO) literature and responds to recent calls to develop a theory of EO tailored to the context of nascent entrepreneurship. While EO has predominantly been examined as a set of independent dimensions with positive performance implications, this study adopts a configurational and interaction-based perspective, arguing that entrepreneurial behaviors at the team level interact in complex and sometimes counterproductive ways.

Drawing on complex adaptive systems (CAS) theory (Pype et al., 2018; Ramos-Villagrasa et al., 2018), ambidexterity theory (Dean, 2022), and team creative synergy theory (Kurtzberg & Amabile, 2001), nascent entrepreneurial teams (NETs) (Sabater, 2018). are conceptualized as self-organizing systems in which collective entrepreneurial behaviors emerge through dynamic interactions rather than isolated individual traits. The study distinguishes between exploration-oriented outcomes (novelty) and exploitation-oriented outcomes (quality), positioning TEO behaviors as mechanisms through which teams navigate the inherent tension between novelty and usefulness in early-stage venture ideation.

Rather than assuming synergistic effects, the framework explicitly allows for antagonistic, and reinforcing interactions between the core TEO dimensions- innovativeness, proactivity, risk-taking, and autonomy. This approach enables a nuanced examination of how entrepreneurial teams manage (or fail to manage) the trade-offs between exploration and exploitation at the very origins of entrepreneurship.

**Hypotheses:**

- **H1 (-):** The interaction between team-level proactivity and innovativeness diminishes the exploration of novel business ideas.
- **H2 (+):** The interaction between team-level proactivity and innovativeness enhances the exploitation of existing opportunities, leading to higher-quality business ideas.

- **H3 (+):** The interaction between team-level risk-taking and innovativeness enhances the exploration of novel business ideas.
- **H4 (+):** The interaction between team-level risk-taking and proactivity enhances the exploitation of existing opportunities, leading to higher-quality business ideas.
- **H5 (+):** The interaction between team-level autonomy and innovativeness enhances the exploration of novel business ideas.
- **H6 (+):** The interaction between team-level autonomy and proactivity enhances the exploitation of existing opportunities, leading to higher-quality business ideas.

### **Methodology:**

Study 2 employs a quantitative, explanatory research design based on data collected from 88 nascent entrepreneurial teams operating within the Mondragon Team Academy ecosystem in the Basque Country, Spain. The teams were observed in a naturalistic setting during a three-month venture ideation process, ensuring high ecological validity.

Data were collected using a multi-source approach. Team-level entrepreneurial orientation behaviors (innovativeness, proactivity, risk-taking, and autonomy) were measured through surveys completed by team members, applying validated scales adapted to the team context. Creative outcomes-novelty and quality of the final venture ideas were independently evaluated by a panel of expert judges following established creativity assessment procedures. Gender and fixed creative mindset were included as control variables.

Data analysis was conducted using PLS-SEM with SmartPLS 4 (Ringle et al., 2022). PLS-SEM was applied to capture complex behavioral dynamics. TEO behavioral dimensions (innovativeness, proactiveness, risk-taking and autonomy) were modeled as separate first-order constructs. PLS-SEM is then used to estimate different double interaction effects among these dimensions, allowing the examination of how combinations of entrepreneurial behaviors generate synergistic or constraining effects on creative outcomes.

### **Results and contributions:**

The results demonstrate that TEO behaviors interact in complex and often counterintuitive ways, with interaction effects explaining additional variance in creative outcomes beyond the direct effects of individual dimensions.

Notably, the interaction between innovativeness and proactivity negatively affects idea quality, revealing a substitutive and counterproductive dynamic. Specifically, when proactive team members prioritize the exploitation of existing opportunities, the simultaneous activation of innovative behaviors appears to disrupt coordination processes, thereby diluting quality outcomes. Risk-taking, by contrast, emerges as a facilitating mechanism only when combined with proactivity, strengthening the exploitation of high-quality ideas, but not when paired with innovativeness to support exploration- suggesting a tendency toward risk aversion in exploratory contexts. Contrary to dominant assumptions in the EO literature, team autonomy shows a consistently negative role: it weakens the

relationship between innovativeness and novelty and fails to support exploration-oriented outcomes.

These findings contribute to the literature in several important ways. First, the study advances EO research by demonstrating that entrepreneurial orientation at the team level is not inherently beneficial, but highly contingent on how behaviors interact. Second, it extends the conceptualization of nascent entrepreneurial teams as complex adaptive systems, highlighting the emergence of both synergistic and harmful behavioral patterns. Third, by explicitly distinguishing between novelty and quality, the study clarifies how different configurations of TEO behaviors channel teams toward exploitation-driven rather than exploration-driven creativity adding to TEO-ambidexterity link. Overall, Study 2 empirically demonstrates that entrepreneurial team creativity cannot be explained through linear or additive models, and that interactional and non-linear dynamics are central to understanding early-stage venture ideation.

### 4.3. Summary of Study 3

The following section presents a summary of Study 3. The complete study is included in Appendix 3.

**Title:**

Unfolding the entrepreneurial creative process: Sufficient and necessary team climate configurations in opportunity recognition.

**Research question:**

**RQ1.** How do team climate's configurations explain the ability of entrepreneurial teams to navigate through creativity-based opportunity recognition process?

**RQ2.** How do team climate's configurations inhibit the ability of entrepreneurial teams to navigate through creativity-based opportunity recognition process?

**Summary of the theoretical framework and propositions:**

This study is grounded in the creativity-based opportunity recognition literature (Hansen et al., 2011) and addresses a central gap concerning the role of contextual factors- specifically team climate (Anderson & West, 1989)- in shaping entrepreneurial creativity as a multi-stage, collective process (Paulus et al., 2020). This study explicitly focuses on the press-process relationship- the least analyzed in team creativity literature (Hansen et al., 2011; Gruszka & Tang, 2017). While opportunity recognition has been widely conceptualized as a creative process (Hills et al., 1999; Dimov, 2007), empirical research has largely focused on individual cognition, overlooking the contextual and social conditions under which entrepreneurial teams search for and develop opportunities. On the other hand, while team climate- conceptualized as TCI (Anderson & West, 1989) is for long recognized as an important contextual factor in collective creative efforts, has been so far analyzed as static factor rather than changing through stages of creative collaboration and the dimensions have been mainly aggregated into one construct or observed individually. It all limited unveiling the team climate potential to regulate the creative efforts while teams progress during the creative task.

Adopting a social influence theory (Paulus & Dzindolet, 2008) and complexity theory (Parente & Federo, 2019), this study argues that team climate dimensions- vision, participative safety, task orientation, and support for innovation- do not operate in isolation or in a linear manner. Instead, they form socially interdependent configurations that exert contingent effects across the three stages of the creative process. To understand the temporal and configurational logic of team climate conditions, the study draws on insights from team learning (Edmondson, 2008), team effectiveness (Hackman, 1987, 2002), and more recent process-contingent perspectives on team creativity (Paulus et al., 2020). Taken together, these insights suggest that climate dimensions function as a collective and configurational “press” that can either catalyze or inhibit the cognitive and social demands associated with different stages of the opportunity recognition process in which teams are engaged.

Hence, rather than testing linear hypotheses, the study develops a set of propositions specifying which team climate dimensions may function as necessary conditions and which configurations of conditions are sufficient to enable or inhibit the emergence of each stage of the opportunity recognition process.

### **Propositions:**

- **Proposition 1a/1b.** Team climate inventory contains necessary conditions to unfold/constrain the preparation stage within the creativity-based opportunity recognition process in entrepreneurial teams.
- **Proposition 2a/2b.** Team climate dimensions interact in enabling /constraining the preparation stage within the creativity-based opportunity recognition process in entrepreneurial teams.
- **Proposition 3a/3b.** Team climate inventory contains necessary conditions to unfold/constrain the conception stage within creativity-based opportunity recognition process in entrepreneurial teams.
- **Proposition 4a/4b.** Team climate dimensions interact in enabling/ constraining the conception stage within the creativity-based opportunity recognition process in entrepreneurial teams.
- **Proposition 5a/5b.** Team climate inventory contains necessary conditions to unfold/ constrain the elaboration stage within creativity-based opportunity recognition process in entrepreneurial teams.
- **Proposition 6a/6b.** Team climate dimensions interact in enabling/constraining the elaboration stage within the creativity-based opportunity recognition process in entrepreneurial teams.

### **Methodology:**

Study 3 employs a configurational, multi-method research design combining partial least squares structural equation modeling (PLS-SEM) (Yuan et al., 2020), fuzzy-set Qualitative Comparative Analysis (fsQCA) (Ragin, 2009), and Necessary Condition Analysis (NCA) (Dul, 2024). The empirical setting consists of 88 entrepreneurial teams from the Mondragon

Team Academy (Basque Country, Spain), observed in their natural educational–entrepreneurial environment during a three-month opportunity recognition process.

Data were collected through post-process surveys assessing team climate using Anderson and West's (1998) Team Climate Inventory (TCI) and the creativity-based opportunity recognition process using adapted measures from Hansen et al. (2011). The propositions testing was performed through integration of three methodologies. PLS-SEM (Hair et al., 2022) was employed primarily as a measurement-oriented technique rather than for theory testing. Specifically, it was used to estimate latent variable scores for team climate dimensions and creative process stages, ensuring reliability and validity by accounting for indicator weights and measurement error (Yuan et al., 2020). These latent scores were subsequently used as inputs for fsQCA (see below), enabling the integration of variance-based and configurational approaches. fsQCA is used to examine how team climate dimensions combine to enable or constrain the three stages of the creativity-based opportunity recognition process. This approach allowed for a stage-sensitive configurational analysis, reflecting the theoretical assumption that different contextual conditions may be sufficient for the emergence- or non-emergence- of each phase of the creative process. NCA was applied in conjunction with fsQCA rather than as a standalone technique. While fsQCA identified sufficient configurations and offered initial insights into necessity, NCA assessed whether specific conditions constitute non-compensatory bottlenecks for achieving high levels of a given outcome. The resulting bottleneck analysis specified the minimum thresholds of key team climate conditions required for different levels of creative process progression. By combining fsQCA and NCA, Study 3 captured both which configurations of conditions are sufficient and which individual conditions are necessary for the emergence (or negation of emergence) of entrepreneurial team creative processes.

### **Results and contributions:**

The results demonstrate that team climate operates as a stage-contingent and configurational coordination mechanism in entrepreneurial team creativity. No single team climate dimension is universally necessary in kind for the unfolding of the creativity-based opportunity recognition process. However, the combined use of fsQCA and NCA reveals that specific climate dimensions function as necessary conditions in degree, acting as bottlenecks when their levels are insufficient, while multiple configurations of conditions are sufficient to enable or suppress each stage.

The preparation stage, which marks the initiation of collective creative engagement, proves to be particularly sensitive to team climate. NCA identifies support for innovation as a necessary condition in degree: when encouragement, approval, and practical backing for new ideas fall below a minimum threshold, the preparation stage is reliably suppressed. FsQCA further shows that preparation can emerge through multiple configurations, typically combining participation safety and support for innovation, sometimes with minimal task orientation or even in the absence of a strongly shared vision. Conversely, preparation is inhibited when shared vision is rigidly imposed early while socio-emotional foundations (participation safety and support for innovation) are weak, or when both support for innovation and task orientation are simultaneously low.

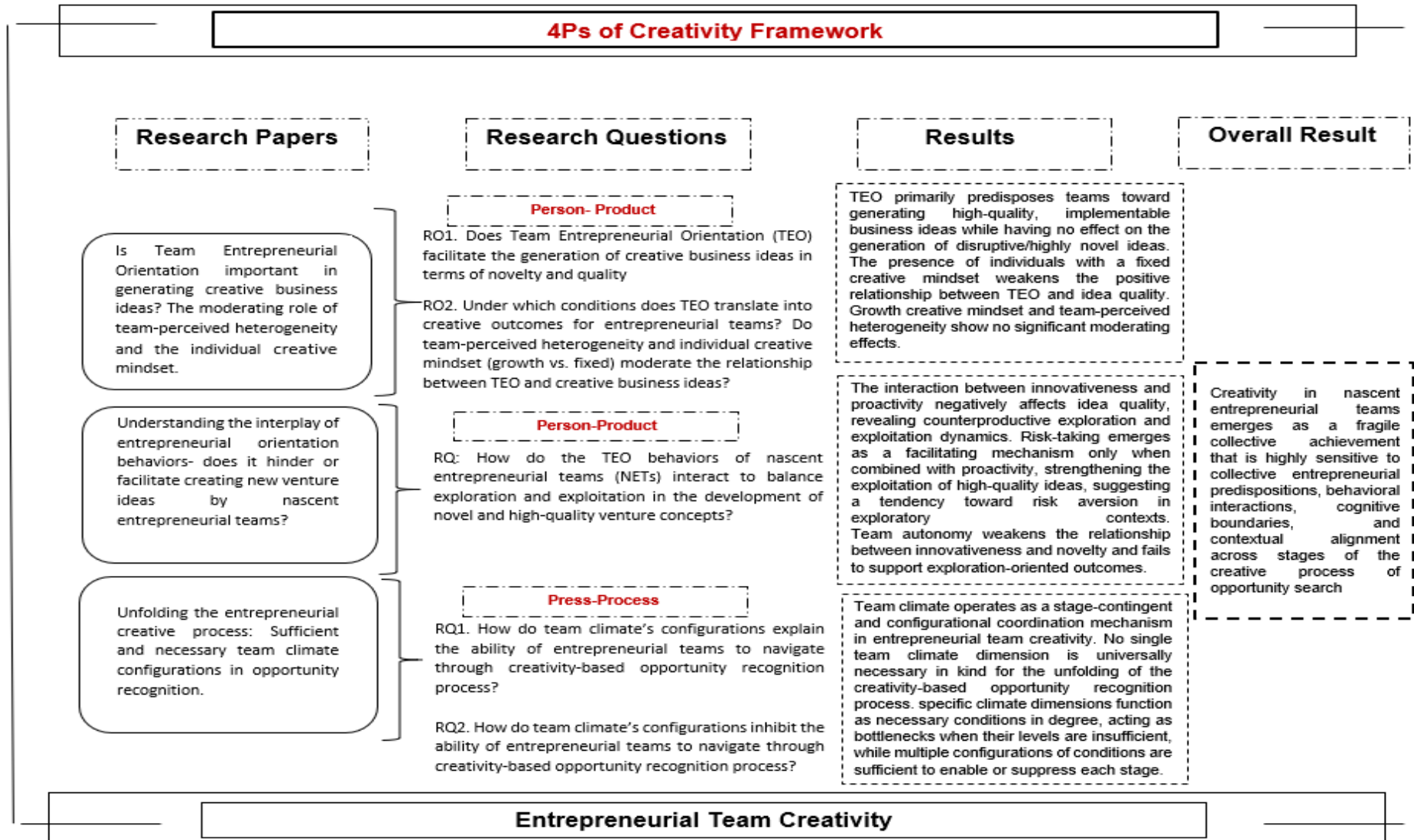
The conception stage exhibits no necessary conditions in degree, underscoring its inherently fluid and exploratory nature. FsQCA reveals that conception emerges under psychologically safe and supportive climates that deliberately minimize evaluative pressure.

Configurations combining participation safety with support for innovation and low task orientation, or participation safety with low task orientation and low shared vision, are sufficient to sustain ideation. In contrast, conception is suppressed when shared vision is present but participation safety and support for innovation are low, creating climates characterized by fear, disengagement, and premature convergence.

The elaboration stage again displays necessary conditions in degree, particularly regarding task orientation. NCA shows that insufficient task orientation constrains teams' ability to converge, refine, and evaluate ideas. FsQCA identifies several sufficient pathways for elaboration, including configurations that combine participation safety and shared vision, even when support for innovation is weak, as well as configurations integrating support for innovation, task orientation, and shared vision. In highly self-managed teams, elaboration may also occur under supportive and psychologically safe climates with lower levels of formal task orientation. Elaboration is suppressed when support for innovation exists in isolation but participation safety and shared vision are lacking, preventing reflective and integrative work.

Taken together, these findings demonstrate strong equifinality and causal asymmetry/symmetry: multiple climate configurations can enable or constrain the same stage, and configurations that foster progress at one stage may inhibit it at another. The principal contribution of the study is the reconceptualization of TCI from a static background condition into a dynamic, stage-sensitive regulatory system that coordinates entrepreneurial team creativity. Theoretically, Study 3 extends the creativity-based opportunity recognition model to the team level and clarifies the press- process relationship within the 4Ps framework. Methodologically, it illustrates the value of combining PLS-SEM, fsQCA, and NCA to capture complex, non-linear causal structures. Substantively, the study explains when, how, and under which contextual conditions entrepreneurial team creativity unfolds, thereby completing the thesis' complex account of entrepreneurial team creativity.

**FIGURE 4.1.**  
Summary of the three studies



Note: Own elaboration

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CHAPTER 5

**Theoretical and Practical  
Contributions**



## 5. Theoretical and Practical Contributions

The purpose of this Chapter is to synthesize and articulate the theoretical, methodological, and practical contributions of the thesis in an integrative and cumulative manner. While the individual contributions of each study have already been outlined in the summaries of the appended papers (Chapter 4), the present chapter moves beyond a study-by-study perspective to develop a holistic interpretation of the value of the thesis as a coherent body of research.

The three studies included in this thesis examine the same core phenomenon- entrepreneurial team creativity- from complementary theoretical, empirical, and methodological perspectives. Study 1 focuses on the role of entrepreneurial orientation at the team level and its differentiated effects on creative outcomes. Study 2 examines the interaction of entrepreneurial behaviors and the emergence of creative outcomes through a configurational lens. Study 3 adopts a process-oriented and contextual perspective, investigating how team climate configurations enable and constrain different stages of creativity-based opportunity recognition. Although each study addresses distinct research questions and employs different analytical approaches, they are united by a common theoretical ambition: to advance understanding of how entrepreneurial teams generate creative outcomes under conditions of uncertainty and constraint.

Importantly, the full theoretical and practical value of this thesis does not reside in any single study in isolation. Rather, it emerges from the integration of insights across all three studies, which together allow for a richer, more nuanced, and more complete understanding of entrepreneurial team creativity than would not be possible through a single methodological or theoretical lens. By combining variance-based, necessity-based, and configurational approaches, the thesis captures not only what contributes to creative outcomes, but also what constrains them, under which conditions they emerge, and how they unfold through context sensitive creative process. This integrative perspective is particularly critical for studying team-level entrepreneurial phenomena, which are inherently complex, non-linear, and context-dependent.

Accordingly, this Chapter is intentionally designed as the conceptual and interpretive core of the thesis. Its objective is not to restate empirical results, but to elevate them into higher-order theoretical contributions and actionable insights that advance entrepreneurship, creativity, and team research. The theoretical contributions are organized thematically, highlighting how the thesis collectively redefines entrepreneurial team creativity as a collective, processual, and context-sensitive phenomenon; reframes entrepreneurial orientation as a constrained and interactional behavioral system; and demonstrates the value of embracing complexity-aware causal logics in entrepreneurship research. In addition, the Chapter explicitly addresses the methodological contribution of the thesis, positioning the combined use of PLS-SEM, Necessary Condition Analysis (NCA), and fuzzy-set Qualitative Comparative Analysis (fsQCA) as a theory-building approach uniquely suited to capturing the complexity of entrepreneurial teams functioning.

Beyond its theoretical relevance, this Chapter also translates the integrative findings of the thesis into practical contributions aimed at multiple audiences, including e.g. entrepreneurial teams, entrepreneurship educators/coaches and accelerators, managers and team leaders. Rather than offering isolated recommendations derived from individual studies, the practical

section consolidates insights across the three studies into a coherent, theory-driven set of principles and guidelines. In doing so, the Chapter adopts the logic of a scientifically grounded manual (Table 5.1), providing structured guidance on how entrepreneurial team creativity can be intentionally fostered, unblocked, managed, and sustained across different stages and contexts, while remaining firmly anchored in empirical evidence and established theory.

In sum, this Chapter represents the essence of the thesis. It is where the individual empirical contributions converge into an integrated theoretical framework and where the broader practical significance of the research becomes explicit. By articulating how the three studies collectively advance theory, methodology, and practice, the Chapter demonstrates the added value of treating entrepreneurial team creativity as a complex, multi-level phenomenon and positions the thesis as a meaningful contribution to ongoing scholarly debates and practical efforts aimed at understanding and supporting entrepreneurial teams.

## **5.1. Theoretical Contributions**

This thesis makes a set of integrative theoretical contributions to entrepreneurship, creativity, and team research by advancing understanding of entrepreneurial team creativity as a collective, processual, and context-sensitive phenomenon. The thesis contributes to existing theories by reframing how entrepreneurial team creativity is conceptualized, theorized, and studied. Drawing on complementary empirical insights from the three empirical studies, the contributions are deliberately integrative: entrepreneurial team creativity is shown to be explainable when person/team, press, process, and product are examined jointly within a coherent theoretical architecture of 4Ps of Creativity framework (Rhodes, 1961)

### **5.1.1. Reconceptualizing entrepreneurial team creativity as a collective, outcome based and processual phenomenon**

A central theoretical contribution of this thesis lies in reconceptualizing entrepreneurial team creativity as a collective, multidimensional, and processual phenomenon, explicitly grounded in Rhodes' (1961) 4Ps of Creativity framework. While prior creativity research (e.g. Amabile, 2013) has frequently privileged individual-level explanations or one-dimensional representations of creativity, this thesis aligns with the foundational logic of the 4Ps framework that creativity cannot be meaningfully understood by isolating any single dimension. By integrating team creativity theories (e.g., Kurtzberg & Amabile, 2001), entrepreneurship theories (e.g., Dean, 2022), and team performance insights (e.g., Edmondson, 2008) the thesis advances the 4Ps framework from a largely conceptual model into an empirically substantiated system linking person/team, press, process, and product in entrepreneurial and team level settings.

A distinctive contribution of the thesis lies in its dual outcome perspective, whereby entrepreneurial creativity is examined through both creative products and creative process across the three studies. The outcome of interest is either the creative business idea itself (Study 1 and Study 2) or the creative process through which opportunities are recognized and developed (Study 3). Such dual perspective allows entrepreneurial creativity to be theorized simultaneously as an outcome and as a dynamic unfolding phenomenon which

extends previous team creativity studies (e.g. Paulus et al., 2020) or opportunity recognition studies (Hansen et al., 2011).

With respect to creative product, the thesis advances creativity theory by operationalizing creativity in line with Amabile's (2013) componential theory of creativity, defining creativity as the generation of outcomes that are both novel and useful. Building on this foundation, the thesis empirically disentangles the creative product into novelty and quality, demonstrating that these dimensions are not interchangeable and may follow different causal paths. The findings suggest that entrepreneurially oriented teams may generate ideas that are high in feasibility and value without being highly original, and that they often face difficulties in managing the inherent tensions required to achieve both simultaneously. This challenges the widespread implicit assumption in entrepreneurship research that creativity is a homogeneous construct and contributes to more nuanced theorizing at the intersection of entrepreneurial creativity and team ambidexterity (Dean et al., 2022), through highlighting that teams may pursue different creative trajectories depending on how exploration and exploitation are balanced. Crucially, the thesis strengthens product-oriented creativity theorizing in 4Ps Creativity framework (Rhodes, 1961) by treating the creative idea as an actual product evaluated by external domain experts, rather than as a proxy for creative capacity, innovativeness, or self-perceived creativity common in previous studies (e.g. Hennessey & Amabile, 2010; Zhou & Shalley, 2003). By aligning empirical measurement with the social validation principle embedded in creativity theory, the thesis strengthens the theoretical validity of the person–product relationship within the 4Ps Creativity framework (Rhodes, 1961) and addresses a persistent limitation in entrepreneurship and team creativity research, where creative outcomes are often inferred rather than directly assessed (e.g., Hennessey & Amabile, 2010; Zhou & Shalley, 2003).

Beyond creative outputs, the thesis advances creativity-based entrepreneurship theory (e.g. Hills et al., 1999) by refining and empirically operationalizing opportunity recognition as a collective, team-level, multistage creative process. Extending creativity-based opportunity recognition models (Hansen et al., 2011), the thesis conceptualizes opportunity recognition as unfolding through preparation, conception, and elaboration, thereby moving beyond individual-centric and event-based representations of opportunity discovery. A key theoretical contribution lies in the explicit integration of creativity-based opportunity recognition research with team and group creativity literature (e.g., McKay et al., 2020). While opportunity recognition models have been conceptually informed by creativity theory (Csikszentmihalyi, 1996; Wallas, 1926), they have rarely been empirically theorized or examined at the team level. By combining these two streams, the thesis repositions opportunity recognition as a socially embedded creative process, shaped by interaction, coordination, and collective sensemaking within entrepreneurial teams. This integration advances entrepreneurship theory by demonstrating that opportunity recognition is not merely an individual cognitive act, but a distributed creative process that unfolds through team-level dynamics. This processual and team-level conceptualization aligns with phase-based creativity perspectives and supports a more temporally sensitive understanding of entrepreneurial creativity (Paulus et al., 2020), in which different stages of opportunity recognition involve distinct cognitive, social, and coordination demands. In doing so, the thesis provides a theoretically grounded framework for examining how entrepreneurial teams collectively generate, develop, and refine creative opportunities, thereby strengthening the explanatory power of creativity-based approaches to entrepreneurship (Hansen et al., 2011).

Taken together, by integrating outcome-based and process-based perspectives, this thesis advances a more dynamic understanding of entrepreneurial team creativity to explain how entrepreneurial teams actually generate and develop opportunities. It extends theoretical models that treat creativity as a single event, a static outcome, or a purely individual capability (Kurtzberg & Amabile, 2001).

### **5.1.2. Reframing Team Entrepreneurial Orientation through Schumpeterian and contingency-based lenses**

A second major theoretical contribution of this thesis lies in the empirical integration of Team Entrepreneurial Orientation (TEO) in NETs context. By capturing TEO during the early stages of entrepreneurship, the thesis advances TEO research in line with calls to extend TEO beyond the firm level (Kollmann et al., 2017) and to embed TEO more explicitly within firm birth and early entrepreneurship contexts (Lumpkin & Pidduck, 2021). In doing so, the thesis demonstrates that TEO is not merely a downstream predictor of established firm performance, but a formative and important collective predisposition of NETs shaping their early creative outcomes under conditions of uncertainty.

The thesis also extends the universalistic EO- performance relationship perspective. While dominant EO research has traditionally assumed that higher levels of entrepreneurial behaviors uniformly and positively affect entrepreneurial entities outcomes, this thesis advances EO theory by demonstrating that, at team level and in nascent entrepreneurial teams (NETs), TEO functions as a contingent team-level predisposition, rather than as an inherently beneficial strategic posture. This contribution directly addresses calls in the EO literature to move beyond universalistic assumptions (Kollmann et al., 2017; Lumpkin & Pidduck, 2021).

Anchored in Schumpeter's (1934) theory of creative destruction, this thesis empirically interrogates the often-implicit assumption that stronger entrepreneurial orientation naturally translates into radical novelty and disruptive creativity. The findings from Study 1 provide a theoretically consequential refinement: TEO does not inherently or uniformly affects teams' tendency to produce highly novel creative outputs. Instead, in the context of nascent entrepreneurial teams (NETs) operating within entrepreneurship labs and hubs, entrepreneurial orientation more consistently facilitates quality-oriented creative outcomes-ideas that are coherent, feasible, and valuable- than novelty-oriented ones. This challenges the Schumpeterian promise frequently attributed to EO and demonstrates that, in NETs, TEO tends to predispose teams toward refinement and exploitation rather than radical creative destruction. Importantly, this does not suggest that such entrepreneurially oriented teams lack the capacity to generate novel ideas. Rather, when interpreted alongside the findings of Study 2, the results indicate that teams may become oriented toward exploitation dynamics, while facing difficulties in fully enacting the exploratory behaviors required for radical novelty. In doing so, the thesis recalibrates expectations about the default and disruptive role of TEO in early-stage entrepreneurship and challenges universalistic assumptions in the EO literature.

The thesis further advances TEO and team creativity theory by identifying cognitive boundary conditions that constrain the translation of TEO into creative products. Empirical support is found for the constraining role of a fixed creative mindset, showing that team-level entrepreneurial predispositions may fail to materialize into quality outcomes when

team members hold beliefs that creativity is innate rather than developable. This finding demonstrates that the person-product relationship within the 4Ps Creativity framework (Rhodes, 1961) is cognitively constrained. Beyond the specific effect of creative mindset, this result carries broader theoretical significance for contingency-based perspectives on team creativity (Kurtzberg & Amabile, 2001). By integrating an individual-level cognitive moderator into a team-level research model, the thesis empirically shows that team-level entrepreneurial predispositions are shaped by individual contributions not in an additive manner, but through moderating cross-level dynamics. This advances team creativity theory by moving beyond aggregation-based assumptions (Bear et al., 2008) and capturing how individual cognitive orientations condition the collective enactment of entrepreneurial predispositions. In doing so, the thesis offers a more theoretically faithful representation of actual team-level dynamics, where individual beliefs regulate whether collective TEO predispositions translate into shared creative products.

### **5.1.3. Entrepreneurial team creativity as an outcome of interacting entrepreneurial behaviors**

A third major theoretical contribution of this thesis advances understanding of entrepreneurial team creativity as an outcome of interacting entrepreneurial orientation behaviors, shifting analytical attention from unified entrepreneurial predispositions to behavioral enactment and coordination within teams. The thesis demonstrates that entrepreneurial team creativity cannot be adequately explained by isolated entrepreneurial behaviors or by their average effects. Instead, creative outcomes emerge from the interaction, alignment, and tension among TEO behaviors enacted collectively within the team.

This contribution is grounded in the integration of the team creative synergy perspective (Kurtzberg & Amabile, 2001), Complex Adaptive Systems (CAS) theory (Ramos-Villagrasa et al., 2018), and ambidexterity theory (Dean, 2022), which together provide a coherent theoretical explanation for why entrepreneurial creativity at the team level is complex, dynamic and non-linear. By empirically demonstrating that some interactions of entrepreneurial behaviors are synergistic while others are counterproductive, the thesis advances TEO and team creativity research toward an explicitly interactional and non-linear understanding of the person-product relationship within the 4Ps of Creativity framework (Rhodes, 1961). By unveiling that entrepreneurial teams face a structural tension: interactions that favor exploration may generate novelty at the expense of feasibility, while interactions that favor exploitation may generate quality at the expense of originality, the thesis contributes to TEO ambidexterity- theoretical link (Lee & Kreiser, 2018). Hence, entrepreneurial team creativity is thus theorized not as the direct or automatic effect of entrepreneurial orientation, but as property of behavioral systems in action, whose outcomes depend on how TEO behaviors are interfaced and how NETs manage ambidextrous tension.

Importantly, this contribution also advances a growing stream in Entrepreneurial Orientation (EO) research that calls for a reformulation of how EO is conceptualized (Lumpkin & Pidduck, 2021), particularly with respect to its internal structure. Early EO research largely conceptualized EO as a unified strategic posture embedding entrepreneurship at the organizational level (Covin & Slevin, 1989; Wiklund & Shepherd, 2003). More recent conceptual developments, however, emphasize EO as a set of distinct entrepreneurial

behaviors whose effects are non-additive, and potentially asymmetric (Lumpkin & Pidduck, 2021). This evolving perspective recognizes that entrepreneurial beliefs and behaviors may-but do not necessarily- lead to new value creation, especially under conditions of uncertainty and constraint (Covin et al., 2020) common for NETs.

By empirically showing that entrepreneurial team creativity results from specific interactions of TEO-related behaviors in NETs, rather than from their aggregate levels, the thesis provides concrete empirical support for this reformulation of EO/TEO. The findings demonstrate that EO at the team level cannot be fully understood either as a single collective strategic predisposition or as a simple sum of independent behaviors. Instead, TEO is best theorized as an interactional system of behaviors, whose creative consequences depend on how entrepreneurial actions jointly balance exploration and exploitation within the team. In doing so, the thesis bridges unidimensional (Study 1) and multidimensional (Study 2) conceptualizations of TEO and advances EO/TEO theory toward a complexity-aware, team-level understanding that is particularly suited to explaining creativity in nascent entrepreneurial teams.

#### **5.1.4. Reconceptualizing context (press) as a dynamic, stage-contingent coordination mechanism**

The fourth contribution lies in advancing social influence theory of group creativity by reconceptualizing context (“press”)- operationalized in team research through team climate for innovation (TCI) (Anderson & West, 1989)- as a dynamic, stage-contingent coordination mechanism within the creative process. While prior research (Hülshager et al., 2009; Strobel, 2023) has often assumed that TCI uniformly foster or predict creativity and innovation, the findings of this thesis demonstrate that the effects of team climate are configuration-dependent and phase-specific, varying systematically across stages of the team creative process.

This contribution reconfigures the original conceptualization of the TCI (Anders and West, 1989) by showing that its core dimensions- vision, participative safety, task orientation, and support for innovation- do not exert uniformly positive or additive effects. Instead, different configurations of climate dimensions enable or constrain different stages of the creativity-based opportunity recognition process. Moreover, some climate dimensions function as necessary conditions in degree, acting as bottlenecks that restrict creative progress. This uniquely shifts theoretical attention away from identifying TCI as universally “good” climate toward understanding TCI configurations within stage-specific process demands. This constitutes a significant theoretical advance in team climate research by demonstrating that climate operates not as a general predictor of creativity, but as a coordination mechanism where appropriate climate-process fit can regulate entrepreneurial creative progress across its stages.

This contribution further extends the 4Ps of creativity framework (Rhodes, 1961) by deepening empirical understanding of the press–process relationship, one of the least examined linkages in creativity research (Gruszka & Tang, 2017), largely due to the methodological challenges of capturing dynamic interactions between context and evolving creative activities. By explicitly linking team climate configurations to stages of the creativity-based opportunity recognition process, the thesis provides novel empirical evidence of how press and process jointly shape entrepreneurial team creativity. In doing so, the thesis also responds directly to calls in the entrepreneurship literature- most notably by Hansen et al.

(2011)- to more explicitly connect the creativity-based opportunity recognition process with core creativity constructs, particularly contextual conditions (press).

### **5.1.5. Integrative contribution: entrepreneurial team creativity understood from 4Ps perspective**

The findings of the three studies enable the fifth theoretical contribution by demonstrating that entrepreneurial team creativity is best understood through an integrative lens of four dimensions. By explicitly integrating person, product, press, and process mechanisms, the thesis advances the application of the 4Ps of Creativity framework (Rhodes, 1961), responds to longstanding calls to better integrate these dimensions (Gruszka & Tang, 2017), and develops a more integrative and complexity-aware understanding of entrepreneurial team creativity.

Study 1 lays the foundation for the person-product relationship by empirically demonstrating that entrepreneurial teams tend to privilege quality-oriented over novelty-oriented creative paths. This relationship is further shown to be contingent and cognitively bounded by a fixed creative mindset, indicating that entrepreneurial creativity cannot be inferred from TEO predispositions alone. These findings motivate the need to examine more complex team-level dynamics within the person-product relationship.

Extending this perspective, Study 2 shows that entrepreneurial behaviors interact in complex ways that generate tensions teams struggle to self-regulate while producing creative outcomes. By uncovering these interaction dynamics within person-product dimensions, it highlights the limitations of viewing entrepreneurial team creativity as the result of isolated or additive mechanisms. In turn, this motivates the examination of contextual (press) and process-level mechanisms- such as configurations of team climate dimension across stages of the creative process- that may regulate or alleviate these collective dynamics, as explored in Study 3.

### **5.1.6. Methodological contributions: advancing theory through correlational, necessity and configurational sufficiency logics**

Finally, the thesis makes a substantial sixth theory-relevant methodological contribution by demonstrating that understanding entrepreneurial team creativity- conceptualized as collective, dynamic complex and multidimensional- requires integration of different methodological logics. Rather than treating PLS-SEM, Necessary Condition Analysis (NCA), and fsQCA as alternative or competing techniques, the thesis integrates these approaches as a coherent and purposeful analytical strategy aligned with the theoretical properties throughout the studies.

Together, these methods reveal different theoretical layers of entrepreneurial team creativity- enabling and constraining relations/interactions, constraining necessities, and alternative sufficient configurations- providing a richer understanding than any single method could offer. By aligning methodological choices with the complexity of team-level entrepreneurship, the thesis contributes to ongoing methodological debates and provides a template for future research seeking to theorize and study entrepreneurial teams in ways that are consistent with their inherently complex dynamic and interactive and configurational nature.

## 5.2. Practical Contributions

This section presents the practical contributions of the thesis. Unlike the empirical articles included in the thesis, whose practical implications are necessarily framed within the scope and objectives of each individual study, the practical contribution of the thesis emerges most clearly through the integration of the three studies holistically. Taken together, the studies examine the same phenomenon- entrepreneurial team creativity- from complementary perspectives, focusing respectively on team-level predispositions, entrepreneurial behaviors in interaction, and contextual regulation of the creative process. As a result, the practical value of the thesis does not reside in isolated recommendations derived from single empirical findings, but in the integral understanding that becomes visible only when the three studies are considered jointly. This integrative perspective allows the thesis to move beyond fragmented advice and to offer a coherent, evidence-based account of how entrepreneurial team creativity is enabled, constrained, and regulated in practice.

The practical contributions of the thesis are explicitly designed not as a collection of generic best practices, but as an actionable guidance for different stakeholders involved in entrepreneurial team development- including entrepreneurial teams themselves, team managers and coaches, incubators and accelerators, and program designers and policy makers- in a form of scientifically grounded manual for intervening in a complex and constraint-prone dynamics of entrepreneurial teams at nascent stage. Each set of contributions is grounded in the empirical findings of the thesis presented in each study (Chapter 4, Appendix 1, Appendix 2, Appendix 3).

### 5.2.1. Core Integrative Practical Contribution

#### *Why Entrepreneurial Team Creativity Requires Deliberate Intervention?*

The core practical contribution of this thesis lies in demonstrating that entrepreneurial team creativity is a fragile collective achievement that must be deliberately managed rather than passively expected. The central practical challenge is therefore not merely how to stimulate creativity, but how to prevent entrepreneurial team creativity from being unintentionally constrained. These constraining mechanisms often remain invisible when examined in isolation, yet become evident when entrepreneurial team creativity is analyzed as a dynamic, multi-level system.

Importantly, the central practical challenge does not arise from any single study taken in isolation. Rather, it emerges from integration of empirical findings from all three studies, which jointly illuminate how entrepreneurial team creativity can be managed- and how it can be unlocked/fostered- across three interrelated levels:

- Team-level predispositions and cognitive boundary conditions that shape whether entrepreneurial orientation translates into creative outcomes (Study 1)
- Interaction dynamics among entrepreneurial behaviors, which may become synergistic or counterproductive depending on how exploration and exploitation are coordinated (Study 2)

- Contextual regulation of creative processes through team climate, which enables or suppresses different stages of creativity-based opportunity recognition process (Study 3)

Across the three studies, the findings consistently show that entrepreneurial teams face misaligned cognitive orientations, poorly coordinated behavioral dynamics, or ill-fitting contextual condition that can stall creative progress and outcomes altogether if left unmanaged. Entrepreneurial team creativity, therefore, cannot be treated as a natural by-product of entrepreneurial orientation, or supportive climates. Instead, creativity must be actively guided and regulated or temporally sequenced. Taken together, these findings justify the need for a systemic and diagnostic approach to managing entrepreneurial team creativity by different agents from entrepreneurial ecosystem (section 5.2.2.- 5.2.3).

## **5.2.2. Practical Implications for Entrepreneurial Teams and Team Managers/ Coaches**

The findings from Study 1, Study 2, and Study 3 collectively demonstrate that entrepreneurial team creativity is highly vulnerable to internal constraints arising from team-level predispositions, behavioral interactions, cognitive boundary conditions, and contextual misalignment. Although dominant theories often assume that teams possess an inherent advantage in generating creative ideas, the empirical evidence presented in this thesis shows that entrepreneurial teams frequently constrain their own creative potential unless these dynamics are deliberately monitored and managed.

Taken together, the three studies indicate that entrepreneurial teams- particularly nascent entrepreneurial teams (NETs)- should not be left to self-regulate their entrepreneurial behaviors, internal tensions, or creative processes. Instead, effective entrepreneurial team functioning requires deliberate coordination, sequencing, and climate regulation, supported by informed team management and coaching practices.

### **5.2.2.1. Managing Team Entrepreneurial Orientation and Behavioral Interactions**

Findings from Study 1 and Study 2 show that Team Entrepreneurial Orientation (TEO) expressed through innovative, proactive, risk-taking, and autonomous behaviors- constitutes an important collective asset for entrepreneurial teams. TEO motivates teams to engage in entrepreneurial action and pursue business idea generation. However, the studies also demonstrate that TEO behaviors interact in complex ways, producing synergies or counterproductive dynamics.

Study 1 reveals that TEO in NETs operating in entrepreneurial lab/hubs primarily predisposes teams toward generating high-quality, implementable, and incremental business ideas, while having no direct effect on the generation of disruptive or highly novel ideas. When combined with Study 2, a more nuanced picture emerges. Study 2 shows that the absence of an orientation towards exploration of disruptive ideas in entrepreneurially oriented teams does not imply a lack of exploratory potential. On the contrary, teams do possess the capacity for exploration evidenced by positive effect of innovative behavior of a team towards novelty outcomes. Hence, the practical problem lies not in the absence of innovative impulses towards search of novel and disruptive outcomes, but in how these impulses are constrained, diluted, or neutralized through interaction dynamics among team

members. Entrepreneurial teams struggle to manage the tension between exploration and exploitation and by not managing it correctly they constrain through TEO behaviors both.

Study 2 identifies a recurring behavioral pattern in NETs. Proactive team members tend to focus on exploiting existing market opportunities to achieve feasible and lower-risk outcomes. Innovative team members oriented toward exploration often do not support this exploitation trajectory, generating tension and lack of behavioral synergy. As this tension persists, innovative members increasingly act autonomously without alignment to collective objectives. Rather than amplifying exploration at the team level, autonomous exploratory efforts become fragmented and ineffective. A lack of collective alignment in autonomous work has harmful effects on the innovative behaviors of NETs toward exploration of novel ideas. Simultaneously, risk-taking behavior is channeled toward safer proactive exploitation paths rather than disruptive exploration, reinforcing high risk aversion of NETs and an exploitation trap. NETs tend to place too much focus on exploitation path taking mitigated risks to pursue business ideas based on proactive exploitation of existing business areas rather than thinking out of the box. It represents an overall generation of counterproductive behaviors, indicating the internal difficulties NETs face in self-managing tension and the trade-off between novel and quality outcomes.

#### **Implications for teams and managers/coaches:**

- TEO behaviors should be treated as a predispositional internal resource of NETs and should be diagnosed at team level for team managers/coaches' information.
- How TEO behaviors interact presents the overall condition within a team towards an entrepreneurial action. Precisely, the interaction dynamics present how teams manage exploration-exploitation tensions at nascent stage pursuing generation of business ideas
- TEO behaviors itself do not guarantee proper functioning of NETs during entrepreneurial action but TEO behaviors interactions dynamics
- As the interactions between innovative, proactive, risk taking and autonomous behaviors can be counterproductive under tensions, teams should avoid or minimize the pressure they feel to explore and exploit simultaneously from the earliest stages
- Creative efforts should be intentionally sequenced to stimulate activation of aligned TEO behaviors: NETs should be stimulated to focus (initially) on exploiting existing business areas. To this end, practitioners should (i) verify and maintain balance on a bipolar continuum of innovative behavior (innovators versus adaptors) (ii) pursue incremental creativity by coordinated proactive and innovative team-level effort. In other words, while proactive entrepreneurs search for existing market opportunities, innovative entrepreneurs should adapt and take the same direction and provide support with ideas that promote incremental rather than radical ideas.
- At subsequent stages of start-up development and to avoid the exploitation trap, meaning an excessive focus on short-term gains, the practitioners should encourage out-of-the-box thinking. Here, the other extreme of the spectrum of innovative behaviors should be promoted- doing things differently, exploring and experimenting.

- The path of exploration should be aligned with increased risk tolerance (risk-taking behavior). It is important, therefore, that practitioners work on: (i) understanding and reducing resource constraints that might block exploration (small size, experience, knowledge about the industry in which the NETs search for/generate ideas, internal relationships, work routines, etc.); (ii) encouraging exploration by stimulating or generating situations and circumstances in which NETs do not feel that they risk short-term returns by thinking out of the box and (iii) creating exercises that focus on e.g. adding novel features to already-generated quality/incremental ideas.
- Autonomy must be collectively aligned. High autonomy without task interdependence fragments creative effort and weakens exploration. Team managers and team entrepreneurs should work on generating a feeling of task interdependence. Practitioners should introduce practices that balance self-interest and collective interest and increase engagement to share individual efforts. This could help teams to benefit from team autonomy by generating team synergy for creativity.
- Overall, effective NETs management requires behavioral discipline and alignment, not greater entrepreneurial intensity.

#### **5.2.2.2. Addressing Cognitive Boundary Conditions**

Study 1 further demonstrates that entrepreneurial team creativity is constrained by cognitive boundary conditions, particularly the presence of a fixed creative mindset individuals among team members. Fixed creative mindset weakens the positive relationship between TEO and idea quality, indicating that entrepreneurial orientation may fail to translate into valuable outcomes when cognitively rigid individuals disproportionately influence team level entrepreneurial predisposition while generating business ideas.

Importantly, the findings do not support the assumption that fostering a growth creative mindset automatically enhances team creativity. Growth mindset showed no moderating effect on novelty or quality outcomes, suggesting that adding “creative” individuals is not an effective substitute. Similarly, perceived team heterogeneity showed no moderating effect on novelty or quality outcomes, which can suggest that neither diversifying teams has effect on team creative outcomes. Such finding even strengthens the importance of team level predispositions rather than individual contributions.

#### **Implications for teams and managers/coaches:**

- Team managers/coaches should diagnose fixed creative mindset tendencies early in team formation or entrepreneurial action initiation
- Minimizing the influence of fixed-mindset individuals during critical moments in entrepreneurial action
- Redesigning team structures (e.g., role allocation, facilitation rules, decision protocols) to prevent cognitively rigid members from disproportionately and directly shaping team outcomes

- Where possible, directly addressing fixed beliefs through targeted reflection or learning interventions to minimize their impact, rather than assuming that minimized exposure to creative task/outcome will resolve the issue
- More creative individuals or more heterogeneous teams do not have effect on the team level predisposition to generate creative outcome. The managerial efforts therefore should be directed into diagnosing team level predispositions rather than individual traits of entrepreneurs

### 5.2.2.3. Regulating Team Climate Across the Creative Process

Study 3 demonstrates that entrepreneurial team creativity unfolds through a three-stage collective creative process- preparation, conception, and elaboration- and that team climate configures differently across stages, with distinct combinations of climate dimensions enabling or constraining specific phases of the creative process. In this sense, team climate functions as a coordination mechanism by aligning team climate context with the evolving cognitive and social demands of each stage, thereby supporting the effective unfolding of the creative process.

Rather than exerting a uniform or static influence, the findings show that team climate dimensions function as necessary and/or sufficient conditions for different stages of the creativity-based opportunity recognition process. Importantly, the analysis reveals three key properties of team climate in entrepreneurial teams:

- **Stage contingency:** Different necessary and sufficient climate conditions matter at different stages of the creative process. From a practical perspective, this provides guidance on how to intentionally shape team climate at each stage
- **Configurational causation:** No single climate dimension drives the creative process; instead, specific combinations of dimensions enable or constrain progress. Practically, this implies that managers should avoid one-size-fits-all interventions and instead design coordinated climate interventions that combine multiple dimensions in ways that fit the demands of each stage
- **Causal asymmetry:** Team climate exhibits configurations that are sufficient for a stage to occur, as well as distinct configurations that suppress its occurrence. From a practical perspective, this highlights that fostering creativity is not only about enabling the right conditions, but also about avoiding climate configurations that may unintentionally block or derail specific stages of the creative process

Together, these results indicate that team climate must be actively regulated and adapted, rather than assumed to be uniformly beneficial.

### General implications for teams and managers/coaches

- The creative process in NETs is a collective and social process
- Team climate must evolve in alignment with the cognitive and social demands of each creative stage.

- Certain team climate dimensions (support for innovation and task orientation) are necessary in degree conditions that constrain the occurrence of creativity-based opportunity recognition if their level is low
- Certain combinations of team climate dimensions (support for innovation, participation safety, task orientation, shared vision) are sufficient conditions for occurrence and negation of occurrence e of different stages of creativity-based opportunity recognition process
- The adaptive interplay and the temporal fit among team climate dimension and creative process sustains creativity- based opportunity recognition in entrepreneurial teams
- When deliberately managed, team climate becomes a powerful coordination and regulation tool for creativity-based opportunity recognition.
- When misaligned, team climate can suppress or block entire stages of the creative process.

### **Practical implications for Preparation Stage: initiating creative engagement**

The preparation stage marks the initiation of creative collaboration. At this stage, teams immerse themselves in the problem space before any clear idea emerges. They scan the environment, gather diverse information, explore unmet needs, and reframe problems from multiple perspectives. Study 3 shows that this stage is characterized by necessary climate conditions in degree, as well as multiple enabling and suppressing configurations, making it particularly sensitive to climate misalignment.

### **Insights for teams and managers/coaches:**

- To initiate the creative process effectively, managers should prioritize fostering a climate of socio-emotional support as a necessary condition. This includes legitimizing time spent on exploration, encouraging problem reframing, recognizing initiative, and actively inviting and supporting diverse perspectives
- Managers and coaches should avoid rigid goal-setting and premature convergence. Early evaluation or judgment of perspectives can suppress effective problem construction; instead, participation without fear of judgment should be encouraged, and diverse viewpoints explicitly legitimized
- Rather than imposing strong structure, task guidance should remain light. Providing minimal structure helps teams feel oriented while preserving the openness required for exploration

### **Practical implications for Conception Stage: sustaining divergent exploration**

The conception stage represents the core ideation phase in which opportunity ideas emerge through the creative combination, reframing, synthesis, and incubation of previously gathered information. Unlike the preparation and elaboration stages, no team climate dimension emerges as necessary in degree at this stage, underscoring its inherently fluid and exploratory nature.

#### **Insights for teams and managers/coaches:**

- During the conception stage, the central managerial task is to protect and sustain divergent thinking and idea generation
- Managers and facilitators should intentionally minimize rigid performance standards and overly concretized goals. Instead, they should encourage open and inclusive dialogue, as well as low evaluation and judgment of ideas to facilitate exploration
- The relative absence of strong convergent cues- such as tightly defined goals, performance standards, or evaluation criteria- can be beneficial during this phase, as it allows ideas to emerge without premature constraint
- To actively support divergent thinking, facilitators can:
  - i) promoting inclusive dialogue
  - ii) scheduling unstructured ideation sessions
  - iii) postponing evaluation and judgment

### **Practical implications for Elaboration Stage: converging and refining Ideas**

The elaboration stage marks the transition from divergence to convergence and refinement. Study 3 shows that this stage is characterized by necessary climate conditions in degree as well as multiple enabling and suppressing configurations.

#### **Insights for teams and managers/coaches:**

- As entrepreneurial teams progress toward the elaboration of final ideas, the creative process shifts from exploration to refinement. At this stage, managers should necessarily provide stringent performance criteria and greater structure, as their absence may lead to weak refinement, limited reflection and integration around shared quality standards or prolonged, unfocused ideation
- Yet, rigor without direction can become counterproductive. Managers should therefore provide direction, a shared sense of purpose, and task orientation to sustain quality, accountability, and focused refinement
- These convergence mechanisms are most effective when underpinned by ongoing trust and support Leaders and team members can jointly define evaluation criteria,

clarify goals, and offer constructive feedback, while maintaining openness and support to ensure that increased rigor does not suppress an encouraging collaborative environment

- In teams with a strong sense of self-management, a lack of formal task orientation can be compensated by high levels of interpersonal trust and emotional support. It suggests that leaders should adapt their approach to the team's maturity and self-regulation capacity

#### **Summary Implication:**

Across all stages, the findings demonstrate that team climate regulates creative progress by enabling or constraining collective coordination. Entrepreneurial teams and managers should therefore treat team climate as a dynamic intervention lever, adjusting socio-emotional and structural conditions to match the evolving demands of preparation, conception, and elaboration stages. Creative process in NETs does not depend on universally “positive” climates, but on stage-appropriate climate configurations applied at the right time.

#### **5.2.2.4. Integrative Practical Implication: Aligning Entrepreneurial Behaviors and Team Climate to Regulate Team-Level Dynamics**

Taken together, the findings of Studies 1, 2, and 3 suggest that entrepreneurial team creativity is constrained or enabled through the joint regulation of entrepreneurial behaviors (TEO) and team climate across the creative process. While TEO shapes what entrepreneurial teams are naturally inclined to do- their behavioral predispositions toward the generation of business ideas- team climate regulates when and how those inclinations are collectively enacted throughout the creative process.

These integrated findings imply that entrepreneurial team creativity cannot be effectively managed solely by stimulating entrepreneurial orientation or by fostering a particular team-level climate. Instead, effective intervention requires the intentional alignment between behavioral enactment (TEO) and contextual regulation (team climate) (RO4).

#### **Practical Implication for teams and managers/coaches**

The central practical implication from all the three studies is that entrepreneurial teams' creativity must be managed through a dual-lever approach. None of these implications stand alone. Entrepreneurial creativity emerges- or collapses- at the integral level

- **Behavioral regulation:** deliberately sequencing and aligning TEO entrepreneurial behaviors (Study 1-2), rather than leaving them without regulation or encouraging simultaneous and competing entrepreneurial logics. Such behavioral regulation should also take into consideration the contingent cognitively rigid individuals (team members with fixed creative mindset (Study 1)
- **Contextual regulation:** dynamically adjusting team climate configurations to fit the cognitive and social demands of each creative process stage (Study 3)
- Misalignment of TEO enactment (Study 1 & Study 2) and team climate-creative process fit (Study 3) can systematically suppress how entrepreneurial teams create
- TEO provides the potential for entrepreneurial action, but team climate determines whether this potential is amplified or blocked across the creative process. Managing

entrepreneurial team creativity therefore requires integral intervention of both, not isolated stimulation of behaviors or contextual conditions (Table 5.1)

Rather than presenting fragmented practical implications tied to individual studies, Table 5.1 synthesizes the empirical findings of this thesis into an integrative diagnostic and intervention manual for managing entrepreneurial team creativity at the nascent stage. The table integrates insights across the three studies to identify where and how entrepreneurial team creativity is most likely to be constrained, and to specify targeted interventions aligned with the empirically observed causal mechanisms.

Specifically, the table organizes the findings into key team-level intervention domains/clusters, including: team predispositions (TEO), cognitive composition, behavioral interactions among entrepreneurial behaviors, team climate, climate–process fit, and overall integration. For each domain, the table (i) states the empirical insight and indicates the study in which it was identified, (ii) explicates the underlying explanatory logic through which the identified relationship, interaction, or configuration influences entrepreneurial team creativity, (iii) names the resulting constraint on creative outcomes or processes, and (iv) translates these constraints into concrete, theory-consistent intervention strategies that are also presented in each of the separate studies (Appendix 1, Appendix 2, Appendix 3).

By bringing these elements together, the table allows the full logic of intervention to be visualized simultaneously across multiple levels, thereby offering a coherent integrative perspective on diagnosis and intervention rather than a set of isolated, study-specific recommendations. It directly responds to the practical challenge identified across all three studies (see 5.2.1.): the core issue is not how to stimulate creativity, but how to prevent entrepreneurial team creativity from being unintentionally constrained. Importantly, the proposed interventions are directly grounded in the empirical findings and theoretical frameworks employed in the thesis and should not be interpreted as generic or normative team management advice. Instead, they constitute a context-sensitive, empirically and theoretically informed manual that can be applied by entrepreneurial team members, team managers, and coaches to actively diagnose and manage constraints on entrepreneurial team creativity.

**TABLE 5.1.**

Integrative Diagnostic and Intervention Manual for Managing Entrepreneurial Team Creativity at the Nascent Stage

| Level                                                                      | Empirical Insight Identified in Studies                                                                                                                                                                                                                                                          | Explanatory Logic (Study)                                                                                                                                                                                    | Resulting Constraint                                                                                                                                 | Targeted Intervention Strategy (Manual Logic based on evidence & theory)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Team Predispositions (TEO)</b>                                          | Team Entrepreneurial Orientation (TEO) expressed through innovative, proactive, risk-taking, and autonomous behaviors-constitutes an important collective asset for entrepreneurial teams. TEO motivates teams to engage in entrepreneurial action and pursue business idea generation (Study 1) | TEO primarily predisposes teams toward generating high-quality, implementable, and incremental business ideas, while having no direct effect on the generation of disruptive or highly novel ideas (Study 1) | TEO as Internal team level asset for pursuing feasible but non-disruptive ideas                                                                      | <ul style="list-style-type: none"> <li>• Diagnose TEO as a starting point-assess how innovativeness, proactiveness, risk-taking, and autonomy are perceived at the team level</li> <li>• Identify and calibrate expectations by distinguishing quality-oriented vs. novelty-oriented goals</li> <li>• Design separate exploration path interventions (see Study 2-behavioral interactions) if that is the objective/strategy of NETs</li> </ul>                                                                                                                                                                           |
| <b>Team Predispositions (Cognitive Composition-Fixed Creative Mindset)</b> | Team members with fixed creative mindset weakens the TEO- quality outcome relationship (Study 1)                                                                                                                                                                                                 | Cognitive rigidity moderates negatively the impact of collective TEO predispositions on generation of creative-quality outcomes (Study 1)                                                                    | Suppressed quality outcomes despite team entrepreneurial orientation being an important internal asset for pursuing quality business idea generation | <ul style="list-style-type: none"> <li>• Diagnose and identify fixed creative mindset tendencies early</li> <li>• Identify presence of fixed creative mindset in all or influential team members only</li> <li>• Minimize the influence of fixed-mindset individuals or redesign team structures to prevent cognitively rigid members from disproportionately and directly shaping team outcomes</li> <li>• Address fixed beliefs through targeted reflection or learning interventions to minimize their impact, rather than assuming that minimized exposure to creative task/outcome will resolve the issue</li> </ul> |
| <b>Team Predisposition (Cognitive)</b>                                     | Team members with growth creative mindset showed no                                                                                                                                                                                                                                              | Individual or heterogeneity-based                                                                                                                                                                            | Neither adding "creative" individuals                                                                                                                | <ul style="list-style-type: none"> <li>• Investing in adding more creative individuals or making NETs more</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                    |                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Composition- Growth Creative Mindset and Perceived Heterogeneity) | moderating effect on novelty or quality outcomes; perceived team heterogeneity showed no moderating effect on novelty or quality outcomes (Study 1)                                                                                                                                                                                                                                                     | contributions have no effect (Study 1) on team level predispositions to generate creative outcomes | nor diversifying teams has effect on team level predispositions to generate creative outcomes | <p>heterogonous might not have effect on how NETs pursue generation of business ideas</p> <ul style="list-style-type: none"> <li>• Shift focus from selecting “creative individuals” or from forming more heterogeneous teams to managing team-level dynamics/climate and interaction structures (as evidenced in Study 2 and Study 3)</li> <li>• Invest in observing team level dynamics rather than individual contributions</li> </ul>                                                                                                                                                                                                                                                                                     |
| <b>Behavioral Interactions</b>                                    | Innovative and proactive behaviors generate internal tension rather than synergy; Proactive team members tend to focus on exploiting existing market opportunities to achieve feasible and lower-risk quality outcomes. Innovative team members oriented toward exploration and novel outcomes do not support this exploitation trajectory, generating tension and lack of behavioral synergy (Study 2) | Misaligned interaction of exploration and exploitation logics (Study 2)                            | Counterproductive TEO behavioral dynamics                                                     | <ul style="list-style-type: none"> <li>• Avoid simultaneous pressure to explore and exploit business ideas</li> <li>• Observe how innovative and proactive behaviors interact</li> <li>• Identify whether:</li> <li>• innovative members support proactive exploitation, or innovative efforts become isolated and autonomous</li> <li>• Explicitly sequence behavioral focus</li> <li>• Verify and maintain balance on a bipolar continuum of innovative behavior (innovators versus adaptors)</li> <li>• Pursue incremental creativity by coordinated proactive and innovative team-level effort</li> <li>• <b>Red Flag:</b></li> <li>• Innovative members (or some members) disengaging or acting independently</li> </ul> |

|                                |                                                                                           |                                                                                                                                    |                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                |                                                                                           |                                                                                                                                    |                                                     | <ul style="list-style-type: none"> <li>Proactive members (or some members) dominating exploitation direction-setting</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Behavioral Interactions</b> | Team autonomy reduces novelty when not aligned with innovative team level predispositions | Fragmented team level autonomous efforts decrease the team level innovative efforts towards exploration of novel outcome (Study 2) | Isolated exploration and diluted team-level novelty | <ul style="list-style-type: none"> <li>Align team level autonomy with shared goals and task interdependence</li> <li>Introduce coordination practices that integrate autonomous contributions to innovative-exploration efforts of a team</li> <li>introduce practices that balance self-interest and collective interest and increase engagement to share individual efforts</li> </ul>                                                                                                                                                                                                                                                                                                                        |
| <b>Behavioral Interactions</b> | Teams fall into an exploitation trap                                                      | Risk-taking combined with proactivity behaviors favors incremental exploitation and mitigation of risk (Study 2)                   | Risk aversion by short-term feasibility focus       | <ul style="list-style-type: none"> <li>(To overcome the exploitation trap) encourage exploration by stimulating or generating situations and circumstances in which NETs do not feel that they risk short-term returns by thinking out of the box</li> <li>Create exercises that focus on e.g. adding novel features to already-generated quality/incremental ideas</li> <li>Allocate time, resources, and psychological space for experimentation</li> <li>The path of exploration should be aligned with increased risk tolerance</li> <li>Work on understanding and reducing resource constraints that might block exploration (small size, experience, knowledge about the industry in which the</li> </ul> |

|                                                                        |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                        |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                 | NETs search for/generate ideas, internal relationships, work routines, etc.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Team Climate-<br/>Preparation Stage<br/>(Necessary Condition)</b>   | Creative process can fail to start without insufficient necessary condition                                        | Support for innovation acts as a critical bottleneck to initiate preparation stage-to achieve 50% of preparation stage, the entrepreneurs must reach at least 91,2% of support for innovation/ reaching 100% of preparation stage requires a minimum of approximately 41,4% of support for innovation (Study 3)                                                       | Suppressed initiation of creative collaboration unless teams establish exceptionally strong sensation of support for innovation | <ul style="list-style-type: none"> <li>• Prioritize generating a climate of emotional support/social backing</li> <li>• Legitimize time spent scanning the environment, encouraging questioning and reframing of problems,</li> <li>• Invite and support diverse opinion, follow up on observations rather than ideas, and protect early exploratory efforts from demands/critics for clarity, feasibility, or immediate results</li> <li>• Activate and maintain motivation, persistence and mutual commitment at the beginning of creative collaboration</li> </ul> |
| <b>Team Climate-<br/>Preparation Stage<br/>(Sufficient Conditions)</b> | Creative process can fail to initiate as the preparation stage is particularly vulnerable to climate misalignment. | <p>Preparation stage is constrained when i) shared vision is rigidly imposed early and socio-emotional foundations (safety and support) are weak or absent ii) support for innovation and task orientation are both low or lacking</p> <p>Preparation stage emerges when: i) participation safety and support for innovation are in synergy with task orientation</p> | Risk of low engagement in the initiation of creative collaboration under misalignment of sufficient climate conditions          | <ul style="list-style-type: none"> <li>• Prioritize support for innovation and participation safety to build socio-emotional foundation</li> <li>• Delay rigid goal/common objectives setting; introduced too early can suppress the initiation of creative process</li> <li>• Provide light structure, task clarity for better team coordination and guidance</li> </ul>                                                                                                                                                                                             |

|                                                                       |                                                              |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                       |                                                              | ii) support for innovation and participation safety enables open exchange and shared vision is low or lacking iii) task orientation provides minimal structure for coordination and support for innovation sustains motivation under uncertainty and shared vision is weak or lacking (Study 3)                                                                                       |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Team Climate-<br/>Conception Stage<br/>(Sufficient Conditions)</b> | Ideation during conception stage can prematurely constrained | <p>Conception stage is constrained when: shared vision is present but participation safety and support for innovation are low, creating climates of fear and disengagement.</p> <p>Conception stage emerges when: team climate configurations create psychologically safe space and support for exploration by minimizing evaluative and common goals pursuing pressure (Study 3)</p> | Risk of reduced effectiveness of idea generation by misalignment of sufficient climate conditions                               | <ul style="list-style-type: none"> <li>• Minimize intentionally rigid performance standards and concretized goals</li> <li>• Generate psychological safety-encourage open and inclusive dialogue, low evaluation and judgement of ideas to decrease fear of sharing (unstructured) ideas</li> <li>• Combine psychological safety with support for innovation- invite team members to share without judgment and make visible the uptake of input to do not ignore ideas</li> </ul> |
| <b>Team Climate-<br/>Elaboration Stage<br/>(Necessary Condition)</b>  | Ideas can fail to initiate the convergence process           | Task orientation becomes necessary in degree, especially at the onset of elaboration- to attain 80% of elaboration stage, teams require at least 75,9% of task orientation/ Achieving 100% of elaboration stage is possible with as little as                                                                                                                                         | Risk of weak refinement and integration or endless ideation limiting reflection and integration around shared quality standards | <ul style="list-style-type: none"> <li>• Introduce clearly task orientation, shared evaluation/quality criteria to help teams to pass from conception to elaboration reducing the risk of endless ideation</li> </ul>                                                                                                                                                                                                                                                              |

|                                                                       |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                       |                                                                         | 2.7% of task orientation (Study 3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Team Climate-<br/>Elaboration Stage<br/>(Sufficient Condition)</b> | Teams can fail to complete convergence process and refine ideas         | <p>Elaboration stage is constrained when: i) support for innovation provides encouragement but participation safety and shared vision are low or lacking, making it difficult for teams to engage in the reflective, integrative work required; ii) task orientation is present but support for innovation and participation safety are lacking iv) participation safety is present but support for innovation and shared vision are lacking</p> <p>Elaboration stage emerges when i) participation safety and shared vision are combined to activate idea refinement even when support for innovation is weak or lacking ii) task clarity, shared direction, and emotional reinforcement (support) are in synergy; and when ii) task orientation is anchored in a clear strategic vision and both are supported by a team</p> | Risk of failure to refine ideas                  | <ul style="list-style-type: none"> <li>• Provide direction and common purpose and task orientation to sufficiently sustains quality, accountability, and focused refinement.</li> <li>• Be aware that these convergence mechanisms are most effective when supported by ongoing emotional trust and/or internal encouragement/support.</li> <li>• Address socioemotional and cognitive alignment by rebuilding participation safety and re-establishing shared vision, especially when interpersonal trust or sensation of common direction is weak.</li> <li>• Jointly define evaluation criteria, clarify goals, and offer constructive feedback, while maintaining openness and support to ensure that increased rigor does not suppress an encouraging collaborative environment</li> </ul> |
| <b>Integration<br/>Climate–Process Fit</b>                            | Climate conditions enable or suppress different creative process stages | Climate effects are stage-contingent and configurational (Study 3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Risk of overall creative process ineffectiveness | <ul style="list-style-type: none"> <li>• Monitor and adapt climate configurations dynamically as teams' transition between stages</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|                            |                                                                                                                                                                            |                                                                                                                                                                                             |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            |                                                                                                                                                                            |                                                                                                                                                                                             | due to climate-process misalignment                                                                                                                             | <ul style="list-style-type: none"> <li>• Team climate must evolve in alignment with the cognitive and social demands of each creative stage.</li> <li>• Use stimulation of team climate as powerful coordination and regulation tool for creativity-based opportunity recognition.</li> <li>• Be aware of risk when misaligned, team climate can suppress or block entire stages of the creative process.</li> </ul> |
| <b>Overall Integration</b> | Entrepreneurial creativity is the result of collective entrepreneurial predispositions, cognitive composition, behavioral interactions & team climate-process relationship | TEO provides the potential for entrepreneurial action (Study 1 & Study 2), and team climate determines whether this potential is amplified or blocked across the creative process (Study 3) | High risk of suppression of creative potential or fragmented creativity management if predispositions, behaviors and team climate are not managed intentionally | <ul style="list-style-type: none"> <li>• Apply holistic system diagnosis and coordinated, multi-level interventions rather than isolated practices;</li> <li>• Do not leave NETs to self-regulate their collective creative efforts</li> <li>• Manage entrepreneurial teams' creativity through a dual-lever approach (behavioral regulation and contextual regulation)</li> </ul>                                   |

**Note:** own elaboration based on empirical insights and theories and original texts from Study 1, Study 2 and Study 3

### **5.2.3. Practical Implications for Educational Institutions, Accelerators/ Incubators and Policy Designers**

While the empirical studies provide the strongest and most direct practical implications for entrepreneurial teams, team managers, and coaches, the integrative nature of the findings also enables broader, more strategic implications for institutional and ecosystem-level actors. These implications are necessarily less operational and more design-oriented, reflecting the different spheres of influence of universities, incubators and accelerators, and policy makers. Together, these actors shape the learning environments, incentive structures, and temporal pressures under which entrepreneurial teams operate, thereby indirectly influencing the same constraining mechanisms identified in the empirical studies.

#### **5.2.3.1. Practical Implications for Entrepreneurship Education**

The findings of this thesis have important implications for entrepreneurship education, particularly for programs that emphasize team-based venture creation.

- Teaching creativity as a collective and processual capability

The empirical findings demonstrate that creativity in entrepreneurial teams does not emerge as a stable individual trait, nor as a one-off ideation event, but as a collective, multi-stage effort that is highly sensitive to cognitive, behavioral, and contextual conditions. Entrepreneurship education should therefore move beyond treating creativity as an inherent personal quality or a single brainstorming activity. Instead, creativity should be explicitly taught as a process that unfolds through different stages, each requiring different forms of engagement and coordination and social context.

Educational interventions should address team formation not by assuming that “more creative individuals” or more diversified teams will automatically enhance team entrepreneurial creativity, but by helping students/entrepreneurs recognize and manage cognitive constraints, collective predisposition constraints, team level interaction constraints and team climate context constraints- that can suppress team-level creative outcomes or creative process. Embedding structured reflection on how teams collectively create generate and what are the challenges can help students/entrepreneurs develop awareness of how creativity is collectively enacted and constrained.

- Designing curricula that separate exploration and exploitation

The findings highlight the importance of structural separation between exploration and exploitation in entrepreneurial educational settings. The studies show that entrepreneurial teams tend to gravitate toward exploitation and quality-oriented refinement, often at the expense of novelty, especially when exploration and execution are pursued simultaneously. Entrepreneurship education programs should therefore design curricula that intentionally decouple idea exploration in search for out of the box ideas from exploitation of existing market opportunities, particularly in early stages of venture development. Early-stage learning activities should reward breadth of exploration, novelty, disruption, while later-stage activities can progressively emphasize feasibility, incremental search, quality or vice versa. The point is to have a temporal separation in team level dynamics towards both of these

streams which reduces premature convergence, exploitation trap and allows students/entrepreneurs to experience the full creative process without systematically constraining their full entrepreneurial potential and predispositions.

- Using team climate as a pedagogical design variable

The findings further indicate that team climate is not merely a social by-product of teamwork, but a powerful pedagogical design variable that can enable or suppress different stages of the creative entrepreneurial process. Entrepreneurship education should therefore deliberately design learning environments that support stage-appropriate interaction patterns. By explicitly teaching or making students/entrepreneurs aware of how to diagnose and adapt and stimulate their team climate as projects evolve, entrepreneurship education can move beyond individual skill or entrepreneurial competence development toward the development of (creative) coordination capabilities.

### **5.2.3.2. Practical Implications for Incubators/Accelerators**

- Avoiding premature convergence in early-stage support

Incubation and acceleration programs often emphasize rapid validation, execution, and scalability. While these pressures are valuable at later stages, the findings suggest that applying them too early can suppress exploration and novelty. Programs should therefore recognize that early-stage teams require protected spaces for creative divergence before being pushed toward convergence and optimization.

This implies deliberately delaying strong feasibility pressures, rigid milestones, and narrow performance metrics during early stages, allowing teams to fully engage in opportunity exploration and (market) problem reframing.

- Moving from generic support to diagnostic intervention

The findings demonstrate that creative constraints arise from different sources- cognitive rigidity, counterproductive behavioral interactions, or misaligned team climate- depending on the stage of the entrepreneurial creative process. Incubators and accelerators should therefore move beyond one-size-fits-all support models toward diagnostic approaches that help identify where and why creative potential is being constrained in each entrepreneurial team.

### **5.2.3.3. Practical Implications for Policy Makers**

- Designing ecosystems that protect early-stage creativity

Policy makers should support entrepreneurship programs that are explicitly designed to stage expectations and pressures over time, allowing entrepreneurial creativity to unfold before strong execution demands are imposed. This includes funding structures, milestone designs, and reporting requirements that recognize the fundamentally different cognitive and behavioral demands of exploration and exploitation.

Uniform timelines, early performance thresholds, and premature validation requirements risk reinforcing exploitation traps, systematically steering entrepreneurial teams toward incremental and lower-risk opportunities while narrowing creative search. The findings of this thesis suggest that such pressures do not merely accelerate venture development, but may unintentionally suppress novel opportunity creation at its source.

- From stimulating entrepreneurship to regulating creative conditions

The findings point to a necessary shift in policy logic: from indiscriminately stimulating entrepreneurial activity toward actively regulating the conditions under which entrepreneurial creativity can be unblocked and sustained. Effective entrepreneurship policy should not only encourage venture formation, but also prevent the erosion of creative potential in nascent entrepreneurial teams.

This includes ensuring that early-stage teams are not systematically pushed toward premature convergence through rigid evaluation criteria, excessive emphasis on short-term feasibility, or homogeneous success metrics. Policies that legitimize experimentation, learning, and exploratory failure can help counteract structural risk aversion and support more diverse creative trajectories.

- Rethinking entrepreneurship metrics beyond venture creation

A further implication concerns how entrepreneurial activity is measured and evaluated at the policy level. Common indicators such as the number of ventures created, survival rates, or early growth outcomes may fail to capture the creative potential of entrepreneurial teams, particularly in early-stage contexts where novel opportunities are not yet materialized as formal ventures.

The findings suggest value in complementing traditional output-based indicators with process- and capability-oriented metrics, such as:

- teams' (level) engagement in opportunity exploration
- level of diversity and novelty of opportunity ideas generated
- balance between exploration and exploitation behaviors
- presence of conditions that enable sustained creative collaboration

Such metrics would allow policy makers to identify latent entrepreneurial potential that may otherwise remain invisible, and to distinguish between ecosystems that merely produce ventures and those that cultivate long-term creative capacity in entrepreneurial teams.

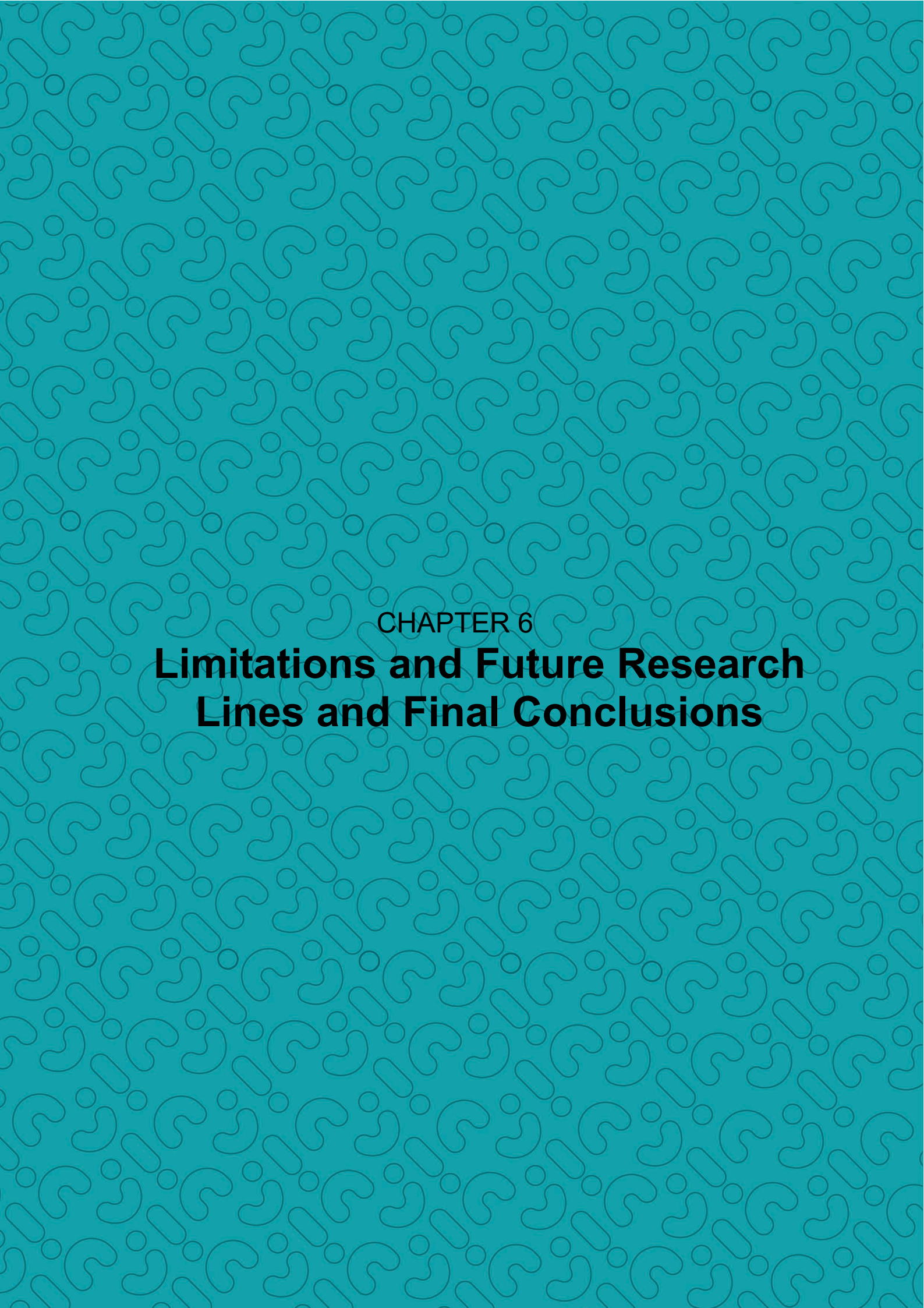
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CHAPTER 6

# **Limitations and Future Research Lines and Final Conclusions**



## 6. Limitation, Future Research Lines and Conclusions

This Chapter synthesizes the limitations, future research directions, and overarching conclusions arising from the three empirical studies that constitute the thesis (Study 1- Appendix 1; Study 2- Appendix 2; Study 3- Appendix 3). Rather than reiterating these elements separately for each study, the Chapter adopts an integrated and holistic perspective.

Such an integrative approach is necessary because the phenomenon under investigation- entrepreneurial team creativity- was examined across the three studies from complementary theoretical, methodological, and analytical perspectives. Only by considering the studies jointly is it possible to fully identify the contextual, conceptual, theoretical, and methodological limitations of the thesis, as well as to delineate meaningful and coherent avenues for future research.

Accordingly, the limitations and future research lines discussed in this chapter do not reflect isolated shortcomings of individual studies, but instead emerge from the cumulative logic of the thesis. In the same vein, the final conclusions are articulated at the level of the overall research, integrating insights across the three studies to provide a consolidated understanding of entrepreneurial team creativity as a complex, collective, processual, and contextually embedded phenomenon.

### 6.1. Limitations and Future Research

As with any empirical investigation of a complex collective phenomenon, this thesis is subject to several limitations. Importantly, these limitations also point to promising and theoretically meaningful avenues for future research. Rather than weaknesses in isolation, they reflect deliberate research choices aligned with the objective of advancing understanding of entrepreneurial team creativity.

#### 6.1.1. Contextual Scope and Generalizability

A first limitation concerns the empirical context in which the three studies were conducted. All studies draw on entrepreneurial teams embedded in the Mondragon Team Academy (MTA) ecosystem in the Basque Country, Spain. These teams are characterized by relatively high levels of self-organization, strong collaborative norms, and sustained exposure to ideation- and team-based entrepreneurial practices, with an average of more than three years of real teamwork experience.

While this context makes the sample particularly well suited for examining entrepreneurial team creativity as a collective and processual phenomenon, it also limits the universal generalizability of the findings. The dynamics observed in this setting may differ in entrepreneurial teams with limited collaboration experience, in more hierarchical organizational environments where autonomy and self-organization are constrained, or in ecosystems that do not explicitly encourage ideation, experimentation, and reflection. Similarly, the findings may not fully apply to teams operating at later stages of venture

development, where formalized roles, stronger market pressures, and structural constraints increasingly shape team functioning.

At the same time, having the contextual and selection criteria of sample so highly explicit strengthens the generalizability potential of the findings by enabling analytical replication. In other words, the results and the integrative intervention manual (Table 5.1.) are therefore expected to be transferable to entrepreneurial teams operating outside the MTA context, provided that they share similar characteristics- such as e.g. prior collaboration experience, relative autonomy, and an explicit mandate to generate and develop new ideas or search for opportunities. This includes, for example, entrepreneurial teams embedded within established organizations, innovation units, or corporate venture contexts that face opportunity-search challenges under comparable conditions.

### **6.1.2. Cultural and Economic Contexts**

Moreover, the cultural context in which entrepreneurial teams operate should be explicitly considered. Prior research (Engelen et al., 2015) shows that entrepreneurial behaviors, team dynamics, and the relationship between Entrepreneurial Orientation (EO) and outcomes vary across cultural settings. Given the cultural characteristics of the Basque Country and Spain- such as relatively collectivist orientations, moderate power distance, and strong traditions of cooperative work- the findings of this thesis are likely to be particularly transferable to entrepreneurial teams operating within similar cultural clusters, such as other Latin European countries. Future studies could therefore examine whether these dynamics replicate in comparable cultural contexts or whether distinct patterns emerge in culturally different settings.

At the same time, entrepreneurial behavior is also shaped by broader economic conditions. Research (Rauch et al., 2009; Wales et al., 2021) indicates that the EO-performance relationship differs across economic contexts, particularly between developed and emerging economies. While the findings of this thesis are likely applicable to developed economies characterized by opportunity-driven entrepreneurship, they may not fully capture entrepreneurial team dynamics in contexts where entrepreneurship is predominantly necessity-driven. In such environments, entrepreneurial behaviors, risk perceptions, and creative processes may follow different logics, potentially altering how exploration, exploitation, and entrepreneurial team creativity are enacted.

Future research should therefore extend this line of inquiry by examining Team Entrepreneurial Orientation (TEO), behavioral interaction patterns, and climate-process dynamics across diverse cultural and economic contexts. Comparative cross-cultural and cross-economic studies would help to clarify how cultural norms, institutional arrangements, and economic conditions shape the emergence, regulation, and constraint of entrepreneurial team creativity, thereby refining the boundary conditions of the mechanisms identified in this thesis.

### **6.1.3. Temporal and Process Limitations**

Another limitation concerns temporality. Studies 1 and 2 and Study 3 rely on cross-sectional designs, which limit the ability to capture how entrepreneurial team creativity unfolds over time or how creative outcomes translate into venture implementation and performance.

Although Study 3 adopts a process-oriented logic by examining stage-contingent climate effects, the empirical data remain cross-sectional rather than longitudinal.

Future research would benefit from longitudinal designs that follow entrepreneurial teams across extended time horizons, capturing transitions between preparation, conception, elaboration, and post-idea implementation phases. Such designs could clarify how early creative dynamics shape later entrepreneurial outcomes, including venture launch, and further performance trajectories.

#### **6.1.4. Methodological Boundaries and Complementarity**

Methodologically, this thesis intentionally employed quantitative, configurational, and necessity-based approaches (PLS-SEM, fsQCA, and NCA) to capture positive/negative effects between constructs, interaction effects, non-linearity, equifinality, and bottleneck conditions in entrepreneurial teams. These methods enabled the identification of systematic patterns and constraints that would have been difficult to uncover through qualitative approaches alone.

In particular, the quantitative design made it possible to i) identify interaction effects among entrepreneurial behaviors (e.g., innovativeness, proactiveness, autonomy, and risk-taking), revealing when such behaviors become synergistic or counterproductive ii) distinguish between necessary and sufficient conditions for different stages of the creativity-based opportunity recognition process, something that is methodologically inaccessible through e.g. purely qualitative designs; iii) detect constraints on entrepreneurial team creativity (e.g., exploitation traps, cognitive bottlenecks, stage-contingent climate misfits) across a relatively large sample of entrepreneurial teams; iv) move beyond individual-level explanations and empirically demonstrate that team-level creativity is not an additive function of individual traits, but collective, interactive and configurational phenomenon.

Critically, the insights uncovered in this thesis relied explicitly on quantitative analytical techniques capable of simultaneously comparing multiple teams to identify recurring, statistically significant patterns (Ragin, 2009; Fainshmidt et al., 2020; Kraus et al., 2018). While qualitative methods excel in providing depth and contextual richness (Edmondson & McManus, 2007; Bell et al., 2022), they are less effective in identifying these regularities, asymmetries, and threshold effects.

At the same time, the thesis acknowledges that quantitative approaches have inherent limitations. While they are well suited to identifying whether and under what conditions certain dynamics occur, they are less effective in capturing how these dynamics are enacted in real-time interaction (Edmondson & McManus, 2007).

Specifically, quantitative data cannot fully illuminate e.g. i) the micro-level interaction processes through which tensions between exploration and exploitation are negotiated; ii) the sensemaking activities by which team members interpret climate cues or align (or fail to align) autonomous actions, or other behaviors or actions; iii) the lived experience of cognitive rigidity or psychological safety as it unfolds during creative collaboration.

These aspects remain partially latent in survey-based and configurational data and point to important opportunities for complementary methodological approaches. Rather than positioning qualitative research as an alternative, future studies could use qualitative and

mixed-methods approaches to complement and extend the findings of this thesis. In-depth qualitative designs (Tisdell et al., 2025)- such as longitudinal case studies, ethnographic observation, or process tracing- would be particularly valuable for unpacking the micro-mechanisms underlying the statistically observed patterns.

For example, qualitative research could explore i) how entrepreneurial teams experience and manage behavioral tensions identified in Study 2; ii) how team members perceive and adapt to climate shifts across creative stages; iii) how cognitive boundary conditions (e.g., fixed creative mindset) manifest in interaction and decision-making practices.

Such approaches would allow future researchers to translate quantitatively unveiled patterns into richer narratives, thereby strengthening theory development through methodological triangulation.

### **6.1.5. Conceptual/Theoretical Scope and the 4Ps of Creativity**

From a conceptual/theoretical perspective, the thesis is principally grounded in Rhodes' (1961) 4Ps framework of creativity, yet it does not capture all four dimensions simultaneously within a single empirical model. While person/team (TEO, cognitive composition), press (team climate), process (creativity-based opportunity recognition), and product (novelty and quality of business ideas) are all addressed across the three studies, they are examined in double relationships rather than as a fully integrated causal chain.

This reflects both methodological constraints and deliberate analytical choices aimed at preserving conceptual clarity and empirical tractability. Future research could build on this foundation by designing integrated Input-Process-Output (IPO) models (Ilgen et al., 2005) that can connect person, press, process, and product within a single framework. Such work could further advance holistic theorizing of entrepreneurial team creativity.

Several theoretically meaningful relationships remain unexplored. These include: (a) the stage-contingent relationship between TEO behaviors and the creative process, (b) the relationship between creative process stages and creative outcomes, and (c) the direct relationship between team climate configurations and creative outcomes.

Together, these missing links represent an incomplete empirical realization of the full 4Ps framework but they also indicate concrete future research lines to complete different relationship links between all 4Ps of Creativity framework dimensions. Future research is therefore encouraged to build on this foundation by explicitly integrating these remaining relationships. Such research would allow for a more complete empirical operationalization of the 4Ps of Creativity framework at the entrepreneurial team level, advancing a truly integrative theory of entrepreneurial team creativity.

### **6.1.6. Measurement Considerations and Additional Variables**

Several measurement-related limitations should also be acknowledged. Team-level behaviors and team climate were measured through team members' perceptions. While this perceptual approach represents an advancement over purely individual-level measures and aligns with contemporary team research, the average number of respondents per team (approx.2) may not fully capture the diversity of perspectives within each entrepreneurial

team. Although this response rate is sufficient for robust team-level analysis, future studies could strengthen measurement validity by increasing within-team response rates or by triangulating perceptual data with behavioral, observational, or archival measures.

Additionally, certain dimensions of Team Entrepreneurial Orientation (TEO), such as competitive aggressiveness (Lumpkin & Dess, 1989), were intentionally excluded due to the early entrepreneurial stage under investigation. While this decision was theoretically and empirically justified for nascent entrepreneurial teams, future research could explore whether such dimensions become more salient at later stages of venture development, when competitive positioning and market rivalry intensify.

More broadly, while TEO was selected as a focal collective construct due to its strong theoretical grounding at the intersection of entrepreneurship and creativity research, other team-level constructs may also offer valuable insights into entrepreneurial team creativity. For example, collective creative efficacy (Dampérat et al., 2016) could be incorporated to examine teams' shared beliefs in their creative capabilities. At the individual level, constructs such as creative self-efficacy (Dampérat et al., 2016) or entrepreneurial self-efficacy (Goyal et al., 2023) could be integrated into multilevel models to further unpack how individual cognitions translate- or fail to translate- into collective creative outcomes.

Relatedly, future research could explicitly compare individual-level Entrepreneurial Orientation (IEO) with Team Entrepreneurial Orientation (TEO) (Covin et al., 2020). Examining whether entrepreneurial behaviors perceived at the individual level are collectively enacted/manifested at the team level would allow researchers to distinguish between aggregated individual orientations and genuinely shared team-level predispositions. Such comparisons could clarify whether IEO and TEO exert differentiated or even opposing effects on creative outcomes and processes in entrepreneurial teams.

With respect to the creativity-based opportunity recognition process, future studies could also expand the range of contextual variables examined beyond the Team Climate Inventory (TCI). Alternative conceptualizations of climate for creativity (e.g. Amabile, 2018; West & Richter, 2024) could be taken in consideration. Future research could further strengthen the integration between group and team creativity research and entrepreneurial team studies by examining additional collective factors known to shape creative collaboration/processes, but within explicitly entrepreneurial contexts. In particular, prior research highlights the role of social identity and shared group membership (Haslam et al., 2019), network structure and relational positioning (Yuan, 2019), communication patterns and information processing (Dennis et al., 2019), and social norms regulating conformity and deviance (Goncalo et al., 2015) as key influences on collective creativity. Similarly, team performance research has demonstrated the importance of shared cognition, accumulated shared experience, coordination processes (Klotz et al., 2014; Mol et al., 2015), and social interaction and information exchange mechanisms (Schjoedt & Kraus, 2009) in shaping collective creative processes. While these factors have been extensively studied in group creativity settings, their role within entrepreneurial teams- particularly during creativity-based opportunity recognition processes- remains underexplored. Future studies could therefore examine how such collective mechanisms operate across entrepreneurial creative processes and whether they enable or constrain opportunity exploration, idea generation, and opportunity refinement in ways that differ from non-entrepreneurial team contexts. By explicitly testing these group- and team-level creativity mechanisms within entrepreneurial settings, future research could further advance an

understanding of entrepreneurial team creativity. Such work would not only deepen theoretical integration across research streams, but also refine practical guidance for managing entrepreneurial teams engaged in opportunity recognition under conditions of uncertainty. Moreover, factors beyond climate-such as team composition variables-could be incorporated. For instance, gender composition may shape climate needs and interaction dynamics, as predominantly female, predominantly male, or gender-diverse teams may require different forms of support, psychological safety, or coordination. Exploring such dimensions could further advance both theoretical understanding and practical sensitivity in the management of entrepreneurial teams.

### **6.1.7. Intervention-Based Research as a Future Trajectory**

Finally, an important limitation- and crucial opportunity- concerns the practical manual developed in this thesis.

The manual presented in Table 5.1. is the integrative product of the thesis. It synthesizes the empirical findings and theoretical mechanisms identified across the three studies into a coherent, integrative diagnostic and intervention framework for managing entrepreneurial team creativity at the nascent stage. Future studies could empirically apply, adapt, and test the proposed manual through longitudinal, quasi-experimental, or action-research designs, examining how targeted interventions alter team-level predispositions, behavioral interaction patterns, team climate configurations, and creative process dynamics over time. Such intervention-based research would not only validate the practical effectiveness of the manual, but also advance creativity and entrepreneurship theory. This may become a high-impact future research trajectory: intervention-based and design science- oriented intervention- based research (Chandrasekaran et al., 2020; Chandrasekaran, et al., 2023) in entrepreneurial teams.

## **6.2. Final Conclusions**

This thesis set out to advance understanding of entrepreneurial team creativity by examining how creative outcomes and processes emerge, are shaped, and are constrained within nascent entrepreneurial teams. By integrating three complementary studies, the thesis moves beyond fragmented explanations of creativity in entrepreneurship and offers an integrative, team-level, and process-sensitive account of how entrepreneurial teams generate business ideas and search for business opportunities (or can boost their potential to generate business ideas and search for business opportunities). Importantly, the originality of this thesis does not reside in any single study, but in the intentional complementarity and integration of the three studies into a coherent integrative contribution.

Each study addresses a distinct but interdependent layer of entrepreneurial team creativity- team predispositions, behavioral enactment, and contextual process regulation- while together they generate an integrative understanding that could not have been achieved through isolated analyses. This integrative value is reinforced by the deliberate selection of the 4Ps of Creativity framework (1961), which provides a unifying conceptual structure linking person/team characteristics, behavioral dynamics, contextual conditions, creative processes, and outcomes. By combining theories and concepts from entrepreneurship, creativity, and team research, the thesis bridges fragmented literatures and enables the development of a scientifically grounded diagnostic and intervention logic, rather than

intuitive or generic managerial prescriptions. The methodological choices further strengthen this contribution. The use of advanced quantitative and configurational approaches demonstrates a strong fit between the complexity of the phenomenon and the methods employed, allowing the thesis to uncover non-linear, interaction-based, and stage-contingent mechanisms that would remain invisible in simpler designs.

Taken together, the findings lead to a central conclusion: entrepreneurial team creativity is neither automatic nor self-sustaining. Rather than being a natural by-product of entrepreneurial orientation or supportive contexts, creativity in nascent entrepreneurial teams arises as a fragile collective achievement that is highly sensitive to behavioral interactions, cognitive boundaries, and contextual alignment across stages of the creative process. In sum, this thesis demonstrates that the core challenge in entrepreneurial team creativity is not how to stimulate creativity, but how to prevent it from being unintentionally constrained. By revealing the often-invisible conditions through which teams block their own creative potential, the thesis contributes new theoretical clarity, methodological advancement, and practical relevance to entrepreneurship and team creativity research.

The final integrative outcome of the thesis- the integrative diagnostic and intervention manual (Table 5.1.)- crystallizes this contribution by not leaving the thesis conclusion only with the practical challenge identified but also with a scientifically grounded and theoretically based tool of intervention. It translates empirical findings and theoretical logic into a coherent framework for understanding and managing entrepreneurial team creativity as a dynamic, multi-level system. In doing so, the thesis not only advances academic knowledge, but also lays the groundwork for future intervention-based and design science-oriented research that can further test, refine, and apply these practical interventions in real entrepreneurial contexts. At the same time, the thesis demonstrates reflexivity through a transparent discussion of its limitations, thereby outlining clear and credible avenues for future theoretical, methodological, and intervention-based research.



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# Appendixes



# Appendixes

## Appendix 1- Study 1

Tkacz, M., Agirre-Aramburu, I., & Lizartza-Martin, A. (2023). Is Team Entrepreneurial Orientation important in generating creative business ideas? The moderating role of team-perceived heterogeneity and the individual creative mindset. *Journal of Entrepreneurship, Management and Innovation*, 19(1). DOI: <https://doi.org/10.7341/20231913>

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### Is Team Entrepreneurial Orientation important in generating creative business ideas? The moderating role of team-perceived heterogeneity and the individual creative mindset

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#### Abstract

**PURPOSE:** The study aims to unveil if Team Entrepreneurial Orientation (TEO) facilitates identification of creative market opportunities understood as novelty and quality business ideas. Entrepreneurial Orientation (EO) has rarely been measured at a team level and few studies have attempted to examine the relationship between EO and actual creative outcomes. The proposed research model searches for new patterns that can foster creativity of entrepreneurial teams. In addition, the research adds the moderating effect of perceived team heterogeneity and individual creative mindset (Growth-Creative and Fixed-Creative Mindsets) as contingency variables to improve the understanding under which circumstances the entrepreneurial teams generate creative business ideas. **METHODOLOGY:** The research sample comprises entrepreneurial teams from the Mondragon Team Academy in the Basque Country, Spain. The survey data were collected after the entrepreneurial teams performed idea generation. The applied experiment of idea generation of entrepreneurial teams has not been generated for the purpose of the study but it formed part of the natural processes of the selected sample of teams. The novelty and quality of business ideas were evaluated by experts in the field. The data relationships were analyzed through partial least square structural equation modeling (PLS-SEM).

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The moderating role of team-perceived heterogeneity and the individual creative mindset

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**FINDINGS:** Entrepreneurial Orientation of teams leads to product-market entries but not necessarily to novel product-market entries. Entrepreneurially oriented teams have a greater tendency to generate quality and slightly modified existing business ideas rather than to generate novel market opportunities. The applied moderators present different interaction results with the studied relationships. Specifically, individuals with a Fixed-Creative Mindset in a team have an antagonistic interaction on the TEO-Quality relationship. Team-Perceived Heterogeneity and Growth-Creative Mindset of individuals have no effect on either the TEO-Quality or the TEO-Novelty link. **IMPLICATIONS:** The research demonstrates the importance of contextualization of the nature of creativity in EO as a crucial antecedent of market innovations. Our study adds to the literature and practice by providing evidence that EO at a team level (TEO) plays a critical role in exploring product-market entries, given that TEO facilitates Quality outcomes only. Entrepreneurially oriented teams do not easily achieve Novel outcomes that allow them to enter new markets. Individuals with Fixed Creative Mindset in a team should be avoided as they block the relationship between Team Entrepreneurial Orientation and Quality. Likewise, our study supports the validity of Entrepreneurial Orientation at a team level, which can lead to more suitable practical implications for a team and its creativity management if applied. It could help in developing appropriate team formation and team management practices. **ORIGINALITY AND VALUE:** The study proposes rare and unique EO analysis at a team level and at young companies' level (start-up). The study contributes to the original and overlooked in the literature conceptualization of EO within Schumpeter's perspective of "creative destruction" in entrepreneurial activities. The examined theoretical foundations of EO led to clearer antecedents of behavioural effects of entrepreneurial teams towards product-market entries. The study initiates, identifies and calls for new further research lines to contribute to a greater and contingent understanding of how entrepreneurial teams generate creative business ideas, especially, novel business ideas, which are necessary for "creative destruction", the EO construct itself and overall economic development.

**Keywords:** entrepreneurship, creativity, team, entrepreneurial orientation, creative outcomes.

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## INTRODUCTION

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During a time when product and business model life cycles are shortening, entrepreneurs' capacity to generate new market opportunities has become even more crucial from a scientific and practical perspective (Pérez-Luño, Wiklund, & Cabrera, 2011). New ideas for ventures, however, are rarely the product of a single entrepreneur working in isolation. Rather, they are devised by a team of entrepreneurs (Jin et al., 2017). For decades, teams have been more effective than individuals in generating more novel and higher-quality ideas (Barczak, Lassk, & Mulki, 2010; Kier & McMullen, 2020). Much of the experimental literature on team creativity has its antecedents

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in the brainstorming paradigm performed with groups prepared ad hoc for the study in question, in limiting laboratory environments, focusing on the quantity rather than the quality of the ideas generated (Kurtzberg & Amabile, 2001; Yuan, 2019). The literature has largely been limited to empirical studies exploring the personality of 'creative' entrepreneurs (Palmer, Niemand, Stöckmann, Kraus, & Kailer, 2019) without considering actual creative performance and the collective generation of creative performance outcomes. Subsequently, we still lack sufficient understanding of how entrepreneurial teams actually form creative ideas for business development (Gundry, Ofstein, & Monllor, 2016; Yuan, 2019).

For the purpose of clarity, this study addresses the concept of creativity through the dimension of an outcome, a *product*, viewed as a creative idea generated by a team of entrepreneurs. We define a creative idea within the key creativity features: quality (useful, effective and implementable solution) and novelty (Amabile, 1997; Ylitalo, 2017). In entrepreneurship, novelty refers to the originality, newness, and distinctiveness of business opportunities compared with existing products or services in the market (Perry-Smith & Mannucci, 2017). Meanwhile, the usefulness (quality) of creativity guarantees that customer needs are better served and allows entrepreneurs to obtain potential economic benefits (Gruber, Kim, & Brinckmann, 2015). In general terms, creativity in entrepreneurship drives differentiation, and competitiveness (Zhou, Wang, Song, & Wu, 2017). Not surprisingly, therefore, scholars (Covin & Slevin, 1989; Lumpkin & Dess, 1996) have been trying to understand the tendency of entrepreneurs to create, discover and exploit new product-market entries. The studies have resulted in the evolution of the most common construct in entrepreneurship literature, known as Entrepreneurial Orientation (EO) that captures and reflects the strategic orientations of entrepreneurs (Lumpkin & Dess, 1996) towards the creation of new value on the market. Even though creativity seems to be the very explicit outcome of EO, it has not been fully explored yet and especially, in the currently common context of entrepreneurial teams. Without a doubt, EO and creativity dimensions can enhance each other, providing the base for our study that connects EO at a team level and creativity in a new explanatory and causal research framework.

In this regard, our study applies an Entrepreneurial Orientation (EO) construct, which in broad EO-performance relationship studies has rarely included creativity as its specific type of performance outcome and has rarely been conducted at a team or entrepreneurial team level (Kollmann et al., 2017). Our study, therefore, extends and advances the research domain with three key contributions.

Firstly, following the suggestions of Kollmann, Stöckmann, Meves, and Kensbock (2017), Covin et al. (2020) and Wales et al. (2020), it alters the context of analysis by conceptualizing EO at a team level (Team Entrepreneurial Orientation, TEO) and at emerging firms (start-up) level including the pre-organizational phases of entrepreneurship (prior to startup existence) (Lumpkin & Pidduck, 2021). For the team-level analysis, we extend the common aggregate models of the individual-level construct, which contributes to a better understanding of TEO (Covin et al., 2020; Fellnhofer, Puumalainen, & Sjögrén, 2017). The young firm's level analysis enhances the understanding of the processes and outcomes surrounding EO and entrepreneurial teams (Kollmann et al., 2017) at an early stage of entrepreneurial activity, without the corporate structures influence on team members' orientation.

Secondly, our study applies the contingency view (Linton, 2016) to better comprehend the conditions, situations, and context under which the TEO is actually reflected in creative outcome performance: novelty and quality of the generated business idea (Amabile, 2013). Our study adds two novel moderating effects: Team-Perceived Heterogeneity and individual creative mindset to expand an understanding of the link between TEO and creative outcomes. It enables us to detect whether and when TEO leads to potential new product-market entries that can "creatively destroy" (Schumpeter, 1934) the current economic paradigms, verifying the accuracy of the theoretical foundations of EO (Wales et al., 2020).

Thirdly, our study stresses the distinction between creativity and innovation. It views creativity as the first stage of innovation (Gundry et al., 2016). Detecting the TEO-creativity relationship and revealing the factors that affect the generation of creative ideas by entrepreneurial teams, can explain and anticipate the whole range of future performance outcomes, specifically, TEO-market entry innovation leading to clearer antecedents of behavioral effects of entrepreneurial teams towards further performance outcomes.

The paper is structured as follows. First, we discuss the theoretical arguments and empirical evidence regarding TEO, creativity and the link between them, building our hypotheses. Next, we present the method used to test these hypotheses. We then present and discuss our results. We conclude with an assessment of how the study's findings contribute to the literature on EO and creativity, their practical implications for entrepreneurs, and the possible direction of future analyses.

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## LITERATURE REVIEW AND HYPOTHESES

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### Team Entrepreneurial Orientation and Creativity

After almost five decades of research, Entrepreneurial Orientation (EO) has become one of the most widely studied areas in entrepreneurship literature (Wales et al., 2020). EO explains the tendency to discover and exploit new products–market opportunities “lead[ing] to new entry” (Lumpkin & Dess, 1996, p. 139). The original conceptualization of EO by Covin and Slevin (1989) defines EO as innovative, proactive, and risk-taking behaviors of entrepreneurial entities in the generation of new product-market entries. Lumpkin and Dess (1996) launched the idea that competitive aggressiveness and autonomy should also be EO dimensions. Many authors use the three original dimensions while others use different combinations of the five (Wales, Gupta, & Mousa, 2013). Independently from the dimensions applied, the essence of the definition of EO suggests that creativity is somewhat its integral part and that some aspects of EO are a catalyst to adapt creativity in the process of new entry development (Yi, Amenuvor, & Boateng, 2021).

The aspect of creativity in EO has been mentioned even before its commonly known origins in the early studies of Covin and Slevin (1989) and Lumpkin and Dess (1996). The most important theoretical foundations of EO are based on Schumpeter’s (1934) perspective of economic development and especially innovation and entrepreneurship, which has often been overlooked in EO research. Relating to Schumpeter’s early ideas, entrepreneurially oriented entities are defined based on their tendency to embrace new practices and go beyond the current state-of-the-art: such as new and creative ideas, novelty, and experimentation (Lumpkin & Dess, 1996). This concept was used by Schumpeter (1934) to stress the influence of creativity on the creation of new products, services or organizations that act as new entrants or agents of change that “creatively destroy” extant economic regimes and in doing so, generate possible new areas of growth (Wales et al., 2020) revolutionizing the economy (Corte & Gaudio, 2017).

Consequently, novelty and usefulness (also known as quality) emerged as the key concepts of creativity and were further used by its key proponents, Amabile (1997) and Sternberg (1999). In this regard, both elements of creativity are also fundamental in entrepreneurship, but they require to be effectively implemented. The business idea may be novel, but its acceptance by the market is dependent on its real usefulness. On the other hand, the idea may be useful, but if it is already applied, it will not generate new value on the market (Corte & Gaudio, 2017). Along similar lines, Schumpeter’s oft-overlooked theory naturally links Entrepreneurial Orientation and creativity

in trying to explain that an EO entity's role is to elevate new entries to the level of market disruptors. It is also reflected in the most recent exhaustive bibliometric meta-analysis by Wales et al. (2020), which argues that the Schumpeterian perspective of the role of "creative destruction" within EO should be the center of any future development of EO research. Following scientific calls, Schumpeter's theory has become the basis of our new research framework.

Previous studies have already explored a number of EO performance frameworks, with most focusing on financial performance (Hughes, Chang, Hodgkinson, Hughes, & Chang, 2021) or new venture performance (e.g., sales volume, sales growth, market share) (Donbesuur, Boso, & Hultman, 2020; Lumpkin & Dess, 1996). The relationship with the intermediate steps, such as EO-creative performance outcomes, is not very clear in scientific literature. We can detect, however, some indirect insights in scientific papers on EO-innovation (Rauch, Wiklund, Lumpkin, & Frese, 2009), where scholars have consistently established (across different national cultures, firm sizes or industries) that greater product/market entry innovation is associated with greater EO and its separate dimensions such as proactiveness and greater risk-taking. Similarly, Pérez-Luño et al. (2011) stated that the launch of "new to the world" product appears to be a result of EO. Zhai et al. (2018) and Wang, Dass, Arnett, and Yu (2020) found that EO affects engagement in activities that enable new value creation and innovation performance. Additionally, Donbesuur et al. (2020) proved the positive influence of EO on the discovery of market opportunities and its enhancing effect on firm performance.

None of these scholars have sufficiently considered whether EO is closely associated with "entry" into new or established markets, either with new or existing goods or services. All too often, scholars associated the launch of new products with the generation of novel ideas when, indeed, they might often be the effect of adopting and modifying what others have already developed (Pérez-Luño et al., 2011). Scholars limited their conclusions to the quantity of the innovations (Pérez-Luño et al., 2011) or indirect outcome assessments, such as level of expenditure on R&D research for new value creation (Wang et al., 2020), the opinion of top management towards opportunity discovery activates (Donbesuur et al., 2020), and scale of success relative to major competitors in terms of introducing new products (Zhai et al., 2018). The common corporate level, somehow limited the evaluation of EO and the creativity-innovation link to the opinion of managers, heads of departments, executives, directors, and not the exact "creators" of the outcomes.

The so far seen EO, as a firm or business unit construct, has taken homogeneous and similar approaches neglecting other perspectives of analysis and hampering the future of EO development in the literature

(Linton, 2016). Not many researchers have critically examined the EO-performance relationship. It is common to see in EO studies that many researchers adopt a universalistic view assuming the notion that there is a universal law that higher EO will always result in higher performance (Linton, 2016). There is a need for more of a contingency view, perceiving EO as beneficial in certain situations or contexts, and explaining in more detail under which circumstances the EO-performance can be straightforward or not (Linton, 2016).

According to Lumpkin and Pidduck (2021), if EO is to continue reflecting what it means to be entrepreneurial, it is clear that the concept needs to evolve to accommodate the diverse manifestations and venues for entrepreneurship that are now evident to a global community of researchers. Kollmann et al. (2017) proposed to expand the level of analysis from the firm-level context to downstream levels including the individual, team, entrepreneurial team and emerging young firm, where the organizational structure or hierarchical administrative systems do not mask the effects of the team members' orientation on collective performance. Like Lumpkin and Pidduck (2021), we consider that EO should be part of the conversation towards firm birth, nascent entrepreneurship, and the topic of what happens prior to and during firm formation, which is why the study focuses on early entrepreneurship activities of a team prior to the start-up formation, such as generation of novel and quality business ideas. Capturing EO at a team level (Kollmann et al., 2017) and at the early stage of entrepreneurial activity (emerging start-up) (Lumpkin & Pidduck, 2021) can explain the path and behavioral effects of entrepreneurially oriented teams towards launching new entries completing the more contingency view.

Despite several calls to understand better the way in which individuals, individually and collectively, contribute to entrepreneurship through entrepreneurial behaviors grounded in EO, little empirical research is dedicated to the teams in which they work. Within teams, individuals can choose to deploy entrepreneurial behaviors grounded in EO (Covin et al., 2020). The commonly known aggregation of individual EO (termed IEO) (Covin et al., 2020) to calculate EO at the team level (TEO) does not sufficiently capture whether the entrepreneurial behaviors are really manifested by individuals to improve team performance. Hence, in our study, we understand TEO as the perception of individuals towards the collective manifestation of entrepreneurial behaviors of EO within the team. The key behaviors of TEO include an ability of a team to act autonomously, a willingness to innovate and take risks, and a tendency to be proactive with regard to new market opportunities.

The EO construct in the team-level context has not been contrasted yet with numerous performance outcomes and it is a quite unexplored area of study. EO has been contrasted with entrepreneurial team performance (Kollmann et al., 2017) or TEO with work group performance (Fellnhöfer et al., 2017). In both cases, the relationship has been positive but again only within a corporate context (with reference to top/senior management teams). The effect of the construct on team innovative performance has been recently addressed by Shahid et al. (2022). The authors, however, applied EO at an individual level and as a mediator between team identification and team innovative behavior, understood as creativity (idea exploration and creation) and innovation (idea championing and implementation). In both cases, the mediating effect of EO has been proven positive. The team context in EO studies has occasionally been addressed in the scientific literature. Yet, from the overall team performance perspective, teamwork quality is an important success factor of innovative projects (Hoegl & Gemünden, 2001) and teams for years have been considered more effective in generating more creative outcomes than single individuals (Barczak et al., 2010; Kier & McMullen, 2020). The empirical evidence, although, regarding the influence of teamwork, and within the EO domain, on the success of teams with creative and innovative tasks is still scarce.

Given the state of the literature, we posit the following hypotheses:

- $H_1$ . Team Entrepreneurial Orientation (TEO) is positively related to the novelty of a business idea
- $H_2$ . Team Entrepreneurial Orientation (TEO) is positively related to the quality of a business idea

### **Team-Perceived Heterogeneity: Moderator TEO-Creativity**

Prior EO research has already analyzed the possible impact of heterogeneity within work groups (Fellnhöfer et al., 2017). In general terms, deep-level heterogeneity can have beneficial effects whenever it functions as an informational resource (Knippenberg, Ginkel, & Homan, 2013). Teams that are heterogeneous in perspectives, knowledge, experiences or information may build upon more complex informational resources, which encourage higher-quality decisions, more advanced solutions to work problems, and greater creativity (To, Fisher, Ashkanasy, & Zhou, 2021), and finally leading to improved team performance (Knippenberg et al., 2013). In this context, Heavey, Simsek, Roche, and Kelly (2009) concluded that working group heterogeneity allows the group to accumulate comprehensive information

with reference to exploring and exploiting entrepreneurial opportunities. Kollmann et al. (2017) have stressed that individuals' heterogeneity leverages the EO of a group, in turn improving collective performance. Fellnhofer et al. (2017), rather than taking the common aggregation of individuals' heterogeneity, instead measured the individual's perception of group heterogeneity and its significant relationship with TEO. Previous studies mainly focused on the heterogeneity effect (individual or group) on variations in TEO and further performance. Our study, therefore, seeks to observe Team-Perceived Heterogeneity as a moderator between TEO and creative outcomes of entrepreneurial teams, in order to detect whether it strengthens or weakens the relationship. Team heterogeneity in the form of demographic heterogeneity has been used as a moderator in previous studies (Ferrier & Lyon, 2004) observing the relationship between team behavior and team performance. However, it has not been tested in TEO-creativity relationships, either in the form of (perceived) deep-level heterogeneity or at entrepreneurial team level. Our study, therefore, posits the following hypotheses:

- $H_3$ . Team-Perceived Heterogeneity strengthens the relationship between TEO-Novelty of a business idea
- $H_4$ . Team-Perceived Heterogeneity strengthens the relationship between TEO-Quality of a business idea

### **Individual creative mindset: Moderator TEO-Creativity**

The logic of applying individual inputs in our team-based research model lies in previously assumed theories (Baer, Oldham, Jacobsohn, & Hollingshead, 2008) that team creativity is based on individuals' creative ideas and their team's capacity to perceive and utilize such ideas. However, the empirical evidence for this disjunctive model of team creativity is rather scarce. It is more common to perform the additive model conceptualizing team creativity as being conditioned by the sum or average of the creativity of the individual members (Yuan, 2019). Integrating individual inputs into team creativity by additive models is an oversimplification (Yuan, 2019). We, therefore, propose to observe individual inputs as a moderator of the relationship between team and creative outcomes. This approach is more accurate in determining how individual inputs contribute to the team processes.

In order to choose the individual input-based moderator, we followed the theories of O'Connor, Nemeth, and Akutsu (2013) that revealed the important role of Fixed-Creative and Growth-Creative Mindsets of individuals in motivating or demotivating the performance of creative actions. When

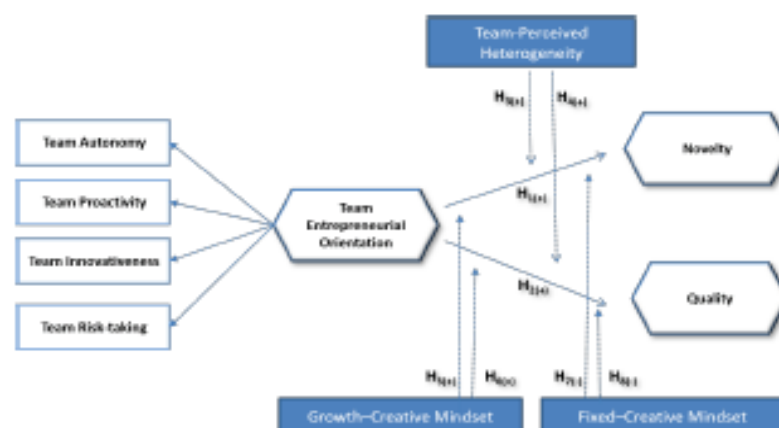
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individuals recognize creativity as a fixed trait, they have problems such as rationalizations about why they should engage in activities demanding creative thinking. On the other hand, individuals with a growth mindset, who think that creativity is determined by effort rather than by some innate quality, tend to see themselves as more creative, increasing the probability of individual commitment to creative tasks and, finally, creative solutions (Karwowski, 2014). Our study enhances previous theoretical assumptions by linking them to the entrepreneurship domain and observing whether the creative mindset of an individual (fixed versus growth) moderates the relationship between the TEO and creativity outcome of a team. Based on the previous assumptions, we argue that a growth mindset will enhance the TEO-Novelty and TEO-Quality relationship while a fixed mindset might weaken the relationship.

We posit the following hypotheses:

- $H_5$ . Growth-Creative Mindset strengthens the relationship between TEO and novelty of a business idea
- $H_6$ . Growth-Creative Mindset strengthens the relationship between TEO and quality of a business idea
- $H_7$ . Fixed-Creative Mindset weakens the relationship between TEO and novelty of a business idea
- $H_8$ . Fixed-Creative Mindset weakens the relationship between TEO and quality of a business idea

Ultimately, the defined hypotheses and the proposed directions of the effects are summarized in Figure 1, which presents the research framework.



**Figure 1.** The conceptual Model and Hypotheses

## METHOD

### Sample and experiment procedure

The participants of the study belong to the entrepreneurship ecosystem of Mondragon Team Academy (MTA), which forms part of Mondragon University in the Basque Country, Spain. The sample is taken from all three co-working labs in the Basque Country: Irun, Oñati, and Bilbao. The total population size consists of 120 entrepreneurs (57 women and 63 men). The study applied probability sampling, meaning that every member of the population had a chance of being selected. To have the entrepreneurial teams properly represented in the sample it was necessary to have at least a 50% response rate per team (e.g., 2 responses from a 4-member team or 1 response from a 2-member team) and the average total number of team members per team could not be less than 2 members. It resulted in 78 entrepreneurs out of 120 entrepreneurs in total. The team entrepreneurs (38 women, 40 men) worked in entrepreneurial teams (13 in Oñati, 13 in Bilbao and 10 in Irun) made up of minimum 2 members, which gives 36 teams out of 50 in total. The details of the sample are shown in Table 1.

**Table 1.** Sample characteristics

|                  | Sample | Population | %     |
|------------------|--------|------------|-------|
| n. Entrepreneurs | 78     | 120        | 65    |
| n. Female        | 38     | 57         | 67    |
| n. Male          | 40     | 63         | 63    |
| Age (20-25)      | 76     | 118        | 64    |
| Age (> 25)       | 1      | 1          | 100   |
| Age (<20)        | 1      | 1          | 100.0 |
| n. Teams         | 36     | 50         | 72    |
| n. Team Bilbao   | 13     | 16         | 81    |
| n. Team Oñati    | 13     | 17         | 76.5  |
| n. Team Irun     | 10     | 17         | 59    |
| Avg. Year/Exp.   | 3.4    | 3.5        | ----- |
| Avg. Member/Team | 2.16   | 2.4        | ----- |

Note: n: number; n. Team Bilbao: number of teams in Bilbao Lab; n. Team Oñati: number of teams in Oñati Lab; n. Team Irun: number of teams in Irun Lab; Avg. Year/Exp: Average year of work experience as an entrepreneurial team; Avg. Member/Team: Average number of members per team.

The sample of team entrepreneurs participated in the experiment within the methodology of MTA. It was necessary to ensure the observation

of entrepreneurial creativity of teams in its natural environment rather than in a forced scientific exercise. Each team had a 3 months' period (within November 2019 and January 2020) to explore business opportunities and present its final business idea in a brief pitch at the end of the process. The teams were organizing the rhythm of work independently and based on request they had support from experts within the MTA ecosystem. There were four primary criteria taken into consideration:

*Criteria 1:* MTA promotes collective rather than individual entrepreneurship in co-working labs within the Basque Country, providing an accurate context of team entrepreneurship for the study.

*Criteria 2:* The MTA sample allows us to observe teams of entrepreneurs with real experience (equal or greater than 3 years) of working together in the proactive search/development of business opportunities. At this stage, teams are considered to have the attributes of a team (not a group) as they have more awareness regarding team members, their strengths and weaknesses (Kurtzberg & Amabile, 2001). The study experiment would not reach its objective if we observed a group of entrepreneurs generated only for the purpose of the study.

*Criteria 3:* The culture of MTA is based on a constant generation of business ideas as part of the educational model—the participants performed a design thinking exercise that allowed us to observe them in a natural process of business idea generation. The timeframe of the study experiment was chosen to coincide with the MTA exercise.

*Criteria 4:* The selected teams did not generate business ideas within a specific company. They had no organizational influence (cultural, structural, strategic influence) that allowed us to observe the “pure” process of entrepreneurial creativity of teams.

## Data collection

We took two steps to collect data. First, all 120 entrepreneurs were invited to fill out a survey at the end of the experiment (after presentation of their final business idea). Participation was voluntary, and their responses were strictly confidential. They independently rated the scales of *Team Entrepreneurial Orientation* (14-item scale); *Individual Creative Mindset* (Fixed and Growth) (10-item scale); and *Perceived Team Heterogeneity* (4-item scale). The participants were evaluating all items from 1 (strongly disagree) to 5 (strongly agree). We received 78 responses that were useful for the study.

Second, we used a panel of expert judges to rate *Creativity: Novelty and Quality of the team outcome*—business ideas of 36 entrepreneurial teams—

meaning 36 business ideas (each team presented one final business idea). The selected panel of experts was appropriate to evaluate business ideas of entrepreneurial teams. The business ideas were context specific, which, according to the creativity literature, need to be evaluated by experts who are familiar with the specific domain (Amabile, 1997, 2013). The expert judges were very familiar with the business idea and the domain. They collaborated with the teams based upon their request. They had the expertise and knowledge appropriate for evaluation. In this vein, the experts who worked most frequently with the participating entrepreneurial team assessed the final business idea. It means that each expert judge was assigned a specific business idea to evaluate in order to omit the risk that the judge evaluates ideas that he/she has not enough knowledge about. On average the same expert judge evaluated approx. two business ideas.

## Measures

The measures applied in this study are quantitative and are adapted from previously validated scales. Full scales are presented in the Appendix.

### *Team Entrepreneurial Orientation*

The TEO construct is measured through a slightly modified 14-item scale partially proposed by Hughes et al. (2007) and fully adapted by Fellnhofer et al. (2017). The scale is originally based on Lumpkin and Dess (1996) and Covin and Slevin, (1989). The TEO measures, such as proactivity, risk-taking, and innovativeness, have been applied from (Hughes, Hughes, & Morgan, 2007) and adapted by Fellnhofer et al. (2017) to work-group contexts. The autonomy measure has been applied from Lumpkin and Dess (1996), and adapted by Fellnhofer et al. (2017) to work-group contexts. All measures applied the 5-point Likert scale. The work views TEO as a second-order composite, all the sub-dimensions make up the TEO artefact emphasizing the common effect of the EO dimensions. The measurement method applies the individuals' perception approach towards their team (e.g., "My team excels at identifying opportunities"). This approach to measurement omits the aggregate models of individual EO (IEO) to calculate team EO (TEO). Previous measurements by Fellnhofer et al. (2017) have shown that the individuals' perceptions are reflected in the team EO.

### *Creativity*

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The creative outcomes or creative ideas are measured using a scale mentioned by Dean, Hender, Rodgers, and Santanen (2006) and later suggested by Ylitalo (2017). The scale measures creativity using two dimensions: Novelty and Quality. Novelty includes originality and paradigm relatedness (the degree to which the idea is, for example, rare or surprising and whether it preserves or modifies the current paradigm). Quality includes workability (the degree to which the idea is easily implemented), relevance (the degree to which the idea solves a problem), and specificity (the completeness and clarity of the idea).

#### *Individual Creative Mindset*

The construct is measured on a 10-item scale proposed and validated by Karwowski (2014). It analyzes the participant's perception of the nature of creativity (Growth-Creative Mindset e.g. *"Everyone can create something great at some point if he or she is given appropriate conditions"* or Fixed-Creative Mindset e.g. *"Some people are creative, others are not—and no practice can change it"*) on a 5-point Likert scale.

#### *Team-Perceived Heterogeneity*

The construct is measured on a 4-item scale adapted from Campion, Medsker and Higgs (1993) and used by Fellnhofer et al. (2017). The measurement method applies the perception approach of individuals towards their team (e.g., *"The members of my team vary widely in their areas of expertise"*). Previous measurements by Fellnhofer et al. (2017) have shown that individuals' perceptions are reflected in the Team-Perceived Heterogeneity

#### **Data analysis method**

We tested our hypotheses using partial least square (PLS), a structural equation modeling (SEM) technique that uses a principal components-based estimation approach (Chin, 1998). Firstly, PLS was used because our model used high-order composites. Both theoretical arguments (Rigdon, Sarstedt, & Ringle, 2017) and empirical evidence (Sarstedt, Hair, Ringle, Thiele, & Gudergan, 2016) support the use of PLS in models based on composite variables. Team EO (TEO) and Quality were modeled as a composite in mode A at the dimension and second-order construct level. By contrast, Novelty was a simple composite modeled in mode A.

Secondly, PLS-SEM techniques are applied because component scores are used in a subsequent analysis for modeling a multidimensional construct

using a two-stage approach (Chin, 2010; Wright, Campbell, Thatcher, & Roberts, 2012). As a result, PLS allows us to fulfill the explanatory purposes of the research, facilitating understanding of the causal relationships between variables. The statistical analysis software used was SmartPLS 3.2.7 (Ringle, Wende, & Becker, 2015).

## RESULTS

We assessed the PLS model in three stages: (1) the measurement model, (2) the structural model, and (3) the moderation analysis.

### Measurement model

We performed a confirmatory composite analysis of the saturated model using an overall model fit test (Henseler, Hubona, & Ray, 2016), allowing us to assess the external validity of the composites (Henseler, 2017). The two measures of discrepancy between the empirical and the model-implied correlation matrix are less than or equal to their corresponding HI95, while dG is lower than the HI99 value for the saturated models (see Table 2); hence, the discrepancy is not significant and we can safely assume the indicators form the composites, in accordance with the measurement model proposed (Henseler, 2017).

Table 2. Test of the model fit

| Saturated model |       |       |       |
|-----------------|-------|-------|-------|
|                 | Value | HI95  | HI99  |
| SRMR            | 0.076 | 0.087 | 0.102 |
| dULS            | 0.263 | 0.337 | 0.467 |
| dG              | 0.127 | 0.102 | 0.130 |

Note: SRMR: standardized root means square residual; dULS: the unweighted least squares discrepancy; dG: the geodesic discrepancy; HI95: bootstrap-based 95th percentile; HI99: bootstrap-based 99th percentile. Bootstrapping based on 10,000 subsamples.

The measurement model evaluation brought out acceptable results. All dimensions and indicators met the requirement of reliability, given that their outer loadings were greater than 0.707 (Table 3). Some of the outer loadings were moderately below this critical value. However, they were maintained to support the content validity. Besides, two items were removed from the T-autonomy construct due to their low outer loadings for the purpose to achieve convergent validity and other two from T-innovativeness in order to improve the discriminant validity between composites.

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**Table 3.** Measurement model results

| Composites/Dimension/Indicator               | Loadings | CR           | AVE          |
|----------------------------------------------|----------|--------------|--------------|
| <b>Team EO (High order Composite Mode A)</b> |          | <b>0.823</b> | <b>0.540</b> |
| Team Autonomy (Composite mode A)             | 0.718    | 0.780        | 0.546        |
| T-autonomy_1                                 | 0.812    |              |              |
| T-autonomy_4                                 | 0.793    |              |              |
| T-autonomy_5                                 | 0.591    |              |              |
| Team Innovativeness                          | 0.637    | 1.000        | 1.000        |
| Team Innovativeness-1                        | 1.000    |              |              |
| Team Proactivity                             | 0.784    | 0.779        | 0.544        |
| Team-Proactivity1                            | 0.598    |              |              |
| Team-Proactivity2                            | 0.817    |              |              |
| Team-Proactivity3                            | 0.779    |              |              |
| Team Risk-taking                             | 0.790    | 0.810        | 0.588        |
| Team-Risk-taking1                            | 0.786    |              |              |
| Team-Risk-taking2                            | 0.758    |              |              |
| Team-Risk-taking3                            | 0.756    |              |              |
| <b>Quality (High Order Composite Mode A)</b> |          | <b>0.849</b> | <b>0.656</b> |
| Relevance                                    | 0.828    | 0.912        | 0.838        |
| Relevance_1                                  | 0.904    |              |              |
| Relevance_2                                  | 0.927    |              |              |
| Workability                                  | 0.676    | 0.767        | 0.641        |
| Workability1                                 | 0.544    |              |              |
| Workability2                                 | 0.992    |              |              |
| Specificity                                  | 0.908    | 0.866        | 0.684        |
| Specificity1                                 | 0.831    |              |              |
| Specificity2                                 | 0.718    |              |              |
| Specificity3                                 | 0.921    |              |              |
| <b>Novelty- Composite Mode A</b>             |          | <b>0.915</b> | <b>0.843</b> |
| Novelty 1                                    | 0.928    |              |              |
| Novelty 2                                    | 0.908    |              |              |

Note: CR: Composite Reliability; AVE: Average Variance Extracted.

All second-order reflective (superordinate) composites (TEO and Quality) and the first-order composite (Novelty) had outer loading values above 0.7 and thus fulfilled the required construct reliability. To assess convergent validity, we examined the average variance extracted (AVE) (Hair et al., 2011). AVE should be greater than 0.5, which means that 50% or more of the variance of

the indicators should be accounted for. Consistent with this suggestion, AVE measures for all constructs are above 0.540 (Table 3). Table 4 shows that all variables had discriminant validity, according to the HTMT criterion (Henseler, Ringle, & Sarstedt, 2015), thereby giving evidence that TEO, Quality, Novelty are distinctive composites.

**Table 4.** Measurement model discriminant validity

|         | TEO          | Quality      | Novelty      |
|---------|--------------|--------------|--------------|
| TEO     | <i>0.735</i> | <b>0.625</b> | <b>0.120</b> |
| Quality | <b>0.484</b> | <i>0.810</i> | <b>0.331</b> |
| Novelty | <b>0.009</b> | <b>0.220</b> | <i>0.918</i> |

Note: TEO: Team Entrepreneurial Orientation; The HTMT appears above the diagonal in bold. The correlations appear below the diagonal. On the diagonal itself, the AVE squared appear in italics.

### Structural model

We turn next to data generated by the structural model with which we can test our hypotheses. We evaluated the model by examining the algebraic sign, magnitude, and significance of the structural path coefficients and the  $R^2$  values. Figure 2 and Table 5 show the path coefficients and the amounts of variance explained ( $R^2$ ) in the endogenous variables. The  $R^2$  values show that the explanatory power of the model is weak to moderate (Chin, 2010), explaining 0% of the variance in Novelty and 23.5% of the variance in Quality.

To evaluate the significance of the direct effects in the path model, a bootstrapping process (10,000 samples) was performed, providing p-values and confidence intervals (Roldán & Sánchez-Franco, 2012). As Table 5 shows, the results support Hypothesis 2, positing a direct, positive relationship between TEO and Quality, ( $\beta=0.484$ ,  $t=5.568$ ) and the associated  $f^2=0.307$  is close to the value standard of 0.350 for substantial effect (Chin, 2010). The relationship between TEO and Novelty is not supported (Hypothesis 1 ( $\beta=0.009$ ,  $t=0.055$ )). To evaluate the model, the blindfolding was adapted using the cross-validated redundancy index ( $Q^2$ ) for the endogenous variables. This measure was suggested by Chin (2010) for examining the predictive relevance of structural models.  $Q^2$  values greater than zero imply that the model has predictive relevance. The results support that the structural model has a satisfactory predictive relevance only for the endogenous composite – Quality ( $Q^2=0.133$ ).

Next, to test moderation hypotheses, this work tests the interaction effect of T.P. Heterogeneity, Growth-Creative Mindset and Fixed-Creative Mindset in the path between TEO and Novelty, and TEO and Quality, using an orthogonalizing approach (Fassott, Henseler, & Coelho, 2016). As in regression

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analysis, the predictor TEO and the moderator variables are multiplied to obtain the interaction term. In the relationship between TEO-Novelty and TEO-Quality, when the moderator effect Team-Perceived Heterogeneity is considered, the analysis results show no evidence related to this effect (see Table 5).

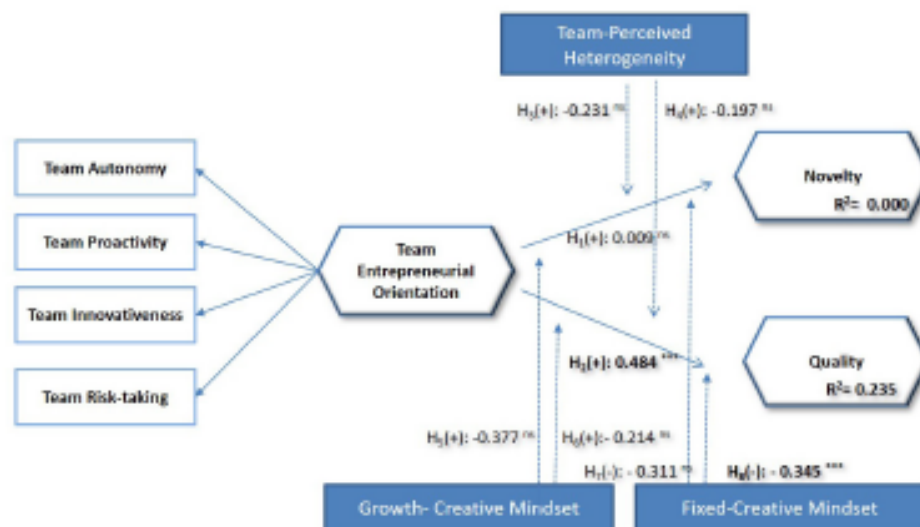
**Table 5.** Effects on the endogenous variables

|                                                        | Path Coef. | P -value | CI               | Support | f <sup>2</sup> |
|--------------------------------------------------------|------------|----------|------------------|---------|----------------|
| H <sub>1</sub> (+): TEO → Novelty                      | 0.009      | 0.478    | [-0.231; 0.254]  | No      | 0.000          |
| H <sub>3</sub> (+): TEO x T.P. Heterogeneity → Novelty | -0.231     | 0.266    | [-0.467; 0.489]  | No      | 0.069          |
| H <sub>5</sub> (+): TEO x Growth-Creative M. → Novelty | -0.377     | 0.182    | [-0.556; 0.554]  | No      | 0.133          |
| H <sub>7</sub> (-): TEO x Fixed-Creative M. → Novelty  | -0.311     | 0.233    | [-0.540; 0.529]  | No      | 0.095          |
| H <sub>2</sub> (+): TEO → Quality                      | 0.484***   | 0.000    | [0.367; 0.648]   | Yes     | 0.307          |
| H <sub>4</sub> (+): TEO x T.P. Heterogeneity → Quality | -0.197     | 0.232    | [-0.450; 0.428]  | No      | 0.059          |
| H <sub>6</sub> (+): TEO x Growth-Creative M. → Quality | -0.214     | 0.261    | [-0.445; 0.443]  | No      | 0.044          |
| H <sub>8</sub> (-): TEO x Fixed-Creative M. → Quality  | -0.345***  | 0.000    | [-0.536; -0.293] | Yes     | 0.165          |

Note: Path Coef.: Path Coefficient; CI: Percentile confidence interval.; TEO: Team Entrepreneurial Orientation; T.P. Heterogeneity: Team-Perceived Heterogeneity; Growth-Creative M.: Growth-Creative Mindset; Fixed-Creative M.: Fixed-Creative Mindset; Bootstrapping based on n=10,000 subsamples. Hypothesized effects are assessed by applying a one-tailed test for a t Student distribution (CI 95%). \*\*\* significance at p<0.001; (R<sup>2</sup><sub>Quality</sub>=0.235; Q<sup>2</sup><sub>Quality</sub>=0.133) (R<sup>2</sup><sub>Novelty</sub>=0.000; Q<sup>2</sup><sub>Novelty</sub>=0.001).

For these reasons, H<sub>3</sub> ( $\beta = -0.231$  p=0.266) and H<sub>4</sub> ( $\beta = -0.197$  p=0.232) related to moderation effect of T.P. Heterogeneity on TEO- Novelty and TEO-Quality link have been rejected. Similarly, Growth-Creative Mindset does not increase the effect of TEO on Novelty and Quality of business ideas, failing to support either H<sub>5</sub> ( $\beta = -0.377$  p=0.182) or H<sub>6</sub> ( $\beta = -0.214$  p=0.261). Therefore, Growth-Creative Mindset does not moderate either the TEO-Novelty or the TEO-Quality link.

In Table 5, the results support H<sub>8</sub> ( $\beta = -0.345$  p=0.000) presenting that Fixed-Creative Mindset negatively moderates the link between TEO and Quality. Along these lines, the interaction term also shows a moderate f<sup>2</sup> value that is above the threshold of 0.150, meaning that it can be considered as a moderate moderation (Chin et al., 2003). Therefore, the moderating effect predicts the weakening of the TEO-Quality path in a Fixed-Creative Mindset context.



\*\*\* significant at p-value <0.001 (one tailed); ns: non-significant

Figure 2. Standardized path coefficients and significance of inner model

The findings from the results of the path analysis are discussed in the following section.

## DISCUSSION

The findings of the study enhance our understanding of the theory that EO plays a critical role in exploring market opportunities leading to potential new entries on the market (Donbesuur et al., 2020; Lumpkin & Dess, 1996; Pérez-Luño et al., 2011; Wang et al., 2020; Zhai et al., 2018). Our study, however, contributes to common assumptions by applying the team-level analysis (Covin et al., 2020; Wales et al., 2020) of the EO construct (TEO) and by dividing the measure of market opportunities into the dimensions of Novelty and Quality. Consequently, our study has discovered a positive relationship between TEO and Quality, meaning that entrepreneurially oriented teams are capable of exploring workable (i.e., implementable), relevant (i.e., applicable and effective in solving problems), complete and explicit business ideas. Interestingly, our study expected a positive result between TEO and Novelty (Hypothesis 1), but the findings of the study have shown no relationship between TEO and Novelty, meaning that EO at a team level does not affect the team's ability to generate novel market opportunities. It might be the effect of the process of adoption and/or modification of already existing business ideas by entrepreneurial teams rather than novel generation (Pérez-

Luño et al., 2011). This indicates that TEO in Basque entrepreneurial teams does not so easily lead to new entries on the market. They might more often achieve the entry of an adopted idea than a novel idea that breaks existing market paradigms. It might have an important practical implication from the perspective of MTA in better understanding of entrepreneurial teams and in seeking educational or team-management strategies to improve teams' ability to generate new market value and novel market offers.

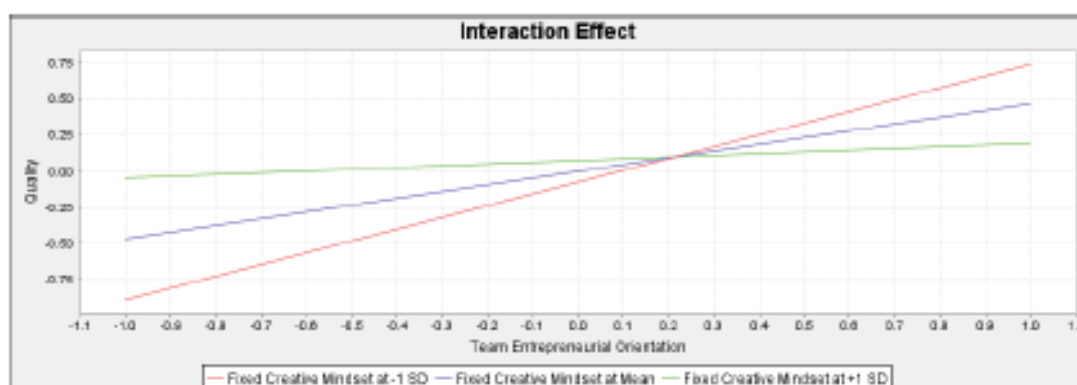
The contribution of such results to the literature is that the Entrepreneurial Orientation of a team generates market entries but not necessarily *new* market entries, as primarily assumed by Lumpkin and Dess (1996) and Covin and Slevin (1989). EO at entrepreneurial teams' level seems to provide less straightforward and universalistic results than previously assumed within the context of EO at a corporate level (e.g., (Pérez-Luño et al., 2011; Rauch et al., 2009; Wang et al., 2020)). It also justifies the calls of Kollmann et al. (2017) and Lumpkin and Pidduck (2021) to introduce EO within the context of a team and prior to start-up launch context. Our results strengthen the opinion of the authors that the construct can have its effect on what happens prior to and during firm formation.

In related terms, individual inputs might change the conditions under which entrepreneurial teams can generate the necessary completion of novel market opportunities that are also workable or relevant (Corte & Gaudio, 2017). Following the theory of Baer et al. (2008) and Yuan (2019), individuals help in the generation of creative ideas and the team has the necessary capabilities to recognize and utilize them. Our study, therefore, applied the moderating effect of an individual creative mindset to test empirically whether individual inputs strengthen or weaken the relationship between TEO-Novelty and TEO-Quality links.

Remarkably and contrary to our expectations (Hypothesis 5), the results indicate that Growth-Creative Mindset has no effect on the TEO-Novelty and TEO-Quality relationships. This means that Growth-Creative Mindset does not interfere (either by strengthening or by weakening) the relationship. It suggests that entrepreneurially oriented teams of MTA that include individuals with a Growth-Creative Mindset will not necessarily generate more novel and/or quality business ideas. The findings are not consistent with common theories that creative individuals are the main source of the creative outcomes of a team (Baer et al., 2008; Yuan, 2019). The data might indicate that the ability of individuals with a Growth-Creative Mindset to engage in creative tasks and generate creative solutions (O'Connor et al., 2013) is not correctly expressed at a team level or requires certain additional factors to be recognized in a team. At an individual level, Growth-Creative Mindset has proven useful in reaching creative achievements (Karwowski, 2014). This further suggests that

there must be particular team-level factors that affect the individual capacity previously studied, an area that merits further analysis.

By contrast, the data shows that fixed mindset among individuals (Fixed-Creative Mindset) has an antagonistic interaction on the TEO-Quality relationship and no interaction effect on TEO-Novelty, meaning that Fixed-Creative Mindset weakens the positive TEO-Quality relationship when the moderator increases. This suggests that individuals with fixed mindsets might be a blockage in team processes for quality of business ideas (see Figure 3). It supports the explanation posited by Karwowski (2014) and O'Connor et al. (2013) that individuals with fixed mindsets encounter problems in engaging in activities requiring creative thinking. It might be assumed, therefore, that entrepreneurial teams should possibly minimize the number of individuals with a fixed mindset among their members in order to prevent difficulties. It elaborates on contingency theory (Linton, 2016) showing that EO at a team level does not universally benefit in high performance of a team. The fixed mindset of individuals can be a possible obstacle to manifest the entrepreneurial behaviors of team members resulting in worse team performance.



**Figure 3.** Fixed-Creative Mindset interaction effect on TEO and Quality

The findings have provided no evidence that Team-Perceived Heterogeneity (T.P. Heterogeneity) moderates the relationship between TEO and Novelty or Quality. There is no evidence that Team-Perceived Heterogeneity interferes (either by strengthening or weakening) the tendency of an entrepreneurially oriented team to generate creative outcomes. Previous studies concluded that group heterogeneity makes it possible to accumulate comprehensive information, helping to generate greater creativity (To et al., 2021) and exploring and exploiting entrepreneurial opportunities (Heavey et al., 2009). This effect might perhaps be seen in more diverse groups/teams. The sample of entrepreneurs was from a similar age group and from similar backgrounds. This might result in insufficient diversity of information,

resulting in a lack of significant interaction. Further studies might test Team-Perceived Heterogeneity in more diverse teams or in a form of antecedent of TEO, as suggested by Fellnhöfer et al. (2017).

Our study supports the validity of TEO measurement based on the perception of team members (Fellnhöfer et al., 2017), which might lead to more suitable practical implications for team/creativity management if applied. Such an approach removes the risk of predicting that the sum of entrepreneurially oriented individuals guarantees that a team will have a high level of Entrepreneurial Orientation. An individual's perception of TEO reflects more accurately the EO of a team, as well as how an individual's entrepreneurial behavior is expressed and manifested in a team. It could help in developing appropriate team formation and management practices.

## CONCLUSION

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Our study adds to the literature and practice by providing evidence to the still unanswered question of how entrepreneurial teams form creative business ideas for further business development. EO at a team level (TEO) plays a critical role in exploring product-market entries, given that TEO facilitates Quality outcomes only. Entrepreneurial teams do not easily achieve Novel outcomes that allow them to enter new markets. Individuals with Fixed-Creative Mindsets might weaken the team processes towards quality business idea.

Naturally, our analysis is subject to several well-recognized limitations, which ultimately inform possible avenues for further research that might advance the literature. One consideration is our cross-sectional study and lack of observations of the implementation of the business ideas generated. Further research could perform a longitudinal study and, additionally, detect the effect of creative outcomes on TEO innovation and further TEO new venture performance. The results may also be viewed as lacking generality, since the study applied a sample of entrepreneurial teams from Basque MTA labs. Forthcoming studies could extend the sample to new entrepreneurial teams, nationally or internationally wise, but maintaining similar criteria of the experiment procedure. This could help detect whether the findings indicate an overall pattern or, primarily, apply only to the entrepreneurial teams analyzed within the Basque MTA settings.

Further studies might contribute to a greater understanding of creativity as an explicit outcome of a EO construct. Scholars need to detect factors and circumstances that influence (positively or negatively) a team's tendency to generate novel product/market entries to complement the

unveiled entrepreneurial team's already strong ability to generate quality opportunities. New predictors, moderators and mediators could be measured to observe whether team and individual inputs are released under new (team) conditions, resulting in more novel outcomes. Future research could model TEO in separate dimensions (Wales et al., 2020) to measure in greater detail the relationship between each one and a creative outcome.

Scholars should continue to go beyond the corporate context of the construct to observe and better understand the outcomes between EO and entrepreneurial teams without strong organizational influence. Following our study results, and the recent suggestions of Lumpkin and Pidduck (2021), researchers should pursue to include EO more frequently within the topics related to nascent entrepreneurship. It is necessary to profound our understanding on behavioral effect of Entrepreneurial Orientation on early entrepreneurship process and activities including the discovery, exploitation and creation of market opportunities prior to firm birth. Such new contexts of studies might explain the path of entrepreneurially oriented teams towards the launch of new entries. What is more, scholars should constantly adapt the EO construct to the real changes in entrepreneurship practice. Hence, promoting analyses within the entrepreneurial teams could benefit the scientific and practical implications.

## Appendix: Measurement Items

### A. Team Entrepreneurial Orientation

|                       | Team Entrepreneurial Orientation<br>(adapted from Fellnhofer et al., 2017)                                                                 |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Team Proactivity 1    | My team initiates actions to which other respond.                                                                                          |
| Team Proactivity 2    | My team excels at identifying opportunities.                                                                                               |
| Team Proactivity 3    | My team always tries to take the initiative in every situation (e.g., against competitors, in projects and when working with others).      |
| Team Risk Taking 1    | People in our team are encouraged to take calculated risks with new ideas.                                                                 |
| Team Risk Taking 2    | Our team emphasizes both exploration and experimentation for opportunities and takes bold, wide-ranging actions to achieve the objectives. |
| Team Risk Taking 3    | When confronted with decisions involving uncertainty, my team typically adopts a bold posture.                                             |
| Team Innovativeness 1 | Our team places a strong emphasis on innovative and creative ideas in its methods of operation.                                            |

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|                       | Team Entrepreneurial Orientation<br>(adapted from Fellnhofer et al., 2017)                                                                                                      |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Team Innovativeness 2 | Our team is often the first coming up with new ideas related to new products, services, in-company processes, methods or other innovative improvements related to our business. |
| Team Innovativeness 3 | In the last years, our team actively introduced improvements and innovations that have been usually quite dramatic.                                                             |
| Team Autonomy 1       | In our team, working independently is considered to enhance creative thinking.                                                                                                  |
| Team Autonomy 2       | While working autonomously, we as a team ensure adequate coordination to minimize inefficiencies and duplication of efforts.                                                    |
| Team Autonomy 3       | In our team we have a proper balance between patience and tolerance for autonomy of individuals and the forbearance to reduce or eliminate initiatives that are not succeeding. |
| Team Autonomy 4       | We as a team implement necessary structural changes to stimulate new ideas.                                                                                                     |
| Team Autonomy 5       | We as a team foster the necessary culture, rewards, and processes to support product and service champions.                                                                     |

## B. Team-Perceived Heterogeneity

|                                | Team-Perceived Heterogeneity (adapted from Campion et al., 1993 and Fellnhofer et al., 2017) |
|--------------------------------|----------------------------------------------------------------------------------------------|
| Team-Perceived Heterogeneity 1 | The members of my team vary widely in their areas of expertise.                              |
| Team-Perceived Heterogeneity 2 | The members of my team have variety of different backgrounds.                                |
| Team-Perceived Heterogeneity 3 | The members of my team have skills and abilities that complement each other.                 |
| Team-Perceived Heterogeneity 4 | The members of team are diverse in terms of their professional experience.                   |

## C. Individual Creative Mindset (Growth & Fixed)

|                           | Individual Creative Mindset (adapted from Karwowski, 2014)                                      |
|---------------------------|-------------------------------------------------------------------------------------------------|
| Growth-Creative Mindset 1 | Everyone can create something great at some point if he or she is given appropriate conditions. |
| Fixed-Creative Mindset 1  | You either are creative or you are not—even trying very hard you cannot change much.            |

|                           | Individual Creative Mindset (adapted from Karwowski, 2014)                                                          |
|---------------------------|---------------------------------------------------------------------------------------------------------------------|
| Growth-Creative Mindset 2 | Anyone can develop his or her creative abilities up to a certain level.                                             |
| Fixed-Creative Mindset 2  | You have to be born a creator—without innate talent you can only be a scribbler.                                    |
| Growth-Creative Mindset 3 | Practice makes perfect—perseverance and trying hard are the best ways to develop and expand one's capabilities.     |
| Fixed-Creative Mindset 3  | Creativity can be developed, but one either is or is not a truly creative person.                                   |
| Growth-Creative Mindset 4 | Rome was not built in a day—each creativity requires effort and work, and these two are more important than talent. |
| Fixed-Creative Mindset 4  | Some people are creative, others are not—and no practice can change it.                                             |
| Growth-Creative Mindset 5 | It does not matter what creativity level one reveals—you can always increase it.                                    |
| Fixed-Creative Mindset 5  | A truly creative talent is innate and constant throughout one's entire life.                                        |

#### D. Creative outcome (Novelty & Quality of business ideas)

|                         | Novelty and Quality (adapted from Dean et al., 2006 and Ylitalo, 2017)                                                                                                         |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Novelty                 | Originality<br>The degree to which the idea is not only rare but is also ingenious, imaginative, or surprising                                                                 |
|                         | Paradigm relatedness<br>The degree to which an idea preserves or modifies a paradigm                                                                                           |
| Quality:<br>Workability | Acceptability<br>The degree to which the idea is socially, legally, or politically acceptable                                                                                  |
|                         | Implementability<br>The degree to which the idea can be easily implemented                                                                                                     |
| Quality: Relevance      | Applicability<br>The degree to which the idea clearly applies to the stated problem                                                                                            |
|                         | Effectiveness<br>The degree to which the idea will solve the problem                                                                                                           |
| Quality: Specificity    | Completeness<br>The number of independent subcomponents into which the idea can be decomposed, and the breadth of coverage with regard to who, what, where, when, why, and how |
|                         | Implicational explicitness<br>The degree to which there is a clear relationship between the recommended action and the expected outcome                                        |
|                         | Clarity<br>The degree to which the idea is clearly communicated                                                                                                                |

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### Abstrakt

CEL: Głównym celem badania jest wykrycie czy orientacja przedsiębiorcza na poziomie zespołu (ang. TEO: Team Entrepreneurial Orientation) ma wpływ na generowanie kreatywnych (nowatorskich i jakościowych) pomysłów biznesowych. Orientacja przedsiębiorcza (ang. EO: Entrepreneurial Orientation), rzadko była mierzona na poziomie zespołu i rzadko w odniesieniu do rzeczywistych i twórczych wyników zespołów przedsiębiorczych. Dlatego też, zaproponowany model badawczy poszukuje nowych wzorców, które mogą sprzyjać kreatywności zespołów przedsiębiorczych. Badanie dodaje moderujący efekt postrzeganej heterogeniczności zespołu i indywidualnego kreatywnego myślenia (wzrostowe i stałe kreatywne myślenie; ang. Growth/Fixed-Creative Mindset) jako zmienne warunkowe, aby lepiej zrozumieć,

w jakich okolicznościach zespoły przedsiębiorcze generują kreatywne pomysły biznesowe. **METODYKA:** Próba badawcza obejmuje zespoły przedsiębiorców z Mondragon Team Academy w Kraju Basków w Hiszpanii. Dane ankietowe zostały zebrane po tym jak zespoły przedsiębiorców ukończyły proces generowania pomysłów biznesowych. Zastosowany eksperyment nie został stworzony na potrzeby badania, ale wpisuje się w naturalne procesy wyselekcjonowanej próby zespołów. Nowatorstwo i jakość pomysłów biznesowych zostały ocenione przez ekspertów w tej dziedzinie. Zależności danych analizowano za pomocą modelowania cząstkowych równań strukturalnych najmniejszych kwadratów - PLS-SEM. **WYNIKI:** Orientacja przedsiębiorcza zespołów może prowadzić do wejścia na rynek produktów, ale niekoniecznie nowatorskich. Orientacja przedsiębiorcza zespołów bardziej wpływa na ich tendencję do generowania/modyfikowania wysokiej jakości już istniejących pomysłów biznesowych niż do generowania nowatorskich możliwości rynkowych. Efekty moderacji prezentują różne wyniki interakcji z badanymi zależnościami. W szczególności osoby o stałym (ang. fixed) kreatywnym myśleniu w zespole mają antagonistyczną interakcję w relacji TEO-Jakość. Postrzegana heterogeniczność zespołu i wzrostowe (ang. growth) kreatywne myślenie jednostek nie ma wpływu ani na powiązanie TEO-Jakość, ani TEO-Nowatorstwo. **IMPLIKACJE:** Badanie wykazuje znaczenie konceptualizacji natury kreatywności w EO jako kluczowego poprzednika innowacji rynkowych. Nasze badanie wzbogaca literaturę i praktykę, dostarczając dowodów na to, że EO na poziomie zespołu (TEO) odgrywa kluczową rolę w eksploracji wysoko jakościowych pomysłów biznesowych. Jednakże, orientacja przedsiębiorcza zespołów nie przyczynia się do nowatorskich rezultatów. Ponadto, należy redukować liczbę osób o stałym (ang. fixed) kreatywnym sposobie myślenia w zespole, gdyż blokują one eksplorację jakościowych pomysłów biznesowych. Nasze badanie potwierdza zasadność orientacji przedsiębiorczej na poziomie zespołu, co może pomóc w opracowaniu odpowiednich praktyk tworzenia lub zarządzania zespołem i ich kreatywnością. **ORYGINALNOŚĆ I WARTOŚĆ:** W badaniu zastosowano rzadko spotykaną w literaturze analizę EO na poziomie zespołu i na poziomie młodych firm (start-up). Badanie przyczynia się do pominiętej w literaturze konceptualizacji EO w teorii „twórczej destrukcji” Schumpetera (1934). Zastosowany w badaniu powrót do teoretycznych podstaw EO doprowadził do wyraźniejszego ukazania efektów behawioralnych zespołów przedsiębiorczych w kierunku tworzenia pomysłów biznesowych. Badanie inicjuje, identyfikuje i wzywa do nowych i dalszych linii badawczych, które przyczynią się do lepszego i przede wszystkim warunkowego zrozumienia, w jaki sposób zespoły przedsiębiorcze generują kreatywne pomysły biznesowe, w szczególności nowatorskie pomysły biznesowe, które są niezbędne do „twórczej destrukcji”, teoretycznej podstawy konstruktu EO i ogólnego rozwoju gospodarczego. **Słowa kluczowe:** przedsiębiorczość, kreatywność, zespół, orientacja przedsiębiorcza, twórcze rezultaty

### Biographical notes

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### Conflicts of interest

The authors declare no conflict of interest.

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## Appendix 2- Study 2

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# Understanding the interplay of entrepreneurial orientation behaviors – does it hinder or facilitate creating new venture ideas by nascent entrepreneurial teams?

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## ABSTRACT

The research follows a current scientific stream in the literature on Entrepreneurial Orientation (EO) by studying team-level Entrepreneurial Orientation (TEO) behaviors in the context of nascent entrepreneurial teams (NETs). It aims to better comprehend the under-researched interplay of TEO behaviors of NETs during the venture concept creation stage. To this end, we have drawn on complexity science, ambidexterity and creativity theories, enabling us to understand the intricate dynamics between TEO behaviors that foster the exploration of novel ideas and the exploitation of high-quality business concepts. A sample of 88 NETs from the Mondragon Team Academy in the Basque Country was analyzed using PLS-SEM. The findings reveal both counterproductive and synergistic interactions, presenting unique insights into how NETs self-organize, manage tensions, and navigate uncertainty through TEO behaviors. By integrating theoretical discussion with practical implications, this study provides actionable guidelines to help entrepreneurial teams optimize behavioral tendencies, mitigate hindering effects, balance the trade-off between exploration and exploitation, and enhance NETs' potential at the origins of entrepreneurship.

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## KEYWORDS

Team entrepreneurial orientation; nascent entrepreneurial teams; starting entrepreneurs; creativity; ambidexterity; complexity science; interaction modeling-PLS SEM

## SUBJECTS

Entrepreneurship; Creativity; Entrepreneurship and Small Business Management; Innovation Management

## 1. Introduction

Entrepreneurship begins when one or more persons start to commit time and resources to founding a new firm. If they do so on their own, and if the new venture can be considered as an independent startup, they are called nascent entrepreneurs (Stam et al., 2008). Global Entrepreneurship Monitor (GEM, 2023, p. 30) defines nascent entrepreneurs as those who are actively devoting resources to starting a business but have not yet paid wages or salaries for three months (including to themselves). An emerging trend highlights entrepreneurial teams as pivotal in new venture creation (Hou et al., 2021). While the literature encompasses various perspectives on startup teams (Knight et al., 2020), no extensive research has yet been carried out on those that are at venture conception stage, known as nascent entrepreneurial teams (NETs) (Zyanya, 2018). Consequently, understanding how new organizations emerge remains a central question in entrepreneurship (Dias et al., 2023). The complexity of teams makes it challenging to explain why some succeed more than others in launching and growing ventures (Klotz et al., 2014). Nonetheless, this constitutes a priority in both research and political agendas, since startups are a source of national economic, technological and social development (Dias et al., 2023). This scenario presents an opportunity to advance our scientific understanding of nascent entrepreneurial team dynamics during their earliest stages of entrepreneurship.

Lumpkin and Pidduck (2021) asserts that entrepreneurship emerges only in the presence of entrepreneurial predispositions, reflected in Entrepreneurial Orientation (EO). EO describes a propensity to pursue

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new market ideas and re-vitalize existing business areas, characterized by risk tolerance, proactive market engagement, and innovation-driven initiative (Covin & Slevin, 1989). The absence of these predispositions would inhibit entrepreneurial activity (Lumpkin & Pidduck, 2021). EO has been shown to be an inherent strength of startup performance at very early stages (Daradkeha & Mansoor, 2022). Given that startups lack the market advantages of established firms, the greater the level of EO, the better the startups will be at identifying and creating market opportunities (Daradkeha & Mansoor, 2022). Despite over 40 years of research, the connection between EO and startups – particularly at conception stage – has not yet been sufficiently addressed (Daradkeha & Mansoor, 2022; Kollmann et al., 2021). Lumpkin and Pidduck (2021) and Wales et al. (2023) have already suggested the need for a separate theory to explain EO's role in the formation stage of new ventures. Previous EO studies have mainly looked at outcomes and performance of existing firms (Khan et al., 2021; Lumpkin & Dess, 1996; Wales et al., 2015). Most TEO research (Covin et al., 2020; Wójcik-Karpacz et al., 2022) has concentrated on teams in established firms, with limited attention to nascent entrepreneurship (Tkacz et al., 2023). As a result, TEO in the context of NETs remains underexplored, offering a valuable space for new academic inquiry.

Teams inherently function as complex adaptive systems (CAS) (Hoogeboom & Wilderom, 2020; Ramos-Villagrasa et al., 2018), displaying emergent and complex behaviors arising out of the interactions among team members. It aligns with nascent entrepreneurial teams' dynamics, where team members interact with dedication and perseverance to drive creative endeavors (Zyanya, 2018). Over time, this requires them to alternate between the different activities of exploration and exploitation (Tromp, 2024). Exploration-focused effort has been shown to correlate positively with novel outcomes, whereas exploitation-focused effort has been shown to lead to useful outcomes with qualities that foster market suitability (Jha et al., 2024; Steele et al., 2021). Only through the interplay between exploration and exploitation – known as ambidexterity (Levinthal & March, 1993) – can the development of domain-specific creativity be addressed (Cohen et al., 2007). However, not enough research has been conducted into the ways in which startup teams manage this exploration–exploitation trade-off (Jha et al., 2024; Koch et al., 2024). According to Dean (2022), only the complex interplay of behaviors that occurs within a team as members collaborate can give it an advantage in managing ambidexterity. Specifically, EO behaviors have been already proven to be conceptually and empirically linked to encouraging ambidexterity (Lee & Kreiser, 2018). Proper use of EO might boost the cycle of constraint exploration and exploitation in startups (Daradkeha & Mansoor, 2022) to stimulate the creation of new value. The complex configurations of TEO behaviors have been previously addressed at team and corporate level studies (Covin et al., 2020). This has allowed researchers to advance in examining how multiple variables interact in potentially complex ways to influence performance (McKenny et al., 2018). Yet, no thorough research has been conducted to determine how the interplay of team-level EO behaviors stimulate exploration and exploitation in the context of startup teams.

Thus, drawing on complex adaptive systems (CAS) theory of teams (Hoogeboom & Wilderom, 2020; Ramos-Villagrasa et al., 2018) and ambidexterity and creativity theories (Dean, 2022; Koch et al., 2024; Levinthal & March, 1993; Wang, 2016), our study proposes the following research question:

*RQ: How do the TEO behaviors of nascent entrepreneurial teams (NETs) interact to balance exploration and exploitation in the development of novel and high-quality venture concepts?*

The study makes the following contributions. First, building on prior literature (Covin et al., 2020; Lumpkin & Pidduck, 2021; Tkacz et al., 2023; Wójcik-Karpacz et al., 2022), we extend the conceptual boundaries of TEO by introducing it into the context of nascent entrepreneurship. This novel framework bridges the gap between nascent (team) entrepreneurship and the broader EO literature, offering additional insights in both fields. Second, in line with Wójcik-Karpacz et al. (2022) our study emphasizes team level analysis of EO rather than aggregating individual EO behaviors. This addresses the limitations of previous TEO measurement approaches (Covin et al., 2020), providing a more nuanced understanding of collective entrepreneurial behaviors. Third, we highlight the complexity of TEO behaviors by examining how team-level entrepreneurial behaviors interact, rather than treating them as isolated independent effects. The findings challenge prior configurational TEO studies (Covin et al., 2020) and advance the understanding of entrepreneurial team dynamics at conception stage. Fourth, considering the autonomy dimension of our TEO study, we reinitiate the debate on the importance of this factor in EO research.

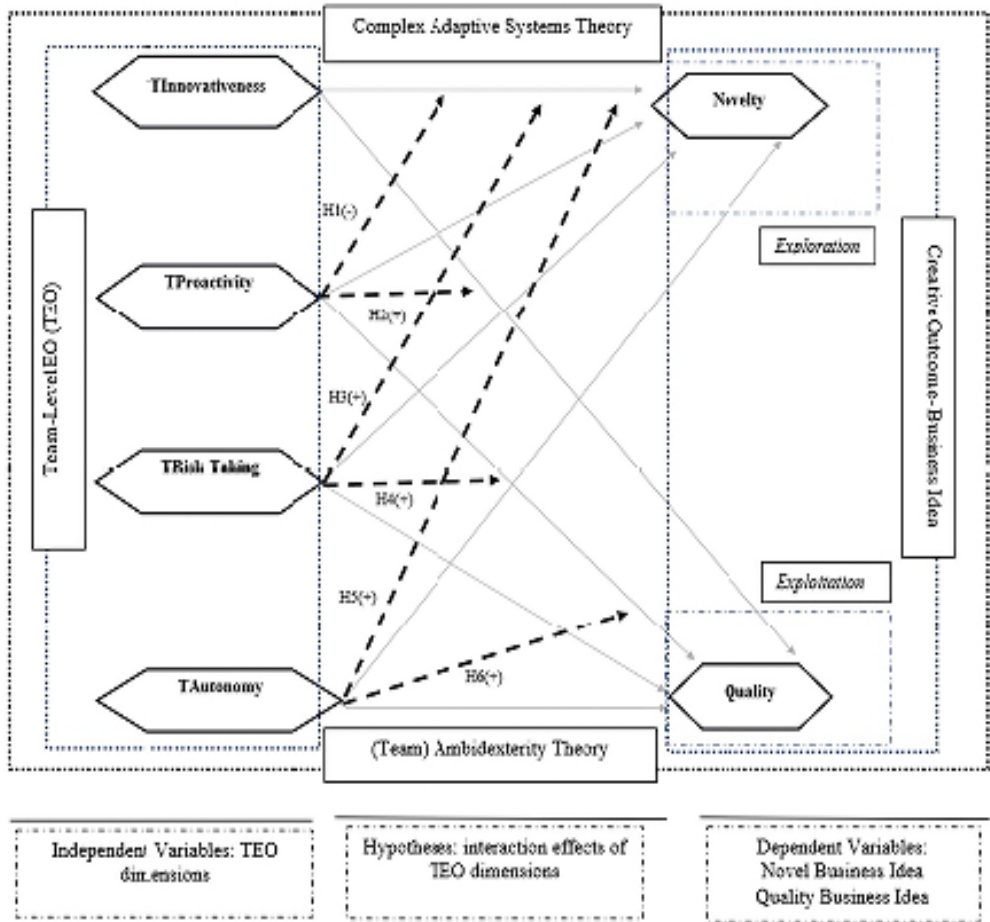
Fifth, our research uniquely links TEO, complex science, ambidexterity and creativity, generating a robust theoretical framework. Such framework unravels valuable patterns of TEO behaviors in the context of self-organizing nature of NETs, tensions and trade-offs they face while searching for novel and quality venture concepts. Finally, from a practical perspective, a more comprehensive understanding of how TEO behaviors interact and influence NETs' performance can provide entrepreneurs, owners, and managers with valuable insights into optimal behavioral patterns for the creation of new ventures.

The paper is structured as follows. We discuss the theoretical arguments and empirical evidence regarding the different dimensions of TEO and the effects of their interactions within NETs to build our hypotheses (see Figure 1). Next, we explain the method used to test these hypotheses. We then present and discuss our results. We conclude with an assessment of how the study's findings contribute to the literature on TEO and nascent (team) entrepreneurship and their practical implications and discuss the limitations of this study and possible directions for future research.

2. Literature review and hypotheses

2.1. TEO Interactions In NETs: combining creativity, ambidexterity, and the CAS perspective

Mainstream scholarship on nascent entrepreneurship has already sought to understand the intrinsic drivers of venture creation (including psychological factors such as entrepreneurial self-efficacy, locus of control and need for achievement) (Dias et al, 2023; Metallo et al, 2021). At the conception stage,



**Figure 1.** Integrative theoretical and conceptual framework.  
Note: TIInnovativeness: team-level innovativeness; TProactivity: team-level proactivity; TRisk-Taking: team-level risk taking; TAutonomy: team-level autonomy.

entrepreneurship is characterized by having an initial business idea and perceiving related opportunities (GEM, 2023). Team formation has been confirmed to be a strategic choice at that stage, (Cerqueti et al., 2020) primarily because teams play a crucial role in fostering creative synergy. By collaborating, individuals combine their skills and resources to create something that no one would have been able to do alone (Kurtzberg & Amabile, 2001; Zyanya, 2018). Teams, therefore, have a greater predisposition to creativity, which in entrepreneurship is defined as a propensity to generate creative market solutions in the form of novel and simultaneously useful business ideas (quality) (Amabile, 2013; Ylitalo, 2017). While creativity is commonly defined as the production of ideas (Amabile, 2013), innovation is the implementation of these ideas in new products and processes (Sarooghi et al., 2015). Inevitably, to maximize the long-term impact of nascent entrepreneurship, the challenge is to identify at an early stage a novel idea that has a strong likelihood of being successfully incorporated, as well as certain qualities necessary to achieve it (Birkholz, 2023).

Nonetheless, enhancing creativity is perceived as one of the managerial dilemmas and a source of tension (Radomska & Wolczek, 2020). Berg (2014) highlights a trade-off between the two, where novel solutions are first sought and later assessed for applicability, or vice versa, depending on the initial constraint. Striking the right balance is crucial, as an excessive focus on exploitation can hinder the exploration of novel ideas (Junni et al., 2013) and conversely, overemphasizing exploration may undermine short term viability. From the perspective of ambidexterity theory (Levinthal & March, 1993) entrepreneurial entities, particularly startups (Mihalache et al., 2014) must actively manage and mitigate tensions between exploration, which drives long-term adaptability, and exploitation, which ensures short-term survival. Research on the relationship between Entrepreneurial Orientation (EO) and ambidexterity (Lee & Kreiser, 2018) underscores EO's critical role in facilitating the simultaneous pursuit of both activities (Kollmann & Stöckmann, 2014). This role is particularly pronounced in resource-constrained firms, where leveraging EO enables them to optimize limited resources while fostering innovation and adaptability (Kollmann & Stöckmann, 2014). Empirical findings further support EO's role in enhancing creative capacity in resource-limited entrepreneurial entities. Daradkeha and Mansoor (2022) demonstrate that EO fosters startups' desire to acquire new knowledge, explore opportunities, and expand into new markets to meet evolving consumer needs. EO also enhances startups' ability to anticipate market trends, revitalize opportunities, and undertake risky projects, thereby stimulating both exploration and exploitation. By fostering a dynamic balance between these two processes, EO emerges as a key mechanism for enhancing creativity particularly in environments where resources are scarce.

However, the dynamics of EO at the team level (TEO) are inherently more complex, which requires a deeper understanding of team dynamics. It is essential to consider the self-organizing nature of teams. Teams naturally evolve toward new states, such as the perceived opportunity or aspiration to start a business (Roundy et al., 2018). As Complex Adaptive Systems (CAS), teams exhibit emergent behaviors that cannot be solely explained by the characteristics of individual members (Pype et al., 2018). Their actions are shaped by system-wide behaviors that emerge from complex team interactions (Ramos-Villagrasa et al., 2018). Balancing the team's ambidexterity, requires specific team interactions which might be understood as 'behavioral team processes' (Dean, 2022). This concept encompasses a deeper collective synergy of behaviors that emerge as team members collaborate and work toward a common goal (Koch et al., 2024). From these theoretical perspectives, TEO can be conceptualized as team level predispositions where team members collectively exhibit proactive, innovative, risk-taking, and autonomous behaviors (Wójcik-Karpacz et al., 2022). In line with CAS framework (Pype et al., 2018) these behaviors do not operate in isolation but interact synergistically to generate patterns of behaviors enhancing team adaptability and responsiveness. Specifically, this behavioral interplay serves as a catalyst for both exploration and exploitation (Dean, 2022), fostering the generation of novel and high-quality venture ideas (Jha et al., 2024; Steele et al., 2021).

## **2.2. Effects of Interaction between team-level innovative and proactive behavior**

While innovative entrepreneurs are characterized by disrupting the existing market equilibrium (Schumpeter, 1934), proactive entrepreneurs focus on seizing opportunities as they arise (Kirzner, 1999). This combination of 'being inventive' (innovativeness) and simultaneously 'being alert' (proactivity) helps

to bring new and appealing business ideas to the market (Lumpkin & Pidduck, 2021, p. 27). In some cases, however, proactive (corporate) teams excel even without innovative predispositions (Covin et al., 2020), whereas in others, both traits contribute to success, especially in digital startups (Kollmann et al., 2021). The link between EO and ambidexterity theory proposed by Lee and Kreiser (2018) would suggest that innovative entrepreneurs may seek to develop novel offerings (exploration) whilst also undertaking minor improvements in current products and technologies (exploitation) (Dess & Lumpkin, 2005). This suggests that innovative predispositions are not always related only to a search for novel and disruptive solutions. Hughes et al. (2007) also proposed that proactiveness, as an opportunity-seeking behavior, offers first-mover advantages towards exploration. Furthermore, they argued that proactive behavior encourages entrepreneurs to be attuned to changes and progression, thereby enhancing operational efficiency through exploitation strategies (Kollmann & Stöckmann, 2014). From this perspective, innovative and proactive behaviors operating in synergy can enhance the capacity of entrepreneurial entities either to explore novel offerings or to exploit current offerings to produce refined high-quality solutions.

Whether the two paths are pursued at once is conditioned by managing ambidexterity in the startup context and by the complexity of team level behaviors. Within a team, individuals may be located at different point on a bipolar continuum ranging from 'adaptive' to 'innovative' (Kirton, 1984), with adaptors focusing on improving solutions and innovators introducing novel ideas. Individuals in a team who are high in proactiveness actively scan the environment for opportunities and show initiative. Team members who are low in proactiveness tend to be passive and fail to identify opportunities. Proper team functioning therefore requires similarly high proactiveness among team members and a balance between two cognitive styles of focusing on innovation: 'making things better' versus 'making things differently' (Kollmann et al., 2017, p. 843). Such team-level synergy could enable both exploratory and exploitative processes. Nevertheless, as the founders of new ventures usually bear the full responsibility for both exploitative and explorative tasks, often without supportive resources, they repeatedly find themselves needing to make decisions about their allocation (Koch et al., 2024). Given these constraints, startups frequently prioritize short-term survival by focusing on incremental improvements in existing markets (Gilbert et al., 2006). Similarly, empirical tests of startup life cycles (Daradkeha & Mansoor, 2022) show that in the early stages, entrepreneurs focus on small improvements to existing products and services, whereas exploring entirely novel ideas may come later (at the growth stage). Following these circumstances, team entrepreneurs by combining innovative and highly proactive efforts, may tend to augment the exploitation of quality ideas, which will temporarily diminish exploration of groundbreaking venture concepts. This system level behavior is the effect a team-level CAS dynamic (Hooeboom & Wilderom, 2020; Ramos-Villagrasa et al., 2018), where NETs adapting to the situation emphasize on usefulness (quality) over radical novelty developing the short-term resilience at such initial stages of entrepreneurial activity.

We, therefore, suggest the following hypotheses:

$H_1(-)$ : The interaction of proactive and innovative team-level behaviors in NETs at conception stage diminishes the exploration of novel business ideas.

$H_2(+)$ : The synergy of proactive and innovative team-level behaviors in NETs at conception stage augments the exploitation of existing opportunities, achieving quality business ideas.

### **2.3. Double Interaction effects at team-level: risk-taking and proactive behavior and risk-taking and innovative behavior**

Risk-taking is generally characterized by making significant resource commitments despite a high likelihood of failure (Dess & Lumpkin, 2005). Such behavior prompts entrepreneurial entities to venture into unknown territories (Pérez-Luño et al., 2011). While some studies suggest that risk-taking is primarily associated with exploratory innovation and the pursuit of high payback, individual tendencies within teams vary (Kollmann & Stöckmann, 2014). Some team members boldly embrace risk to pursue future profits, while others shy away from it, perceiving risk as undesirable even when the potential rewards are high (Kollmann et al., 2017). Balancing these conflicting objectives in startup teams which are often

under tight time and resource limits (Brem, 2017) makes it more challenging to manage the tensions. Research on team ambidexterity in startups (Koch et al., 2024) has shown that startup teams are more tempted to get work done than risk short-term returns by thinking outside the box. Their risk-averse behavior and limited resources often lead them into the success trap of investing heavily in exploitation, focusing on short-term performance (Gilbert et al., 2006). Despite having potentially innovative ideas (Zhang & Li, 2010), startups often lack of the essential capital, capabilities, knowledge and internal relationships required to execute innovative ideas effectively (Freeman & Engel, 2007). By contrast, proponents of the EO/ambidexterity perspective sustain that in environments where resources are constraint, risk-taking may lead to a reduction in the desirability of conducting exploitation and a tendency to shift away from routine processes and engage in exploratory innovation (Dess & Lumpkin, 2005). Conversely, it can lead to a 'cycle of failure' by overemphasizing exploration, missing the opportunity to refine existing opportunities (Levinthal & March, 1993, p. 106). Although risk-taking behavior may lead teams toward different strategic directions, Daradkeh (2021) acknowledges that, when strategically implemented, risk-taking can function as a balancing mechanism for ambidexterity. This is particularly relevant within the CAS framework (Hoozeboom & Wilderom, 2020; Ramos-Villagrasa et al., 2018), where teams must continuously adapt, learn, and respond to changing environments. Risk-taking functions as a strategic enabler that determines how entrepreneurial teams navigate uncertainty and tension to dynamically adjust their strategic focus (Franczak & Weinzimmer, 2022).

Empirical evidence at corporate level suggests that when risk-taking behavior is strategically aligned with proactiveness, it fosters an opportunity-seeking approach, driving firms to identify and capitalize on emerging trends (Lomberg et al., 2017; Pérez-Luño et al., 2011). Since risk-taking is also intrinsically linked to innovativeness, corporate teams that embrace uncertainty tend to introduce disruptive products and services, reshaping existing market landscapes (Pérez-Luño et al., 2011). At startup level, Kollmann et al. (2021) found that risk-taking behavior leads to high value creation in startups only when coupled with a proactive approach to seizing existing market opportunities. This indicates a behavioral pattern among startups driving them to enter the market relatively rapidly taking bold, and perhaps risky actions without being particularly innovative, for example, by modifying existing quality ideas from companies and proposing them on other markets. Nevertheless, in circumstances when existing opportunities are scarce, the risk tolerance of startups increases, enabling them to engage in innovative behavior (Daradkeh & Mansoor, 2022) with emphasis on exploration and experimentation with entirely novel ideas. Indeed, only this capacity or a certain flexibility to switch between exploration and exploitation can help startup teams to reach their full potential (Koch et al., 2024) adapting to different circumstances.

Taking all of the above into consideration, we posit the following hypotheses:

H<sub>3</sub>(+): The synergy between team-level risk-taking and team-level innovative behavior in NETs encourages the exploration of novel business ideas.

H<sub>4</sub>(+): The synergy between team-level risk-taking and team-level proactive behavior encourages exploitation of existing opportunities, thus achieving quality business ideas.

#### **2.4. Double interaction effects at team- level: autonomy and proactive behavior and autonomy and innovative behavior**

Autonomy is viewed as being a more unusual addition to the dimensions of EO (Lumpkin & Dess, 1996). It was originally defined as the ability to 'work independently, make decisions, and take actions aimed at bringing forth a business concept or vision and carrying it through to completion' (Dess & Lumpkin, 2005, p. 148). Autonomy is particularly critical in entrepreneurial settings, where launching a new venture or entering a market for the first time requires independent decision-making and initiative (Lumpkin & Pidduck, 2021). As such, autonomy in an EO context encompasses the kind of autonomy startup entrepreneurs need to launch a new venture. Autonomy plays a crucial role in explaining how entrepreneurs navigate between creating change and discovering opportunities (Alvarez & Barney, 2007; Rindova et al., 2009). The creativity literature, along with empirical evidence, highlights the importance of autonomy as a motivational driver of creativity (Wang, 2016). This is primarily because autonomy grants the freedom

to choose how to approach tasks, a factor that has been shown to positively influence creativity by fostering intrinsic motivation.

In team settings, particularly in startups, autonomy enables members to step beyond established routines and norms, encouraging both exploratory and exploitative behaviors (Koch et al., 2024). By providing flexibility in decision-making, autonomy can effectively channel entrepreneurial team efforts toward ambidextrous activities (Koch et al., 2024). Especially as a result of a supportive environment, in which team members can express themselves freely to decide when and how to allocate their time between the two activities. In such settings, team members have the authority to allocate resources or prioritize tasks without seeking approval. Therefore, Koch et al. (2024) suggests that autonomous teams are generally better-positioned to achieve ambidexterity. However, while autonomous decision-making empowers teams, it must be balanced with shared goals and collaborative mechanisms (Fellnhöfer et al., 2017). Without this balance, excessive autonomy could lead to inefficiencies or misalignment rather than synergistic team performance. In line with the study by Wang (2016), team autonomy is beneficial only if a strong sensation of task interdependence within the team stimulates more shared concerns with the collective creative outcome. This concept aligns with the CAS framework, where teams rely on self-organization and decentralized decision-making rather than hierarchical structures (Hoogeboom & Wilderom, 2020; Ramos-Villagrasa et al., 2018). In such freedom-based context, task interdependence serves as a stabilizing mechanism, transforming autonomy into cohesive, goal-oriented entrepreneurial action. By integrating autonomy with structured collaboration, teams can enhance adaptability and decision-making agility. In CAS, decision-making processes are emergent rather than dictated, meaning that teams do not passively wait for external instructions but instead proactively respond to challenges in real-time (Akgün et al., 2014). This autonomy-driven proactiveness is particularly advantageous in highly uncertain environments, where rapid adaptation is essential for identifying quality market opportunities. In this context, Lumpkin and Pidduck (2021) argue that proactive opportunity searching cannot materialize without the autonomy to act. At the same time, the self-organizing nature of CAS fosters a climate of exploration and experimentation, where teams naturally engage in spontaneous interactions and knowledge exchange (Akgün et al., 2014). This autonomous environment provides an optimal setting for team members with an innovative predisposition to act on their creative instincts and generate and share their novel ideas.

We, therefore, post the following hypotheses:

*H<sub>1</sub>(+):* The synergy of team-level autonomous and team-level innovative behavior in NETs encourages exploration of novel business ideas

*H<sub>2</sub>(+):* The synergy of team-level autonomous and team-level proactive behaviors in NETs encourages exploitation of existing opportunities, achieving quality business ideas

### 3. Methodology

#### 3.1. Sample and research design

The participants in the study came from the entrepreneurship ecosystem of Mondragon Team Academy (MTA), which forms part of Mondragon University in the Basque Country (Spain). The sample was taken from the academy's three co-working labs in the Basque Country: Irun, Oñati and Bilbao. It was important to ensure that entrepreneurial teams were observed in their natural environment rather than in the forced context of a scientific exercise. The study would not achieve its aim if we were to observe a group of entrepreneurs formed solely for the purpose of the study. The MTA sample enabled us to observe teams of entrepreneurs with real experience of working together (3.4 years on average). MTA's culture is based on the constant generation of business ideas as part of the educational model. Each team had a three-month period in which to generate ideas and present its final business idea in a brief pitch at the end of the process. The total population comprised 112 teams comprising 327 entrepreneurs (172 female, 153 male and 2 non-binary). The average number of members per team in the population was 2.9. The study applied a probability sampling, meaning that each team in the population had a chance of being

Table 1. Sample characteristics.

|                           | Sample    | Population | Percent    |
|---------------------------|-----------|------------|------------|
| n. Entrepreneurs          | 145       | 327        | 44%        |
| n. Female                 | 73        | 172        | 42%        |
| n. Male                   | 71        | 153        | 46%        |
| n. non-binary             | 1         | 2          | 50%        |
| Age (<20)                 | 2         | 5          | 40%        |
| Age (20–25)               | 142       | 321        | 44%        |
| Age (> 25)                | 1         | 1          | 100%       |
| <b>n. Teams (total)</b>   | <b>88</b> | <b>112</b> | <b>79%</b> |
| n. Teams Bilbao           | 30        | 36         | 83%        |
| n. Teams Oriati           | 39        | 44         | 89%        |
| n. Teams Irun             | 19        | 32         | 59%        |
| Avg. Member Response/Team | 1.6       | –          | –          |
| Avg. Member/Team          | –         | 2.9        | –          |

Note: n: number; Avg. Member Response/Team: Average number of members response per team; Avg. Member /Team: Average number of members per team.

selected. In order to ensure that the entrepreneurial teams were properly represented in the sample, a response rate of at least 50% per team was required (i.e. two responses from a 4-member team or one response from 2-member team). The average response rate was 1.6 members per team, i.e. 55.2% of the members. This gave us 145 out of 327 entrepreneurs (44%) – 73 women, 71 men and 1 non-binary – and 88 entrepreneurial teams out of a total 112 (79%). The details of the sample are shown in Table 1.

Before starting the study, we calculated the minimum number of participants required. Using G-Power 3.1.9.7 for an 80% power and 5% significance level, the minimum sample required was 109. The minimum required sample was much lower than the sample used in this research.

### 3.2. Data collection

The timeframe of the data collection was chosen to coincide with the MTA teams' idea-generation exercises (conducted between November 2019 and January 2022). All 327 entrepreneurs were invited to fill out a survey at the end of the experiment (after submitting their final business idea). In team research, survey-based questions are a common methodological tool for data collection as they are ideal especially for capturing perceptions and measuring perceived behaviors among team members (Delice et al., 2019). Given the team context's dynamic nature (Delice et al., 2019), survey methods enhance data collection time efficiency by capturing up-to-date team functioning information. The provision of complete anonymity is presumed to facilitate collection of more accurate data by minimizing social desirability pressures (Lelkes et al., 2012). All respondents were informed of their voluntary participation and anonymity and they gave their written informed consents. They then rated the scales of TInnovativeness, TProactivity, TRisk-Taking and TAutonomy.

Second, we used a panel of seventeen expert judges to rate the Novelty and Quality of the business ideas of 88 entrepreneurial teams – each team submitted one final business idea. The panel of experts was applied based on creativity research method (Amabile, 2013) where the assessment of creative outcomes is commonly conducted by experts in the relevant domain. This method is based on the premise that individuals familiar with certain domain can reliably judge the creativity of work within that field. The selected experts had entrepreneurial expertise, meaning that they had appropriate experience and knowledge to make the evaluation. All the experts were informed of their voluntary participation and anonymity and they gave their written informed consents. On average, each expert judge evaluated approximately five business ideas.

Before official data collection, we conducted a pre-testing with five participants who were representatives of entrepreneurial teams and expert judges. The purpose of the pre-testing phase was to evaluate the clarity, comprehensibility, and functionality of the survey instruments. Based on the feedback gathered during pre-testing, we adjusted the wording of two questions to enhance clarity and reduce ambiguity.

The ethical approval was obtained by the Research Ethics Committee of Mondragon Unibertsitatea – the Doctoral program of Advanced Management and Social Economy at Faculty of Business Studies, Mondragon Unibertsitatea.<sup>1</sup>

### 3.3. Measures

The measures applied in this study are quantitative and have been adapted from previously validated scales. The TEO measures of Tinnovativeness TProactivity, TRisk-Taking were applied from Hughes et al. (2007) and adapted from Fellnhöfer et al. (2017) to work-group contexts. To assess TAutonomy, we used the scale developed by Fellnhöfer et al. (2017), which builds on the original concept by Lumpkin and Dess (1996). The measurement method applied the individuals' perception of their team (e.g. 'My team excels at identifying opportunities') following the recommendations of Wójcik-Karpacz et al. (2022). For all measures, a 5-point Likert scale was applied. Novelty and Quality as creative outcomes or creative ideas were measured using the scale mentioned by Dean et al. (2006) and later suggested by Ylitalo (2017). Novelty measured the originality and paradigm-relatedness of a business idea. Quality measured the workability, relevance, and specificity of business idea.

Following the recommendation of Memon (2024), we incorporated two control variables to assess the potential influence on the dependent variable: (i) gender, measured as binary (1=female; 0 = male): previous research documented its influence on entrepreneurial behaviors like risk-taking and innovation (Díaz-García et al., 2013), (ii) fixed-creative mindset, captures individual level of believe that creativity is innate and unchangeable. Individuals with a fixed creative mindset are less likely to engage in creative tasks or contribute novel ideas, which could weaken the relationship between TEO and team-level outcomes such as novelty or quality (Karwowski, 2014), measured on a 5-point Likert scale.

### 3.4. Data analysis method

The SEM technique was used to analyze the data from the questionnaires. Partial Least Squares, a variance-based structural equation modeling approach (PLS-SEM) was the key method used for testing our hypotheses, which is common for latent variables modeling. PLS-SEM is well-suited for analyzing reflective constructs, which are effectively represented by a composite model, providing more accurate results by thoroughly accounting for the variance in the indicators (Guenther et al., 2023). The decision of choosing PLS-SEM was based first on the characteristics of the composite constructs included in our model. Both theoretical arguments (Rigdon et al., 2017) and empirical evidence (Sarstedt et al., 2021) support the use of PLS SEM in models based on composite variables. Secondly, the research model was complex, given the types of relationships hypothesized (moderating effects). PLS SEM, as a result, allows us to meet the study's explanatory purposes, facilitating understanding of the causal relationships among variables. We used the latest version (4.1.04) of SmartPLS software (Ringle et al., 2022). A two-step process is indicated (Hair et al., 2019) for evaluating our proposed research model using PLS SEM, comprising: (1) evaluation of the measurement model and (2) evaluation of the structural model. We used a bootstrap procedure (Chin, 1998) to determine the significance of the parameter estimation. With this bootstrapping method, which is a resampling procedure, we were able to determine the significance of the parameters, such as path coefficients, in the structural model. We ran an endogeneity test (Becker et al., 2022) to verify the robustness of the structural model. To test the moderating effects, including two-way, we followed the procedure described by Becker et al. (2023) in the most recent PLS guidelines.

### 3.5. Common method bias

This study acknowledges the potential for common method bias (CMB) in questionnaire-based research, where participants answer questions about both the independent and dependent variables (Podsakoff et al., 2024). To address this concern, we separated the questions measuring dependent and independent variables. The independent variables, representing team-level entrepreneurial behaviors (e.g. proactiveness, innovativeness, autonomy, risk-taking), were measured using questionnaires completed by team members themselves. To reduce high risk of bias in team representation, the study applied minimum response threshold of 50% per team ensuring that no team was represented by an unreasonably low number of respondents. The dependent variables, specifically the novelty and quality of business ideas,

were evaluated by a panel of experts and coaches who were external to the teams. These evaluators provided objective assessments based on predefined criteria and their professional judgment, independent of the teams' self-reports. By collecting data from separate sources, the risk of inflated correlations and erroneous conclusions due to same-source measurement is significantly reduced. Additionally, participants' anonymity was guaranteed, encouraging honest and unbiased responses. Anonymity minimizes social desirability bias (Podsakoff et al., 2024). Further, we provided detailed research objectives and instructions at the beginning of the questionnaire (Jordan & Troth, 2020). We also conducted a comprehensive multicollinearity test for both the internal and external models of direct and indirect effects. This test confirmed that our model was not influenced by CMB, as all Variance Inflation Factors (VIFs) were below 3.3 (Kock, 2015).

## 4. Results

### 4.1. Evaluation of the measurement model

We performed a confirmatory composite analysis of the saturated model (Table 2) using an overall model fit test (Henseler et al., 2016) allowing us to assess the external validity of the composites (Henseler, 2017). The two measures of discrepancy (SRMR, dULS) between the empirical and the model-implied correlation matrix are less than their corresponding HI95 and HI99. The dG measure is lower than the HI95 and HI99 value for the saturated models (Table 2). Hence, the discrepancy is not significant, and we can assume the indicators form the composites, in accordance with the measurement model proposed (Henseler, 2017).

The measurement model evaluation gave acceptable results. All dimensions and indicators met the requirement of reliability, given that their outer loadings were greater than 0.707 (Table 3). Two of the outer loadings were moderately below this critical value. However, they were maintained to support the content validity. In addition, one item was removed from the Quality construct due to its low outer loadings and to achieve convergent validity. Another four items in total with low outer loadings were removed from TAutonomy and TInnovativeness to improve construct reliability and discriminant validity between composites. The model satisfies the prerequisite of construct reliability (CR). All indices are greater than 0.8 (Table 3), which indicates the internal consistency reliability of each construct. The average variance extracted (AVE) serves as a measure of unidimensionality (Fornell & Larcker, 1981) and convergent validity (Hair et al., 2022) AVE should be greater than 0.5, which means that 50% or more of the variance of the indicators should be accounted for. Consistent with this suggestion, AVE measures for all constructs are greater than 0.540 (Table 3) showing adequate unidimensionality and convergent validity of the measures.

Finally, the heterotrait-monotrait criterion (HTMT) provides evidence of discriminant validity (Hair et al., 2019). All variables obtain adequate discriminant validity, as indicated by values below .85 for the HTMT ratio (Table 4), thereby evidencing that TInnovativeness, TProactivity, TRisk-Taking, TAutonomy, Quality and Novelty are distinctive composites.

### 4.2. Robustness checks

To ensure the reliability and credibility of the PLS-SEM results for the structural model, we followed Sarstedt et al. (2020) by assessing nonlinear effects, addressing endogeneity concerns, and accounting for unobserved heterogeneity.

**Table 2.** Test of the model fit.

|      | Saturated model |      |      |
|------|-----------------|------|------|
|      | Value           | HI95 | HI99 |
| SRMR | .057            | .063 | .072 |
| dULS | .619            | .763 | .995 |
| dG   | .242            | .261 | .304 |

Note: SRMR: standardized root means square residual; dULS: the unweighted least squares discrepancy; dG: the geodesic discrepancy; HI95: two tail bootstrap-based 95th percentile; HI99: two tail bootstrap-based 99th percentile. Bootstrapping based on 10,000 subsamples.

Table 3. Measurement model assessment.

| Composites/Dimension/Indicator                                                                                                                                                              | VIF   | Mean  | SD    | Loadings | Weight  | CR      | AVE     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|----------|---------|---------|---------|
| <b>TInnovativeness (Composite mode A)</b>                                                                                                                                                   |       |       |       |          |         | .809*** | .680*** |
| TInnovativeness 1 Our team places a strong emphasis on innovative and creative ideas in its methods of operation                                                                            | 1.149 | 3.648 | .875  | .838***  | .628*** |         |         |
| TInnovativeness 2 Our team is often the first coming up with new ideas related to new products, services, in-company processes, methods or other innovative improvements                    | 1.149 | 3.188 | .909  | .811***  | .584    | ***     |         |
| <b>TProactivity (Composite mode A)</b>                                                                                                                                                      |       |       |       |          |         | .783*** | .548*** |
| TProactivity 1 My team initiates actions to which others respond                                                                                                                            | 1.072 | 3.676 | .694  | .627***  | .418*** |         |         |
| TProactivity 2 My team excels at identifying opportunities                                                                                                                                  | 1.354 | 3.701 | .864  | .795***  | .469*** |         |         |
| TProactivity 3 My team always tries to take the initiative in every situation (e.g. Against competitors, in projects and when working with others)                                          | 1.347 | 3.566 | .893  | .787***  | .464*** |         |         |
| <b>TRisk-Taking (Composite mode A)</b>                                                                                                                                                      |       |       |       |          |         | .798*** | .571*** |
| TRisk-Taking 1 People in our team are encouraged to take calculated risks with new ideas                                                                                                    | 1.239 | 3.579 | .915  | .821***  | .565*** |         |         |
| TRisk-Taking 2 Our team emphasizes both exploration and experimentation for opportunities and takes bold, wide-ranging actions to achieve the objectives                                    | 1.413 | 3.579 | .844  | .790***  | .403*** |         |         |
| TRisk-Taking 3 When confronted with decisions involving uncertainty, my team typically adopts a bold posture                                                                                | 1.217 | 3.326 | .795  | .643***  | .339*   |         |         |
| <b>TAutonomy (Composite mode A)</b>                                                                                                                                                         |       |       |       |          |         | .775*** | .635*** |
| TAutonomy 1 In our team working independently is considered to enhance creative thinking                                                                                                    | 1.083 | 3.145 | .917  | .862***  | .715*** |         |         |
| TAutonomy 5 We as a team foster the necessary culture, rewards, and processes to support product and service champions                                                                      | 1.083 | 3.414 | .907  | .726***  | .529*   |         |         |
| <b>Quality (Composite Mode A)</b>                                                                                                                                                           |       |       |       |          |         | .884*** | .561*** |
| Relevance 1 The degree to which the idea clearly applies to the stated problem (applicability)                                                                                              | 1.952 | 3.524 | 1.198 | .785***  | .250*** |         |         |
| Relevance 2 The degree to which the idea will solve the problem (effectiveness)                                                                                                             | 2.056 | 3.434 | .995  | .754***  | .223*** |         |         |
| Workability 2 The degree to which the idea can be easily implemented (implementability)                                                                                                     | 1.457 | 3.690 | 1.142 | .632***  | .215*** |         |         |
| Specificity 1 The number of independent subcomponents into which the idea can be decomposed, and the breadth of coverage with regard to who, what, where, when, why, and how (completeness) | 2.077 | 2.386 | .578  | .797***  | .213*** |         |         |
| Specificity 2 The degree to which there is a clear relationship between the recommended action and the expected outcome (implicational explicitness)                                        | 1.765 | 2.310 | .700  | .715***  | .178*** |         |         |
| Specificity 3 The degree to which the idea is clearly communicated (clarity)                                                                                                                | 2.230 | 2.407 | .729  | .797***  | .254*** |         |         |
| <b>Novelty (Composite Mode A)</b>                                                                                                                                                           |       |       |       |          |         | .925*** | .860*** |
| Novelty 1 The degree to which the idea is not only rare but is also ingenious, imaginative, or surprising (originality)                                                                     | 2.080 | 3.124 | .875  | .918***  | .493*** |         |         |
| Novelty 2 The degree to which an idea preserves or modifies a paradigm (paradigm relatedness)                                                                                               | 2.080 | 3.076 | .909  | .937***  | .584*** |         |         |

Note: VIF: Variance inflation factor; CR: Composite Reliability; AVE: Average Variance Extracted.

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$  based on percentile bootstrapping ( $n = 10,000$ ; two-tailed test).

Table 4. Measurement model discriminant validity.

|                   | 1            | 2           | 3           | 4           | 5           | 6    |
|-------------------|--------------|-------------|-------------|-------------|-------------|------|
| 1-Novelty         | .927         | .402        | .183        | .408        | .240        | .197 |
| 2-Quality         | <b>.333</b>  | .749        | .298        | .426        | .591        | .433 |
| 3-TAutonomy       | <b>-.110</b> | <b>.186</b> | .797        | .651        | .577        | .768 |
| 4-TInnovativeness | <b>.274</b>  | <b>.288</b> | <b>.305</b> | .825        | .816        | .841 |
| 5-TProactivity    | <b>.167</b>  | <b>.415</b> | <b>.286</b> | <b>.459</b> | .741        | .788 |
| 6-TRisk-Taking    | <b>.161</b>  | <b>.323</b> | <b>.390</b> | <b>.496</b> | <b>.478</b> | .755 |

Note: The HTMT criterion appears above the diagonal. The Fornell-Larcker criterion appears below the diagonal in bold.

#### 4.2.1. Endogeneity test

Our assessment of potential endogeneity follows the procedure proposed by Hult et al. (2018). We initially considered addressing potential endogeneity by using the Gaussian copula method (Park & Gupta, 2012). However, after testing for normality using both the Cramer-Von Mises and Anderson-Darling tests, we found that the independent variable, TRisk-Taking did not significantly deviate from a normal distribution. Based on this result and following the guidance of Becker et al. (2023) we determined that the Gaussian copula method would not be suitable for analyzing endogeneity in this specific model. We therefore included control variables to explore and control possible endogeneity, specifically Gender and

Individual Fixed Creative-Mindset. Our analysis showed that the two control variables did not reveal significance: gender ( $\beta = -.045$   $p = .780$ ;  $\beta = .092$   $p = .572$ ) and fixed creative-mindset ( $\beta = -.151$   $p = 0.163$ ;  $\beta = .045$   $p = .0653$ ). The inclusion of these variables helps address potential endogeneity concerns, but caution is still advised, since endogeneity can arise from various sources.

#### 4.2.2. Non-linear effect

To investigate the potential presence of non-linear effects within our model, we employed the two-phase approach proposed by Hair et al. (2022). In the first phase, we computed the predictor variable scores. Subsequently, in the second phase, we examined quadratic effects across six specific paths within the model to assess the existence of non-linear relationships. We obtained the following results: TInnovativeness on Novelty ( $\beta = -.002$ ,  $p = .488$ ,  $F^2 = .000$ ) and Quality ( $\beta = -.024$ ,  $p = .358$ ,  $F^2 = .001$ ); TProactivity on Novelty ( $\beta = 0.102$ ,  $p = 0.076$ ,  $F^2 = .019$ ) and Quality ( $\beta = -.052$ ,  $p = 0.247$ ,  $F^2 = .005$ ); TAutonomy on Novelty ( $\beta = -.040$ ,  $p = .247$ ,  $F^2 = .003$ ) and Quality ( $\beta = .092$ ,  $p = .073$ ,  $F^2 = .019$ ); TRisk-Taking on Novelty ( $\beta = -.024$ ,  $p = .378$ ,  $F^2 = .001$ ) and Quality ( $\beta = .053$ ,  $p = .252$ ,  $F^2 = .005$ ). The results indicate that the quadratic effects are not statistically significant in any of the examined relationships, and their overall impact remains minimal. Therefore, we assume a linear relationship within our model.

#### 4.2.3. Unobserved heterogeneity

To assess the presence of unobserved heterogeneity, we adhered to the recommendations of Sarstedt et al. (2017) and applied the FIMIX-PLS method using SmartPLS, following the evaluation criteria outlined by Hair et al. (2019). Given our sample size of 109, we initiated the analysis with five different segmentations, in accordance with the methodological guidelines proposed by Sarstedt et al. (2011) and Hair et al. (2019). To determine the optimal number of segments, we systematically evaluated multiple criteria, including: (i) CAIC (consistent AIC) and AIC3 (modified AIC with Factor 3); (ii) AIC3 in conjunction with BIC (Bayesian Information Criterion); and (iii) BIC with AIC4 (modified AIC with Factor 4). However, these indicators yielded varying segment solutions. As presented in Table 5, the comparative analysis strongly supports a one-segment solution. Additionally, the standardized entropy statistic (EN) exceeds the threshold of 0.5 (Table 5), indicating a well-defined classification of the data. Therefore, our findings suggest that unobserved heterogeneity is not a concern in our dataset.

#### 4.3. Evaluation of the structural model

Once the psychometric properties of the measurements had been checked, the next step was to evaluate the hypothesized relationship. We applied bootstrapping based on  $n = 10,000$  subsamples to evaluate path coefficient. Based on the suggestion of Becker et al. (2023), we used two models to test the hypothesis: Model 1, which examines the direct effects of TEO dimensions toward Novelty and Quality; Model 2, which shows the two-way interaction effect of the TEO dimensions; The PLS SEM results for these models are summarized in Table 6.

The direct effects (Model 1, Table 6) indicate that TInnovativeness has a significant positive effect on Novelty ( $\beta = .273$ ;  $p = .003$ ), supporting the idea that team with high levels of Innovativeness generate more novel business ideas. Conversely, TProactivity demonstrates a significant positive effect on Quality

Table 5. Unobserved heterogeneity results.

|      | Segments |         |         |
|------|----------|---------|---------|
|      | 1        | 2       | 3       |
| AIC3 | 801.395  | 808.949 | 798.055 |
| AIC4 | 811.395  | 829.949 | 830.055 |
| BIC  | 821.162  | 850.461 | 861.311 |
| CAIC | 831.162  | 871.461 | 893.311 |
| EN   | 0        | .653    | .621    |

Note: AIC: Akaike's information criterion, AIC3: modified AIC with factor 3, AIC4: modified AIC with factor 4, BIC: Bayesian information criterion, CAIC: consistent AIC, EN: normed entropy statistic.

Table 6. Summary of structural model results.

| Path                                                                | Model 1 (Main effect) |                | Model 2 Interaction Model Double interactions effects |                | Hypothesis Supported |
|---------------------------------------------------------------------|-----------------------|----------------|-------------------------------------------------------|----------------|----------------------|
|                                                                     | $\beta$               | CI             | $\beta$                                               | CI             |                      |
| TInnovativeness $\rightarrow$ Novelty                               | <b>.273**</b>         | [.103; .428]   | <b>.253**</b>                                         | [.089; .411]   |                      |
| TInnovativeness $\rightarrow$ Quality                               | .078 <sup>m</sup>     | [-.068; .215]  | .093 <sup>m</sup>                                     | [-.073; .228]  |                      |
| TProactivity $\rightarrow$ Novelty                                  | .070 <sup>m</sup>     | [-.107; .255]  | .102 <sup>m</sup>                                     | [-.075; .275]  |                      |
| TProactivity $\rightarrow$ Quality                                  | <b>.313***</b>        | [.162; .473]   | <b>.344***</b>                                        | [.186; .510]   |                      |
| TRisk-Taking $\rightarrow$ Novelty                                  | .089 <sup>m</sup>     | [-.094; .278]  | .091 <sup>m</sup>                                     | [-.084; .284]  |                      |
| TRisk-Taking $\rightarrow$ Quality                                  | .125 <sup>m</sup>     | [-.024; .294]  | .092 <sup>m</sup>                                     | [-.047; .279]  |                      |
| TAutonomy $\rightarrow$ Novelty                                     | <b>-.247**</b>        | [-.396; -.091] | <b>-.268**</b>                                        | [-.419; -.107] |                      |
| TAutonomy $\rightarrow$ Quality                                     | .024 <sup>m</sup>     | [-.136; .181]  | .059 <sup>m</sup>                                     | [-.099; .206]  |                      |
| H <sub>1</sub> TProactivity X TInnovativeness $\rightarrow$ Novelty |                       |                | .144 <sup>m</sup>                                     | [-.033; .309]  | NO                   |
| H <sub>2</sub> TProactivity X TInnovativeness $\rightarrow$ Quality |                       |                | <b>-.180*</b>                                         | [-.300; -.013] | NO                   |
| H <sub>3</sub> TRisk-Taking X TInnovativeness $\rightarrow$ Novelty |                       |                | -.045 <sup>m</sup>                                    | [-.214; .141]  | NO                   |
| H <sub>4</sub> TRisk-Taking X TProactivity $\rightarrow$ Quality    |                       |                | <b>.180*</b>                                          | [.021; .295]   | YES                  |
| H <sub>5</sub> TAutonomy X TInnovativeness $\rightarrow$ Novelty    |                       |                | <b>-.169*</b>                                         | [-.317; -.034] | NO                   |
| H <sub>6</sub> TAutonomy X TProactivity $\rightarrow$ Quality       |                       |                | .046 <sup>m</sup>                                     | [-.107; .176]  | NO                   |
| R <sup>2</sup> Novelty                                              | .128**                | [.094; .258]   | .165**                                                | [.120; .340]   |                      |
| R <sup>2</sup> Quality                                              | .198***               | [.152; .344]   | .235***                                               | [.176; .411]   |                      |

Note: CI – Confidence interval.  $\beta$ : Path Coefficients. Hypothesized effects are assessed applying one side test. Main effects (not hypothesized) from Model 1 are assessed applying a one-tailed test. Bootstrapping based on  $n=10,000$  samples. Effects from R<sup>2</sup> is assessed applying a two-tailed test. Bootstrapping based on  $n=10,000$  samples. <sup>m</sup> non-significant. \*\*\*  $p < .001$ ; \*\*  $p < .01$ ; \*  $p < .05$ ; the hypothesis proved significant are in bold.

( $\beta = .313$ ;  $p = .001$ ), suggesting that proactive teams tend to produce business ideas with higher feasibility and relevance. However, TAutonomy is negatively associated with Novelty ( $\beta = -.247$ ;  $p = .004$ ), implying that greater autonomy within entrepreneurial team may hinder their ability to generate truly novel ideas.

Model 2 (Table 6) expands the analysis by incorporating two-way interaction effects between TEO dimensions and their influence on Novelty and Quality outcomes. The findings reveal no significant interaction between TProactivity and TInnovativeness towards Novelty (H<sub>1</sub>;  $\beta = .149$ ;  $p = .076$ ) while their interaction has a negative effect on Quality (H<sub>2</sub>;  $\beta = -.180$ ;  $p = .020$ ). Therefore, Hypothesis 1 and Hypothesis 2 are not supported. Interestingly, although both, TInnovativeness and TProactivity independently contribute positively to creative outcomes, their interaction produces a negative and significant effect, suggesting a substituting effect (Gardner et al., 2017). This indicates that while teams high in both proactiveness and innovativeness possess valuable entrepreneurial characteristics, their simultaneous presence may introduce tensions on inefficiencies, ultimately weakening their ability to achieve high-quality business ideas. Figure 2 visually illustrate this antagonistic interaction, where increasing levels of TProactivity diminish the beneficial effects of TInnovativeness on Quality outcomes.

Furthermore, the results show that TRisk-Taking does not significantly interact with TInnovativeness toward Novelty (H<sub>3</sub>;  $\beta = -.045$   $p = .338$ ), thus failing to support hypothesis 3. However, in line with expectations, TRisk-Taking positively moderate the relationship of TProactivity on Quality (H<sub>4</sub>;  $\beta = .180$ ;  $p = .015$ ), confirming Hypothesis 4. As illustrate Figure 3, the slope analysis reveals that higher levels of TRisk-Taking strengthen the link between TProactivity and Quality of business ideas. This suggests that risk-taking acts as a catalyst, enhancing the impact of proactive behavior in team on the feasibility of business ideas.

The analysis does not support Hypothesis 6 (H<sub>6</sub>;  $\beta = .046$   $p = .295$ ) as TAutonomy and TProactivity exhibit a non-significantly interaction towards Quality. This suggest that while autonomy and proactiveness may both contribute to team functioning; their interaction does not have a meaningful effect on business idea quality. By contrast, the interaction between TAutonomy and TInnovativeness towards Novelty is significant but negative (H<sub>5</sub>;  $\beta = -.169$   $p = .026$ ), contradicting Hypothesis 5. This finding indicates that as team autonomy increases, the positive effect of innovativeness on Novelty diminishes. Figure 4 illustrates this mitigating effect, where higher levels of autonomy flatten the conditional slopes of the TInnovativeness–Novelty relationship. This result suggests that while autonomy is generally considered beneficial for fostering creativity, excessive autonomy may reduce the collaboration mechanisms needed for transforming innovative potential of team members into collective novel outcomes.

Finally, in terms of explanatory power, we observe incremental improvements across the models. The direct effects model (Model 1) accounts for 12.8% of the variance in Novelty and 19.8% in Quality. The

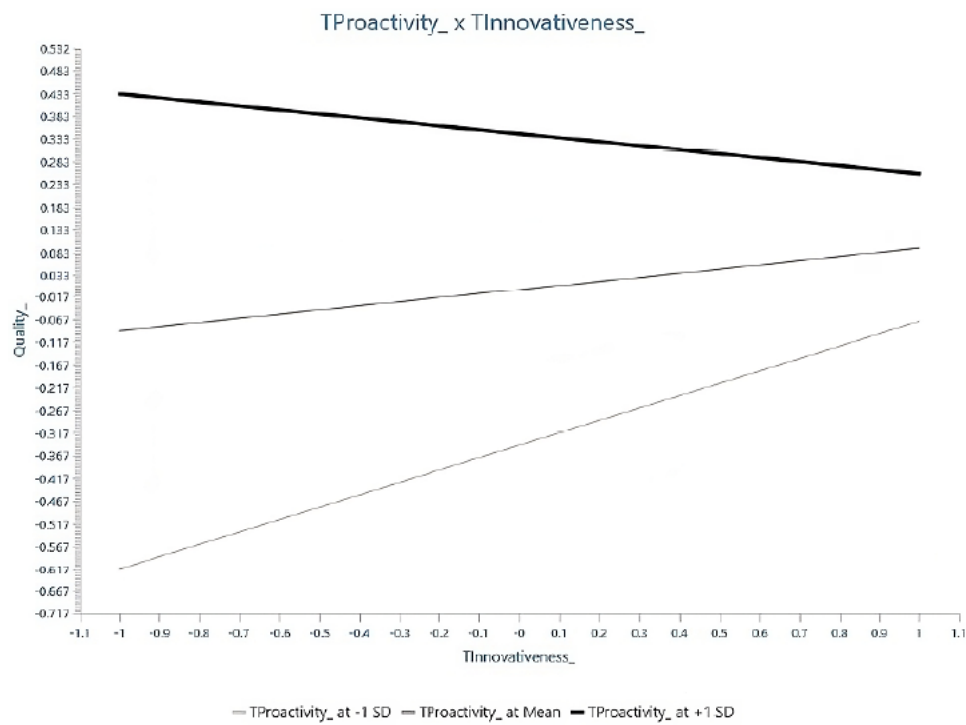


Figure 2. Interaction effect: TProactivity and TInnovativeness towards quality.

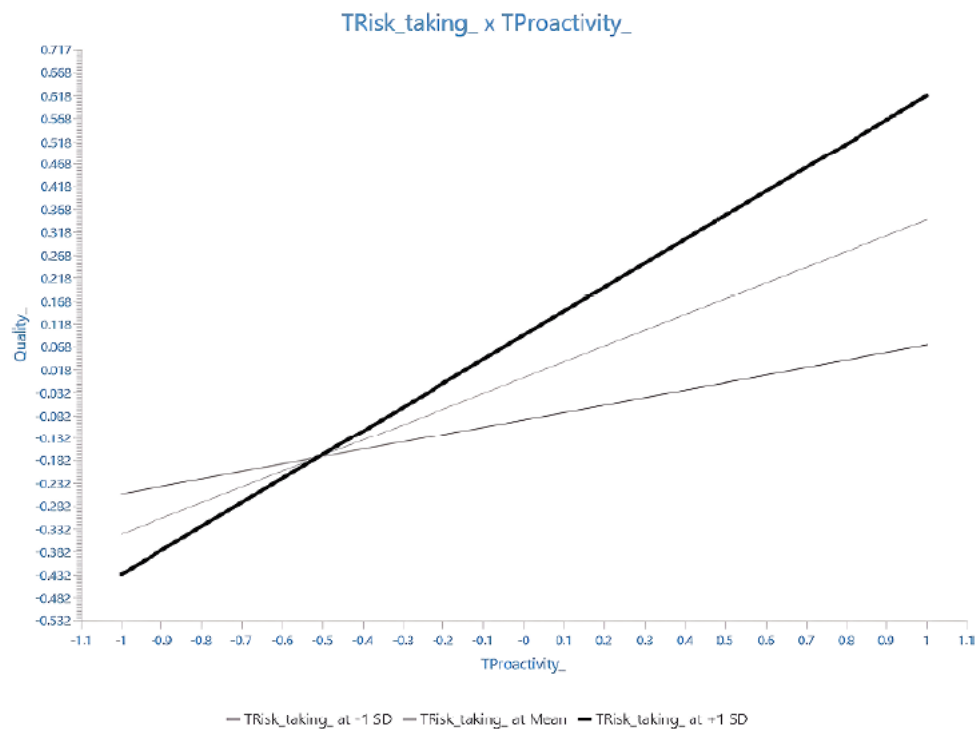


Figure 3. Interaction effect: TRisk taking and TProactivity towards quality.

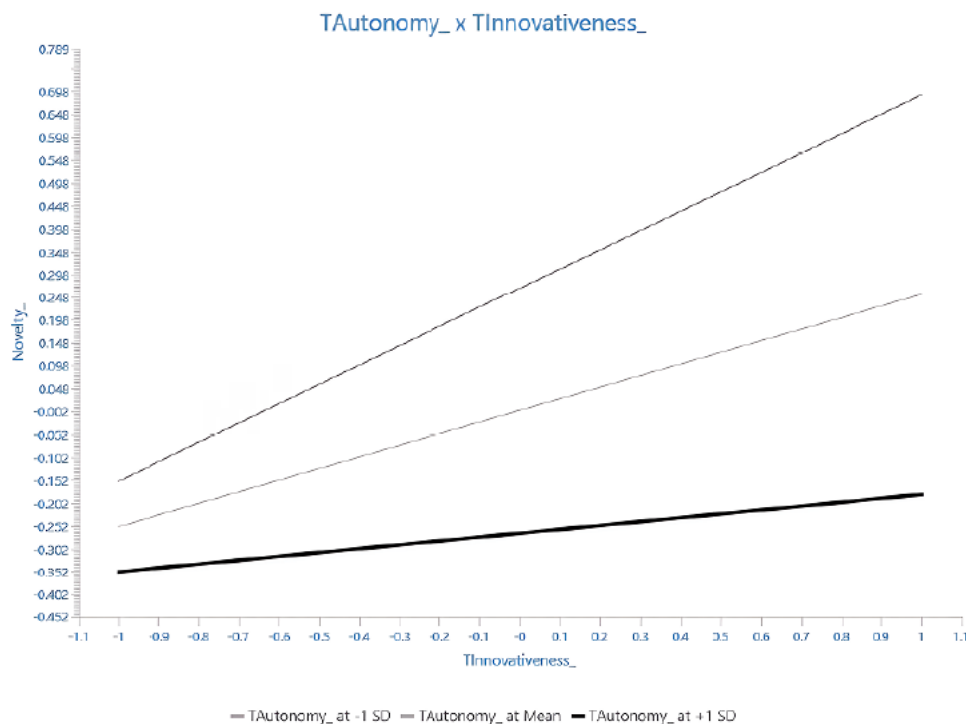


Figure 4. Interaction effect: TAutonomy and TInnovativeness towards novelty.

inclusion of two-way interaction effects (Model 2) increases these explanatory values to 16.5% for Novelty and 23.5% for Quality, demonstrating that team-level entrepreneurial orientation interactions contribute an additional 3.7% variance explanation in the outcomes. This highlights the significance of behavioral synergies within entrepreneurial teams in shaping entrepreneurial outcomes at conception stage.

## 5. Discussion and Implications

### 5.1. Discussion and theoretical contributions

Our study examined how TEO dimensions interact in complex ways to influence the performance of NETs at conception stage. The findings reveal that the simultaneous interactions of TEO behaviors have a greater impact on team outcomes than their individual effects. This supports conceptualization that NETs exhibit shared entrepreneurial predispositions of proactive, innovative, risk-taking and autonomous behaviors through complex interactions. These results align with the perspective that NETs function as complex adaptative systems (CAS) (Hoozeboom & Wilderom, 2020; Ramos-Villagrasa et al., 2018), reinforcing the idea that entrepreneurial teams are not merely aggregates of individual traits but dynamic entrepreneurial systems.

The findings challenged the  $H_1$  and  $H_2$  assumptions, revealing unexpected results. It was hypothesized that the interaction between innovative and proactive behavior within a team would enhance the exploitation of existing opportunities ( $H_2$ ) while reducing exploration of novel solutions ( $H_1$ ), as prior research suggests this pattern is prevalent in early-stage startups (Daradkeha & Mansoor, 2022). However, the results indicate that this interaction produces a negative effect, contradicting the initial hypotheses. This points out that when proactive entrepreneurs focus on refining existing business opportunities, innovative entrepreneurs, instead of complementing these efforts, disrupt and dilute their impact (Figure 2). Such antagonistic relationship implies that innovative entrepreneurs within NETs may prioritize exploration and experimentation over incremental refinement, leading to conflict with proactive entrepreneurs

who are more focused on exploitation of existing ideas. According to ambidexterity theory (Levinthal & March, 1993), these findings indicate that NETs struggle to reconcile the tension between exploration and exploitation, a critical challenge for entrepreneurial teams. Given that startup founders often bear full responsibility for managing both activities (Koch et al., 2024), the observed NETs seem to fail to effectively coordinate trade-offs in prioritizing either exploration or exploitation. It suggests an absence of collective prioritization mechanisms. A possible explanation, consistent with Kollmann et al. (2017), is that team members may be imbalanced on a continuum of innovative behavior. If an entrepreneurial team disproportionately emphasizes 'doing things differently' over 'making things better', it may fail to generate synergy with proactive behaviors that tend to drive exploitation activities. This contradicts prior research of Lumpkin and Pidduck (2021), which generally assumes that these dimensions are mutually reinforcing. Instead, our findings suggest that their interaction can sometimes be counterproductive, providing novel insights into TEO dynamics (Covin et al., 2020) and NET functioning (Zyanya, 2018).

Hypotheses  $H_3$  and  $H_4$  on risk-taking behavior helped us to understand the additional complex behavioral pattern of NETs. At corporate level, research suggests that risk-taking behavior serve as a balancing mechanism for stimulating exploration and exploitation (Daradkeh, 2021) through its interaction with innovative ( $H_3$ ) or proactive ( $H_4$ ) entrepreneurial predispositions (Lomberg et al., 2017; Pérez-Luño et al., 2011). In teams functioning as CAS, risk taking behavior fosters adaptability towards evolving environment (Franczak & Weinzimmer, 2022). In this context, risk-taking could provide NETs with a certain degree of flexibility to switch to either explore entirely new ideas when the existing opportunities are scarce, or to exploit existing ideas to take advantage of any opportunities that arise. Our results, however, supported only the tendency towards proactive and risky exploitation of quality solutions ( $H_4$ ) while the effect of innovative and risky exploration of novel solutions ( $H_3$ ) remains non-significant. These findings suggest that risk-taking behavior in NETs is predominantly oriented toward short-term, actionable strategies, rather than supporting exploratory efforts. According to Jha et al. (2024), NETs appear to prioritize survival and operational efficiency over the pursuit of groundbreaking ideas. Consistent with Kollmann et al. (2021), this pattern of behavior indicates a strong inclination among NETs to enter markets rapidly with quality solutions – often through modifying existing ideas and taking bold, potentially risky actions – but without a significant emphasis on innovation. Two possible explanations for this behavioral pattern emerge, drawing on previous studies of team ambidexterity (Koch et al., 2024) and EO in startups (Daradkeha & Mansoor, 2022). First, NETs may operate in environments rich in exploitable opportunities, reducing the necessity to increase risk tolerance for exploration and experimentation. Instead, they prioritize moderate-risk, high-reward strategies, safeguarding themselves from failure by overemphasizing exploitation over exploration. Second, they find themselves in what Koch et al. (2024) describe as an 'exploitation trap', where an excessive focus on short-term performance and immediate gains – driven by resource constraints (e.g. limited capital, capabilities, and knowledge) – prevents them from engaging in radical innovation and outside-the-box thinking. These findings further extend the study by Kollmann et al. (2021) of EO in the context of startups and provide critical insights into the literature on NETs and TEO. In particular, they illustrate how NETs navigate uncertainty by applying TEO behaviors.

Furthermore, all the results obtained related to team-level autonomy were entirely contrary to our expectations and to the prevailing view of Lumpkin and Pidduck (2021) with regard to the agreed positive impact of autonomy on entrepreneurial outcomes. We failed to validate the opinion of Alvarez and Barney (2007) and Rindova et al. (2009) that autonomy helps explain how entrepreneurs maneuver between creating changes and discovering opportunities. Nor have we proved the assertion made by Koch et al. (2024) that autonomy could effectively channel team opportunities toward ambidextrous activities (exploration of novel solutions or exploitation of existing opportunities). Contrary to our hypothesis  $H_5$ , the greater the team autonomy, the more it erodes the innovative predispositions of team entrepreneurs to generate novel solutions (Figure 4). Moreover, the team-level autonomy-proactivity interaction has been shown to have no effect in fostering the exploitation of existing opportunities for quality ideas ( $H_6$ ). Such pattern of behavior, suggest that high degree of freedom and self-organization, which are characteristic of teams functioning as CAS, do not necessarily create a climate conducive to exploitation or experimentation. In particular, the unexpected counterproductive effect of autonomy requires a more in-depth analysis, as it may point to underlying, less observable dynamics in team functioning that contribute to this outcome. For instance, Fellnhofer et al. (2017) emphasized that highly autonomous teams

must remain synchronized with the team's broader entrepreneurial efforts to ensure effectiveness. Similarly, Wang (2016) highlighted that autonomy yields positive results only when it is balanced with shared goals and collaborative mechanisms, particularly when team members experience a strong sense of task interdependence. These insights allow us to infer that the negative effect of team autonomy observed in our study reflects a specific scenario within NETs. Namely, team members with innovative predispositions act autonomously on their creative instincts, yet fail to interact, exchange insights, and synthesize diverse knowledge. As a result, the absence of collaboration leads to inefficiencies and misalignment, ultimately hindering collective experimentation in search for novel ideas. This finding challenges the prevailing assumption that autonomy in startup and self-organized teams always enhances ambidexterity (Akgün et al., 2014; Koch et al., 2024). Instead, it suggests that, under certain conditions, autonomy can impede rather than facilitate exploration. Furthermore, while contrary to our initial expectations, our results highlight the need for Entrepreneurial Orientation (EO) researchers to re-examine the role of autonomy. This aligns with Lumpkin and Pidduck (2021), who advocate for greater scholarly attention to autonomy as a key dimension in EO research. Our findings contribute valuable new insights into the role of team autonomy within TEO and its implications for the functioning of NETs.

### 5.2. Practical Implications

Our observation of the interaction of TEO behaviors in NETs offers practical insights into team dynamics, despite varying from our initial assumptions. Taking all the hypotheses into consideration, we were expecting certain overall patterns of behavior in NETs, namely, that they would focus initially on exploiting existing opportunities rather than groundbreaking business ideas. Then, through risk-taking behaviors, they were expected to gain the capacity to switch between fostering exploration or making use of existing opportunities, ultimately achieving, for example, high-quality solutions with novel features. Team autonomy was expected to enhance both outcomes by promoting freedom for proactive and innovative efforts but collectively aligned. However, the study revealed different mechanisms of conduct – of significance for practitioners – that influence the functioning of NETs at conception stage, in particular: (i) the conflicting demands of the innovative and proactive predispositions of the team entrepreneurs toward the exploitation of existing market opportunities, which hinder the quality of business ideas; (ii) a lack of collective alignment in autonomous work, which has harmful effects on the innovative behaviors of NETs toward exploration of novel ideas; (iii) a tendency of NETs to place too much focus on exploitation – taking mitigated risks to pursue business ideas based on proactive exploitation of existing business areas rather than thinking out of the box; (iv) an overall generation of counterproductive behaviors, indicating the internal difficulties NETs face in managing tension and the trade-off between novel and quality outcomes.

The complex and generally detrimental team-level behavioral patterns this revealed should suggest to MTA practitioners that NETs require adequate team management. NETs should not be left to act freely but should be observed and guided. Firstly, it is crucial to minimize the pressure they feel to explore and exploit simultaneously from the earliest stages of startup. NETs should be stimulated to focus (initially) on exploiting existing business areas. To this end, practitioners should (i) verify and maintain balance on a bipolar continuum of innovative behavior (innovators versus adapters) (Kollmann et al., 2017), (ii) pursue incremental creativity by coordinated proactive and innovative team-level effort. In other words, while proactive entrepreneurs search for existing market opportunities, innovative entrepreneurs should take the same direction and provide support with ideas that promote incremental rather than radical ideas. At subsequent stages of startup development and to avoid the 'exploitation trap' (Koch et al., 2024) and an excessive focus on short-term gains, the practitioners should encourage out-of-the-box thinking. Here, the other extreme of the spectrum of innovative behaviors should be promoted – doing things differently, exploring and experimenting. The path of exploration should be aligned with increased risk tolerance (Daradkeha & Mansoor, 2022). It is important, therefore, that practitioners work on: (i) understanding and reducing resource constraints (Freeman & Engel, 2007) that might block exploration (small size, experience, knowledge about the industry in which the NETs search for/generate ideas, internal relationships, work routines, etc.); (ii) encouraging exploration by stimulating or generating situations and circumstances in which NETs do not feel that they risk short-term returns by thinking out of the box

(Koch et al., 2024); and (iii) creating exercises that focus on adding novel features to already-generated quality ideas (Berg, 2014). Furthermore, as per the suggestion made by Wang (2016), team managers and team entrepreneurs should work on generating a feeling of task interdependence. Practitioners should introduce practices that balance self-interest and collective interest and increase engagement to share individual efforts. This could help teams to benefit from team autonomy by generating team synergy for creativity.

Although this study was conducted within the specific context of MTA in the Basque Country, the findings are likely to be transferable to other entrepreneurial contexts where team collaboration, resource constraints, and uncertainty shape entrepreneurial dynamics. This includes early-stage venture development contexts (i) with similar cultural and economic background (e.g. countries belonging to the same cultural cluster and stage of economic development), (ii) where teams frequently engage and self-organize for idea generation process within formal entrepreneurial team settings.

## 6. Future research and limitations

Despite the merits of this study, it provides only very initial findings for a still under-researched path that might link TEO and NETs. It offers an opportunity to advance our knowledge of TEO outside common conceptual and corporate boundaries. The consequent complex interactions between TEO behaviors in NETs require further study.

Our sample has been shown to be representative (sampling error = 4.86%) and accurate for our research model but it cannot be used to fully generalize the results to all entrepreneurial teams due to the specific characteristics of the sample and its context. The teams studied are part of the Spanish Mondragon Team Academy (MTA) ecosystem, with an average of 3.4 years of real teamwork experience in a culture that emphasizes collaboration, self-organization, and continuous business ideation. These characteristics made the sample highly relevant for studying entrepreneurial team creativity, but they may also limit the applicability of the findings to teams with significantly different profiles or operational environments. For instance, the results may not directly apply to teams lacking prior collaboration experience, those operating in hierarchical organizational cultures where self-organization is restricted, or teams in environments that do not actively promote ideation. Additionally, teams at different entrepreneurial stages (e.g. beyond the conception phase) may exhibit distinct dynamics that were not captured in this study. However, while the specificity of the sample may limit universal generalizability, it also suggests that in samples with similar characteristics, the findings may be highly applicable, thereby enhancing the generalizability of the results within comparable contexts. Future studies should aim to replicate and extend this research in both similar and different entrepreneurial team settings, allowing for a more comprehensive understanding of team dynamics across diverse organizational cultures, experience levels, and stages of venture development.

Furthermore, the context-dependent nature of entrepreneurial behavior, shaped by cultural factors, is a crucial consideration for TEO research. Studies on Entrepreneurial Orientation (EO) at the organizational level across different countries reveal that the EO–performance relationship varies significantly across cultural settings (Schneider & Engelen, 2015). However, despite these cultural differences, our findings are likely transferable to entrepreneurial teams in countries within the same cultural cluster as Spain – specifically, the Latin Europe group (Schneider & Engelen, 2015), which includes e.g. Italy, Portugal, and France. These countries share similar cultural and institutional dynamics, such as collectivism and moderate power distance, which likely influence team behavior and decision-making in entrepreneurial settings. Further comparative cross-cultural studies are necessary to examine how TEO manifests in nascent entrepreneurial teams (NETs) across different cultural clusters. Such research could provide deeper insights into how cultural variations shape team-level entrepreneurial behavior, offering a more nuanced understanding of TEO in diverse global context.

Additionally, future research should distinguish team-level entrepreneurial behaviors in developed vs. emerging economies, considering that economic conditions shape entrepreneurial motivation. In emerging economies, entrepreneurship is often driven by necessity rather than opportunity (Estrin et al., 2019) potentially resulting in different entrepreneurial behaviors. Thus, while our results may be replicable in developed economies, they may not fully capture NET dynamics in emerging markets. To address this

gap, we encourage researchers to expand this line of inquiry by incorporating international NET sample groups in future studies.

What is more, Complex Adaptive Systems (CAS) theory suggests that teams operate in highly unpredictable environments where behaviors emerge through self-organization and dynamic interactions rather than purely rational planning (Roundy et al., 2018). By observing interactions of team level behaviors, our study captured some of the complexity of emergent patterns of behaviors inherent in team dynamics. However, future studies can explore more unpredictable and adaptive nature of entrepreneurial teams. Applying longitudinal research, ethnographic approaches, computational modelling, fuzzy set qualitative comparative analysis (fsQCA) or necessary condition analysis (NCA) could provide a more holistic understanding.

Team-level behaviors were measured as the perceptions of nascent entrepreneurial team members of collective behavior, thus offering an advanced version of the means of measuring TEO used in previous studies (Covin et al., 2020). While the average response rate of 1.6 members per team ensures enough representation for robust statistical analysis, it is acknowledged as a potential limitation in capturing the full spectrum of diversity of perspectives within each entrepreneurial team. Future studies could develop participation incentive mechanisms or explore alternative data collection methods to ensure comprehensive team involvement and reduced response bias.

The dimension of competitive aggressiveness was not included in our conceptualization as it did not match the conception stage of entrepreneurship observed in our study. Depending on the team outcomes to be observed, future researchers could consider including this dimension. The autonomy dimension, used for the first time in configurational TEO studies, has proved significant in the complex pattern of NETs behaviors. Still, it should be further investigated by other researchers.

Importantly, we observed the link between TEO and creative outcomes among NETs through the lens of ambidexterity theory. This means that like Daradkeha and Mansoor (2022), we perceived TEO as fostering exploration and/or exploitation. Nonetheless, we have not verified the direct link between TEO and actual ambidexterity measures mentioned in the study by Lee and Kreiser (2018). Future studies could be oriented in this direction.

## 7. Conclusions

The study enhanced knowledge about the functioning of NETs at the conception stage of entrepreneurship, bridging the gap between better theoretical understanding of how enterprises come into existence (Dias et al., 2023) and practical insights for guiding teams at the origins of entrepreneurship. By integrating theoretical discussion with practical implications, the study offers a comprehensive understanding of how TEO behaviors influence NET outcomes and provides both researchers and practitioners with valuable insights into the dynamics of nascent entrepreneurial teams. From theoretical perspective, our study design appeared to offer a promising new direction for research in the overall field of Entrepreneurial Orientation. It confirmed the pertinency of recent scientific calls by Lumpkin and Pidduck (2021) and Wales et al. (2023) who have emphasized that a separate theory is needed to connect EO research and the context of nascent entrepreneurship. Our research built and expanded on previous configurational studies (Covin et al., 2020; Kollmann et al., 2021) by examining the interaction effects of TEO dimensions in the new context of NETs. Specifically, the research demonstrated that the simultaneous interaction of TEO behaviors, rather than their isolated effects, drives team outcomes, underscoring the relevance of viewing NETs as complex adaptive systems (Hoogeboom & Wilderom, 2020; Ramos-Villagrasa et al., 2018). Practically, this complexity highlighted the need for guided team management in NETs. The findings revealed that novelty and quality outcomes are affected by the interplay of TEO behaviors. Some interactions of TEO behaviors supported exploration towards novel outcomes while others affected exploitation of existing opportunities for quality solutions. Most importantly, we not only found synergistic patterns of TEO behaviors but also those that are harmful and significantly impactful when teams are forming ideas for business concepts. These findings serve as a foundation for actionable strategies for entrepreneurs and team managers to optimize NET dynamics and ensure effective exploration and exploitation activities.

Finally, whereas, Daradkeha and Mansoor (2022) viewed the EO construct as an intrinsic motivator of startups' performance, our empirical results underlined that: (i) TEO behaviors are not always a favorable

driver in NETs for the generation of novel and quality business concepts; and (ii) if the interactions of TEO behaviors are not employed and managed properly in NETs they will hinder rather than facilitating the NETs' performance at conception stage. Importantly, however, the strategies for managing NETs should be tailored to the contextual factors in which NETs operate. It was not the matter of our study but researchers and practitioners should observe and understand how the interaction of TEO behaviors evolves in varied settings of NETs, particularly those operating in diverse cultural contexts, addressing different challenges, and responding to different external pressures. By carefully analyzing and adapting to these differences, stakeholders can refine team management strategies to better align TEO dynamics in NETs.

## Note

1. The ethical board approval number: IEB-20241002A.

## Author contributions: CRediT

**Monika Tkacz:** Conceptualization-Investigation-Methodology-Formal Analysis-Data curation-Visualization-Writing – original draft-Writing – review and editing, Project administration; **Izaskun Agirre-Aramburu:** Methodology-Formal Analysis-Data Curation; Writing-review and editing, Supervision; **Aitor Lizartza-Martin:** Resources-Supervision. We, the undersigned authors, hereby declare that we have all read and approved the final version of this work. We confirm that the content accurately reflects our contributions and meets the standards of integrity and quality expected in our field.

## Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used chatGPT in order to improve the readability and language of the manuscript. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Ethics statement

This research has been conducted in accordance with ethical standards and principles. The ethical approval was obtained by the Research Ethics Committee of Mondragon Unibertsitatea. The ethical board approval number: IEB-20241002A.

## Author contributions

CRedit: **Monika Tkacz**: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Visualization, Writing – original draft, Writing – review & editing; **Izaskun Agirre-Aramburu**: Data curation, Formal analysis, Methodology, Supervision, Writing – review & editing; **Aitor Lizartza-Martín**: Resources, Supervision.

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## Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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**Appendix 1. Descriptive statistics**

| Indicators        | Mean  | Median | Standard deviation | Excess kurtosis | Skewness | Cramér-von Mises p value |
|-------------------|-------|--------|--------------------|-----------------|----------|--------------------------|
| Novelty_1         | 3.124 | 4      | 1.323              | -1.355          | -0.123   | 0                        |
| Novelty_2         | 3.076 | 3      | 1.292              | -1.28           | -0.065   | 0                        |
| Relevance_1       | 3.524 | 4      | 1.198              | -0.835          | -0.544   | 0                        |
| Relevance_2       | 3.434 | 4      | 0.995              | -0.658          | -0.453   | 0                        |
| Specificity_1     | 2.386 | 2      | 0.578              | -0.724          | -0.304   | 0                        |
| Specificity_2     | 2.31  | 2      | 0.7                | -0.855          | -0.518   | 0                        |
| Specificity_3     | 2.407 | 3      | 0.729              | -0.699          | -0.806   | 0                        |
| TAutonomy_1       | 3.145 | 3      | 0.917              | -0.158          | -0.347   | 0                        |
| TAutonomy_4       | 3.414 | 4      | 0.907              | -0.016          | -0.582   | 0                        |
| TInnovativeness_1 | 3.648 | 4      | 0.875              | -0.167          | -0.431   | 0                        |
| TInnovativeness_2 | 3.188 | 3      | 0.909              | -0.495          | 0.117    | 0                        |
| TProactivity_1    | 3.676 | 4      | 0.694              | 0.485           | -0.715   | 0                        |
| TProactivity_2    | 3.701 | 4      | 0.864              | -0.329          | -0.479   | 0                        |
| TProactivity_3    | 3.566 | 4      | 0.893              | -0.707          | -0.141   | 0                        |
| TRisk_taking_1    | 3.421 | 4      | 0.915              | -0.436          | -0.282   | 0                        |
| TRisk_taking_2    | 3.579 | 4      | 0.844              | -0.477          | -0.322   | 0                        |
| TRisk_taking_3    | 3.326 | 3      | 0.795              | -0.592          | -0.08    | 0                        |
| Workability_2     | 3.69  | 4      | 1.142              | 0.009           | -0.939   | 0                        |
| Novelty           | 0     | -0.019 | 1                  | -1.209          | -0.093   | 0                        |
| Quality           | 0     | 0.128  | 1                  | -0.468          | -0.538   | 0.001                    |
| TAutonomy         | 0     | 0.228  | 1                  | 0.062           | -0.236   | 0                        |
| TInnovativeness   | 0     | 0.131  | 1                  | -0.451          | 0.092    | 0                        |
| TProactivity      | 0     | 0.041  | 1                  | -0.05           | -0.291   | 0.003                    |
| TRisk_taking      | 0     | -0.005 | 1                  | -0.432          | -0.177   | 0.081                    |
| Gender            | 0.493 | 0      | 0.5                | -2.028          | 0.028    | 0                        |
| CM_Fix_1          | 2.428 | 2      | 1.167              | -0.937          | 0.374    | 0                        |
| CM_Fix_2          | 2.234 | 2      | 1.186              | -0.503          | 0.687    | 0                        |
| CM_Fix_3          | 3.207 | 3      | 1.18               | -0.862          | -0.231   | 0                        |
| CM_Fix_4          | 2.124 | 2      | 1.208              | -0.5            | 0.801    | 0                        |
| CM_Fix_5          | 2.966 | 3      | 1.251              | -1.055          | -0.127   | 0                        |

## Appendix 3- Study 3

Tkacz, M., Agirre-Aramburu, I., & Lizartza-Martín, A. (2025). Unfolding the Entrepreneurial Creative Process: Sufficient and Necessary Team Climate Configurations in Opportunity Recognition. In the process of revision/publication for *Responsible Enterprise Pedagogy* Journal.

Responsible Enterprise Pedagogy




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### Unfolding the Entrepreneurial Creative Process: Sufficient and Necessary Team Climate Configurations in Opportunity Recognition

|                  |                                                                                                                                |
|------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Journal:         | <i>Responsible Enterprise Pedagogy</i>                                                                                         |
| Manuscript ID    | Draft                                                                                                                          |
| Manuscript Type: | Research Article                                                                                                               |
| Keywords:        | Team climate, creativity-based opportunity recognition process, entrepreneurial teams, fsQCA, Necessary Condition Analysis-NCA |
|                  |                                                                                                                                |

## Responsible Enterprise Pedagogy

**Unfolding the Entrepreneurial Creative Process: Sufficient and Necessary Team Climate Configurations in Opportunity Recognition****Abstract**

**Purpose** Given that opportunity identification is a collaborative creative endeavour, it is fundamental to understand the contextual forces shaping team-level search. This study adopts a configurational lens to investigate the complex interplay between team climate and the stages of creativity-based opportunity recognition.

**Design/methodology:** Grounded in social influence theory and configurational approach, the study employs a multi-method design. Data from 88 entrepreneurial teams at Mondragon Team Academy (Spain) were analyzed using a combination of PLS-SEM (Partial Least Squares Structural Equation Modeling), fsQCA (fuzzy-set Qualitative Comparative Analysis), and NCA (Necessary Condition Analysis) to capture non-linear and asymmetrical relationships across the preparation, conception, and elaboration stages.

**Findings** The results reveal that there is no single best team climate for opportunity recognition stages. Instead, the findings identify distinct configurations of team climate conditions that act as drivers or constraints depending on the specific stage of the creative process.

**Originality** This research provides the first empirical examination of the configurational role of team climate across a multi-stage creative process in entrepreneurship. By bridging the gap between team creativity and opportunity search through the lens of complexity approach, it offers a more nuanced, stage-sensitive understanding of collective entrepreneurship than traditional linear studies.

**Practical implications:** For practitioners, the results offer guidance on how contextual conditions can be strategically leveraged at different phases of creative collaboration to better manage entrepreneurial team performance.

**Keywords:** *team climate, creativity-based opportunity recognition process, entrepreneurial teams, fsQCA, NCA*

## 1. Introduction

In uncertain entrepreneurial environments, the ability to recognize and act on opportunities is critical to the success of emerging ventures (Koch, 2017). Entrepreneurship research conceptualizes opportunity recognition as fundamentally creative process (Dimov, 2007) involving problem framing, idea generation, and iterative refinement. While several studies (e.g. Hills *et al.*, 1999; Lumpkin *et al.*, 2004) have applied creativity theory to this domain, Hansen *et al.* (2011) emphasize that opportunity recognition must be understood through the lens of a multi-stage creative process model (preparation-incubation- insight-evaluation-elaboration) and is inherently situated within social and environmental press, thereby underscoring the importance of examining the contextual conditions that shape this process.

This contextual imperative is particularly evident in the shift towards collective entrepreneurship (Zhou & Rosini, 2015; Reiter-Palmo & Paulus, 2019), which offers a compelling opportunity to move beyond individual cognition (Baron, 2006) and explore the rich, socially constructed dynamics of team creativity (Klotz *et al.*, 2014; Paulus *et al.*, 2020). While team-level entrepreneurship research is emerging (Koch, 2017), team creativity literature (Paulus *et al.*, 2020) already highlights how collective process (e.g., brainstorming, collective idea generation) are iteratively and social constructed (Paulus & Dzindolet, 2008; Strobel, 2023). This underscores the central role of the social environment ("press") as a key enabler of team creative collaboration (Strobel, 2023).

In team settings, this "press" is captured through Team Climate Inventory (TCI; Anderson & West, 1998). Although its dimensions- vision, participatory safety, task orientation, and support for innovation- are theoretically interdependent, empirical studies often treat them as isolated variables or simple aggregates (Hülshager *et al.*, 2009; Strobel, 2023), overlooking the inherent complexity of collective efforts and processes (Hackman, 1987; Edmondson, 2008). Indeed, Paulus and Dzindolet (2008) and Paulus *et al.* (2020) highlight that collective creative processes are driven by a dynamic interplay of contextual conditions that vary across stages of team collaboration.

By integrating the social influence theory of group creativity (Paulus & Dzindolet, 2008) and adopting configurational approach (Parente & Federo, 2019), this study moves beyond the search for a "single best climate". Indeed, we embrace equifinality and asymmetry, recognizing that different combinations of TCI dimensions trigger different creative process stages, and that the conditions of success may differ fundamentally from those leading to its absence. Consequently, we argue that the environment is not a monolithic force but a complex causal configuration. By adopting this lens, we account for the nonlinear

and context-dependent nature of entrepreneurial phenomena (Nikou, *et al.*, 2024), particularly the intricate dynamics inherent in team settings (Linder *et al.*, 2025).

Accordingly, we posit the following research questions:

*R1: How do team climate's configurations explain the ability of entrepreneurial teams to navigate through creativity-based opportunity recognition process?*

*R2: How do team climate's configurations inhibit the ability of entrepreneurial teams to navigate through creativity-based opportunity recognition process?*

This study addresses these questions by offering four contributions. First, it extends creativity research by analyzing the underexplored relationship between press and process (Hansen *et al.*, 2011). By treating the “press” as a core driver, we clarify how environmental conditions shape creative progression. Second, it advances the creativity-based opportunity recognition model (Hansen *et al.*, 2011) to the team level by integrating group and team creativity literature. Third, by applying fsQCA and NCA, we uncover complex, non-linear mechanisms explaining how distinct stages of the creative process are enabled or constrained by contextual configurations. This offers a more contingent, stage-sensitive understanding of opportunity search in team-based entrepreneurship. Finally, we provide a practical roadmap for practitioners and founders by identifying specific climate recipes tailored to the different phases of an entrepreneurial team's journey.

The remainder of the paper is organized as follows. First, we develop the theoretical framework to explain the complexity of contextual factors shaping the creative process. Next, we describe the research method, data, and sample, followed by the presentation and discussion of results. Finally, we outline the study's contributions, limitations, and directions for future research in team-based entrepreneurship.

## **2. Theoretical framework: The Role of Team Climate on Creativity-Based Opportunity Recognition Process**

### **2.1. Team Creative Opportunity Recognition Process and Antecedents**

Opportunity recognition (OR) in entrepreneurship is a multi-stage creative process involving distinct cognitive and behavioral transitions. Originally a five-stage sequence: preparation, incubation, insight, evaluation, and elaboration (Hills *et al.*, 1999; Lumpkin *et al.*, 2004) it was subsequently grouped into conception and formation phases. To adapt this model to entrepreneurial teams, group creativity insights

help refining it by distinguishing the preparation stage as a distinct and foundational phase (Hansen *et al.*, 2011; McKay *et al.*, 2020; Paulus *et al.*, 2020).

The preparation stage aligns with the problem construction phase, an iterative learning phase of exploration and reflection (Edmondson, 2008; Reiter-Palmon & Robinson, 2009), where entrepreneurial teams identify market "pains" (Chen & Yang, 2009; Sanz-Velasco, 2006). The conception phase encompasses the process of incubation and insight, corresponding to the idea generation stage (Paulus *et al.*, 2020). Here, teams transition from collective, often unconscious processing of the problem to "aha" moments. (Lubart, 2001). Finally, the elaboration phase focuses on refining ideas through customer interaction and experimentation (Sanz-Velasco, 2006). In this stage, evaluation occurs implicitly through feedback and prototyping, aligning with the principles of design thinking, where rapid iteration replaces formal evaluation (Liedtka, 2015).

The effectiveness of collective OR is shaped by the team's creativity antecedents' characteristics, such as, collective efficacy/creative efficacy (Taggar, 2019; Swab *et al.*, 2021), social identity (Haslam *et al.*, 2019), network structure (Yuan, 2019), communication patterns (Dennis *et al.*, 2019) or social norms (Goncalo *et al.*, 2015). Research further emphasized the role of team cognition, shared experiences, coordination processes (Klotz *et al.*, 2014; Mol *et al.*, 2015) as well as social interactions and information exchange (Schjoedt & Kraus, 2009). Specifically, industry-specific knowledge and collective human capital act as "cognitive corridors," enabling teams to identify patterns and market "pains" invisible to others (Unger *et al.*, 2011). Furthermore, team heterogeneity enhances the group's absorptive capacity, providing the requisite variety of information needed to connect disparate market signals (Van Knippenberg *et al.*, 2004). Additionally, external social capital and network density ensure access to non-redundant information that sparks novel combinations during the idea generation (Adler & Kwon, 2002).

While cognitive and structural antecedents provide the raw material for collective OR, creative competence within a team translates into outcomes only when supported by a climate (press) that fosters collaboration and encourages creative engagement (Hunter *et al.*, 2007; Klijn & Tomic, 2010). According to the social influence model on group creativity (Paulus & Dzindolet, 2008) contextual conditions shape the cognitive and motivational impulses that can drive or constrain creative process. The four-factor framework of team climate (Anderson & West, 1998) captures these press conditions in four dimensions: shared vision (providing direction and objectives), participative safety (fostering psychological safety for unconventional ideas; Camacho & Paulus, 1995; Edmondson, 2008), task orientation (maintaining high standards during

refinement; West, 1990); and support for innovation (active endorsement of creative attempts; West, 1990).

## 2.2. The research propositions

Adopting a configurational perspective (Parente & Federo, 2019) alongside the social influence model of group creativity (Paulus & Dzindolet, 2008), this study shifts the analytical focus from individual climate predictors to their systemic intersections. We contend that the social "press" operates through interdependent conditions that combine to enable collective collaboration. Central to this logic is a phase-contingent view (Paulus *et al.*, 2020), which posits that the optimal recipe of climate inventory dimensions is not static; rather, it must evolve to meet the distinct cognitive demands of each creative stage. Consequently, our research model (Figure 1) maps how these varying configurations either catalyze or inhibit the OR process.

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Insert Figure. 1 about here

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### 2.2.1. The Role of TCI Dimensions on Preparation Stage

Effective problem construction requires integrating diverse perspectives to define markets pains (Reiter-Palmon & Murugavel, 2018). According to the social influence model (Paulus & Dzindolet, 2008), a participative and safe climate reduces evaluation apprehension, fostering constructive disagreement and cognitive engagement essential for problem construction (Edmondson, 2008; Reiter-Palmon & Illies, 2004; Cronin & Weingart, 2007).

While shared vision aligns members' attention and alignment toward the same problem space (Paulus *et al.*, 2020) it is insufficient without participative safety, as an interpersonal risk can lead members to withhold contributions despite aligned goals (Edmondson, 2008). Conversely, early-stage efforts may rely less on a fully articulated shared vision and more on support for innovation to sustain persistence amid ambiguity, (Zasa & Buganza, 2023). Furthermore, task orientation is often linked to later performance monitoring (Anderson & West, 1998; Paulus *et al.*, 2020), may provide the clarity and shared expectation (Hackman, 1987) necessary to anchor the team's early creativity effort, ensuring that the initiation of collective search for opportunities is both focused and coordinated, rather than fragmented. Hence, building

on this, we contend that problem construction materializes via nonlinear contextual pathways and propose the following propositions:

**Proposition 1a/1b.** Team climate inventory contains necessary conditions to unfold/constrain the preparation stage within the creativity-based opportunity recognition process in entrepreneurial teams.

**Proposition 2a/2b.** Team climate dimensions interact in enabling /constraining the preparation stage within the creativity-based opportunity recognition process in entrepreneurial teams.

### 2.2.2. The role of TCI Dimensions on Conception Stage

Conception stage represents the heart of idea generation, where the team move from collective incubation to the breakthrough “insight” moment (Lubart, 2001), requiring cross-pollination, and knowledge integration (Hansen *et al.*, 2005). However, group settings are often plagued by barriers such as verbal dominance, production blocking, and evaluation apprehension (Camacho & Paulus, 1995; Paulus *et al.*, 2020). To overcome these barriers, teams require participative and psychologically safe environment (Anderson & West, 1998; Edmondson, 2008). While participative safety (Anderson & West, 1998) is essential to mitigate these risks and ensure all voices are heard, alone is insufficient. According to the social influence model of creativity, (Paulus & Dzindolet, 2008), idea sharing only becomes meaningful when contributions are valued and encouraged (Paulus *et al.*, 2020). Consistent with this, Nsenduluka and Shee (2009) argue that if team members feel that their creative contributions will be welcomed, respected, and taken seriously, sharing safely ideas is reinforced. This highlights the importance of support for innovation (Anderson & West, 1998) which reflects the extent to which new ideas are not only welcomed but actively endorsed and championed.

In contrast, shared vision and task orientation play more nuanced roles and context dependent. An overly rigid vision may prematurely constrain divergent thinking (Paulus & Nijstad, 2003; Perry-Smith & Mannucci, 2017) while an early emphasis on task orientation and evaluative rigor can lead to premature convergence, stifling the psychological freedom necessary for expansive ideation. Similarly, task orientation, which emphasizes performance standards and evaluative rigor, if introduced too early, it can lead to premature convergence and reduce the psychological freedom required for expansive ideation (Paulus *et al.*, 2020). We propose that idea generation depends on specific contextual situations, forming multiple nonlinear recipes. Therefore, we propose the following propositions:

**Proposition 3a/3b.** Team climate inventory contains necessary conditions to unfold/constrain the conception stage within creativity-based opportunity recognition process in entrepreneurial teams.

**Proposition 4a/4b.** Team climate dimensions interact in enabling/ constraining the conception stage within the creativity-based opportunity recognition process in entrepreneurial teams.

### 2.2.3. The Role of TCI Dimensions on Elaboration Stage

In the elaboration stage, teams have the sheer volume of ideas to be assessed and they must counteract the tendency to favour safe ideas over novel ones (Putman & Paulus, 2009; Rietzschel *et al.*, 2006). This cognitively demanding phase requires a climate that fosters discipline, rigorous standards and structured feedback. According to West (1990) and West and Anderson (1998), task orientation is the primary enabling quality-focused factor. It drives systematic elaboration, critical reflection, and continuous improvement necessary to refine the feasibility of creative ideas. Task orientation encourages team members to examine each other's work, identify shortcomings, and collaboratively improve solutions through feedback and iteration (Somech, 2006; Tjosvold *et al.*, 2004). Shalley (2002) further notes that task orientation activates the disciplined and analytical mindset essential for idea refinement. However, task orientation is most effective when synergized with a shared vision (West, 1990), ensuring that evaluative efforts are aligned with meaningful team objectives. Furthermore, participation safety remains essential to sustain "internal reinforcement", and motivational momentum needed for effective task completion (Hackman, 1987; West & Anderson, 1998).

The elaboration stage requires complex balance: no single dimension can unilaterally ensure that a team moves from a raw idea to a refined opportunity. Therefore, we propose the following propositions

**Proposition 5a/5b.** Team climate inventory contains necessary conditions to unfold/ constrain the elaboration stage within creativity-based opportunity recognition process in entrepreneurial teams.

**Proposition 6a/6b.** Team climate dimensions interact in enabling/constraining the elaboration stage within the creativity-based opportunity recognition process in entrepreneurial teams.

## 3. Method and data

### 3.1. Sampling participants

The participants were team entrepreneurs enrolled in a team-based entrepreneurship from a university in the Basque Country (Spain). Teams were observed in their natural environment rather than an artificial

research setting. The observed teams have real collaborative experience (3.4 years on average) and regularly generate business ideas as part of their team based entrepreneurial training framework, culminating in a three-month ideation process and final pitch. The total population comprised 112 teams (327 entrepreneurs: 172 female, 153 male, 2 non-binary) with an average of 2.9 members per team. A convenience sampling was used, requiring at least 50% team response per unit. The final sample included 145 entrepreneurs (44%)- 73 women, 71 men, 1 non-binary- across 88 teams (79%), with an average response rate of 1.6 members per team (55.2%).

### 3.2. Data collection

Data was collected between November 2019 and January 2022, coinciding with teams' idea-generation periods. Team entrepreneurs were invited to complete a post-exercise survey after submitting their final business idea. Surveys are well-suited for team research as they capture members' perceptions efficiently (Delice *et al.*, 2019). Anonymity and voluntary participation were ensured to minimize social desirability bias (Lelkes *et al.*, 2012). Respondents rated the TCI dimensions based on scales of Anderson and West (1998) and the creativity-based opportunity recognition process using scales adapted from Hansen *et al.* (2011).

### 3.3. Methodology

The study adopts a multi-method approach combining PLS-SEM (Partial Least Square Structural Equation Modeling), Fuzzy-set Qualitative Comparative Analysis (fsQCA) and NCA (Necessary Condition Analysis) to mitigate measurement error in multi-item constructs and capture causal complexity. Initially, PLS-SEM was used to estimate latent variables by weighting individual indicators, ensuring higher reliability and validity (Yuan *et al.*, 2020) to traditional sum score (Sarstedt *et al.*, 2016). These scores served as input for fsQCA, a set-theoretical technique that integrates both qualitative and a quantitative method to determine the underlying combinations of causal conditions that lead to a given outcome (Ragin, 2009; Woodside *et al.*, 2012).

FsQCA was chosen for several reasons. First, fsQCA shifts the emphasis from asking *whether* relationships exist to examining *how* they operate, providing a meaningful alternative to traditional linear regression techniques (Fainshmidt *et al.*, 2020). This allows researchers to investigate a phenomenon through a configurational lens. Second, fsQCA makes it possible to uncover complex patterns of complementarity

and substitution among conditions (Lo *et al.*, 2020) in (team)entrepreneurship and innovation research (Nikou *et al.*, 2024 Linder *et al.*, 2025).

The use of fuzzy sets requires the calibration of the outcome and studied conditions, in which raw data are transformed into set membership scores to reflect the degree of a case's inclusion in a defined set (Nikou *et al.*, 2024; Pappas *et al.*, 2016; Ragin, 2009). For calibrating the conditions and the outcome, the 95th percentile was applied as the threshold for full inclusion, the 5th percentile for full exclusion, and the mean as the point of maximum ambiguity. The calibration process was conducted in the fsQCA 4.1 software, which allows for precise adjustments of breakpoints to align with the theoretical and empirical properties of the dataset. A truth table was constructed to evaluate  $2^k$  logical combinations of causal conditions (Ragin, 2009; Nikou *et al.*, 2024), identifying causal pathways and isolating irrelevant conditions (García Álvarez-Coque *et al.*, 2017). Analyses were performed using, PLS-SEM 4.0 (Ringle *et al.*, 2024), SetMethods (Oana & Schneider, 2018) and NCA package in R (Dul, 2024).

#### 4. Results

The measurement model was validated using SmartPLS. Following standard PLS procedure, the validity of the composites was established by examining their reliability, convergent validity, and discriminant validity. For internal consistency, composite reliability (CR) for each construct were calculated. All the values for CR and  $\alpha$  are greater than the threshold of .70 (Table I). To evaluate convergent validity of the composites, outer loadings of the items and the average variance extracted (AVE) have been checked (Hair *et al.*, 2022). The AVE values of all constructs are well above the required, minimum level of .50 (Table I). Discriminant validity has been assessed based on the HTMT criterion. Consistent with the conservative threshold of .85 (Hair *et al.*, 2022), all HTMT values met the criterion, except for the TO-SI pair, which was below the relaxed .9 threshold. The collective evidence suggests that the constructs and the items demonstrate good measurement properties. The VIF values of the items (ranging between 1.020 and 1.862) are below the threshold value of 5, thus, collinearity has not reached to critical levels in any of our constructs. The results confirm that the different measurement models are valid and reliable.

Based on the theoretical framework (Figure. 1), the necessary and sufficient conditions for preparation, conceptualization and elaboration stages were thoroughly examined.

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Insert about here Table I

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#### 4.1. Necessary Conditions Analysis

Ragin, (2009) posits that the first fsQCA phase involves the assessment of necessary conditions. A condition is necessary when it must be present for a given result to occur (Ragin, 2009). Thus, our fsQCA analysis clarifies whether any of the proposed conditions (PS, TO, SI, VT) are necessary for each stage of opportunity recognitions process studied (PRE, CON, ELA) to occur. To be considered necessary, a condition has exhibited a consistency level of higher than .90 (Ragin, 2009; Schneider & Wagemann, 2010). The results obtained are displayed in Table II. No value reaches the minimum threshold required, thus, no individual condition can be considered necessary for each stage or for the absence of them in the analyzed entrepreneurial teams.

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Insert Table II about here

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To further examine the presence of necessary conditions, a Necessary Condition Analysis (NCA) (Dul, 2016) was conducted. In Corner 1, none of the conditions demonstrated an effect size exceeding the threshold of  $> .10$  (Dul, 2016) with a  $p$ -value  $< .05$ , and therefore, no in-degree necessary conditions were identified. Proposition 1a, 3a, 5a are therefore not supported, as the results indicate that none of the TCI dimensions constitutes a mandatory prerequisite for the occurrence of the PRE, CON and ELA stage.

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Insert Figure 2 about here

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In contrast, the analysis of Corner 4 revealed two in-degree necessary conditions. First, a lack SI constrains the PRE stage of the opportunity recognition process (effect size = 0.15,  $p = .000$ ). The necessity threshold follows a non-linear bottleneck pattern: to achieve 50% level of PRE progress, entrepreneur teams must reach a high SI threshold of at least 91,2% (Table III; Figure. 2). This finding indicates that SI serves as a bottleneck condition in the early phase of opportunity recognition process- entrepreneurial teams lacking sufficient levels of SI are constrained and are unlikely to achieve even moderate (e.g. 50%) progress in preparation stage. Conversely, reaching 100% of PRE stage requires a lower minimum of approximately

41,4% of SI. In line with Proposition 1b, the results validate that the absence of sufficient support for innovation effectively prevents the emergence of the preparation stage. This suggests that while SI is vital for “breaking ground”, teams at advanced levels of preparation may compensate for lower SI by mobilizing other resources, thereby reducing their functional dependency of this specific climate dimension.

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Insert Figure 3 about here

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Second, insufficient TO limits progress during the ELA stage (effect size=0.17, p value= .007), confirming proposition 5b. The necessity of TO is most pronounced during the intermediate intensification of the process: to attain 80% of ELA stage, teams require at least 75,9% of TO (Table III; Figure. 3). This pattern reflects that TO acts as a binding constraint when the team must align performance norms for rigorous prototyping refinement. Interestingly, the necessity of TO diminishes at the highest level of achievement, where reaching 100% of elaboration is possible with as little as 2.7% of TO. This implies that once the structural (the “how”) and cognitive (the “what”) foundations of an opportunity are solidified, the social pressure for excellence is no longer a “must-have” condition for the final realization of the process.

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Insert about here Table III

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Finally, proposition 3b are not supported, as no team climate dimension emerged as a necessary condition for the negation of conception stage (~CON).

#### 4.2. Sufficiency Analysis

To identify sufficient configurations leading of the three stages of the process, a truth table was constructed and refined according to established fsQCA procedures (Ragin, 2009). Following the assessment of case frequency and consistency, the table was filtered to ensure that only empirically grounded paths were retained.

A frequency threshold of 3 cases was adopted to balance empirical coverage with analytical robustness (Fiss, 2011), consistent with methodological guidance for small-to-medium samples (Fiss, 2011; Ragin, 2009). Although a lower threshold could increase coverage, it risks including configurations with weak

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empirical grounding (Pappas & Woodside, 2021). Given the moderate sample size, this threshold provides a sound trade-off between inclusiveness and reliability. Subsequently, configurations were assessed based on a raw consistency threshold of .85, reflecting a strong degree of association between causal conditions and the outcome (Dul, 2016). This value aligns with established conventions in fsQCA research, where thresholds above .75 are considered indicative of robust subset relations (Ragin, 2009). Furthermore, a Proportional Reduction in Inconsistency (PRI) threshold of .50 was applied to prevent causal ambiguity by eliminating configurations that simultaneously represent subsets of both the outcome and its negation (Greckhamer *et al.*, 2018). Finally, to address the challenge of limited diversity and “logical remainders”, we performed an Enhanced Standard Analysis (ESA). This procedure ensures the validity of the analysis by identifying and addressing untenable assumptions- before generating the final solution. This rigorous refinement ensures that the configurations presented in Table IV, V and VI accurately represent how TCI dimensions combine to drive PRE, CON, and ELA stages.

The fsQCA identified several sufficient configurations for the presence and negation of the three stages of the opportunity recognition process. In the case of PRE stage, the enhanced solution was  $PS*SI*TO + PS*SI*\sim VI + SI*TO*\sim VI$ . This solution had high scores for consistency=.830, PRI=.717, and coverage=.593. While to explain  $\sim PRE$ , the solution was  $\sim SI*\sim TO + \sim PS*\sim SI*VI$ . This solution showed high scores for consistency=.806, PRI=.687, and coverage=.687 (Table IV).

At the CON stage, the enhanced solution was  $PS*SI*\sim TO + PS*\sim TO*\sim VI$  with robust performance metrics of consistency=.850 and a PRI=.672, indicating a strong subset relation and minimal causal ambiguity. The coverage of .403 confirms that the configuration captures nearly half of the observed instances of the conception stage (Table V). To explain  $\sim CON$  the solution was  $\sim PS*\sim SI*VI$  with a consistency of .836, PRI=.611 and coverage of .335.

The ELA stage solution  $PS*\sim SI*VI + PS*SI*\sim TO + \sim PS*SI*TO*VI$  exhibits a consistency=.834, PRI=.647 and an overall coverage=.542. Conversely,  $TO*\sim VI + \sim PS*\sim SI*TO + \sim PS*SI*\sim VI + PS*\sim SI*\sim VI$  enhanced solution explains  $\sim ELA$ , achieving consistency=.776, PRI=.511, and a coverage of .584. While this first recipe covers 41.5% of the cases, it exhibits a low PRI score=.498, suggesting it is a less reliable driver of failure due to causal ambiguity. Consequently, the remaining configurations, which feature higher PRI values, provide a more robust and precise explanation for the absence of elaboration (Table VI). These findings support the proposition 2a, 2b, 4a, 4b and 6a, 6b.

Table IV &amp; Table V &amp; Table IV

#### 4.3. Robustness test

To verify the robustness of our fsQCA findings, we conducted the robustness test (Oana & Schneider, 2024) adjusting calibration thresholds (95%) and consistency (85%), maintaining the frequency thresholds. This test comprised the Fit Oriented Robustness test and Robustness Case Ratio for each stage. The results of the fit oriented robustness analysis confirmed high degree of fit for the outcomes (Table VII)- all the consistency scores (RFcons) are close to 1. However, while the raw and deviant coverage ratios varied across opportunity recognition stages- with some showing higher raw coverage and others slightly lower deviant coverage- all stages achieved a ranking of 2.

Table VII

#### 5. Discussion

The findings challenge the assumption that VI is a prerequisite for early cognitive alignment in teams (Anderson & West, 1998; Edmondson, 2008; Paulus *et al.*, 2020). Instead, VI arises as an evolving outcome of entrepreneurial teams rather than a baseline necessity. At the PRE stage, teams require SI as a foundational gatekeeper to define the market pain, providing the encouragement and practical support necessary for experimentation and the initiation of the creative process. Thus, while literature often views SI a facilitator of later ideation stages (West, 1990; Paulus *et al.*, 2020), our results position it as the motivational floor in early preparation stage.

The sufficiency analysis for PRE stage indicates that problem construction requires a synergy between socio-emotional support and functional structure. Specifically, the path PS\*SI\*TO illustrates that when PS facilitates open exchange (Edmondson, 2008) and SI maintains motivation under high uncertainty (West, 1990), even minimal TO provides sufficient task clarity to begin navigating the problem space (Hackman, 1987). Notably, the identification of pathways achieving PRE, despite weak or absent vision (PS\*SI~VI; SI\*TO\*~VI) provides empirical support for prior work (Hackman, 1987; Amabile, 1996; Zasa & Buganza, 2023) that intrinsic motivation in supportive environments outweighs the need for rigid goals in early-stage creative collaboration. Central insights into how team climate inhibits the initiation of the creative process

is further found in the negation analysis of PRE. The configuration VI~PS~SI suggests that strategic clarity, when decoupled from a socio-emotional foundation, becomes a "compliance trap". In psychologically unsafe and non-supportive environments, high level goals generate performance pressure that stifles the team-level encouragement required for early-stage exploration (Edmondson, 2019). When both SI and TO are weak (~SI~TO), teams lack the motivational backing and the minimal structural guidance required to initiate the creative process (Mumford *et al.*, 2001). In contrast, SI consistently appears in enabling paths and is absent in constraining ones, which reinforces its role as the primary condition for collaboration under ambiguity (West, 1990). It thus functions as a team-level catalyst that facilitates the transition from discrepancies to collective problem construction.

In the CON stage, the results reveal a climate characterized by high equifinality and a lack of necessary conditions, suggesting a state of high contextual flexibility within entrepreneurial teams. Unlike PRE and ELA, the idea generation phase appears less dependent on any single climate dimension, providing empirical weight to the social influence model of group creativity (Paulus & Dzindolet, 2008). The configuration PS \* SI\* ~TO substantiates Paulus and Dzindolet (2008) view of PS and SI as a potent social catalyst. Crucially, the absence of TO in this configuration prevents premature evaluation, echoing warnings that early-stage performance standards can narrow a team's cognitive search (Paulus *et al.*, 2020). Similarly, the path PS \* ~TO \* ~VI creates the optimal conditions for cognitive flexibility (Paulus and Nijstad, 2003; Perry-Smith and Mannucci, 2017). For entrepreneurial teams, the CON phase thrives when team deliberately loosen the reins, allowing the ideas to surface without the burden of immediate strategic alignment. However, the pathway (~PS\*~SI\*VI) demonstrates that a rigid vision functions as a suppressive force when it lacks the socio-emotional buffers of PS and SI, narrowing exploratory behavior and breeding disengagement (Perry-Smith and Mannucci, 2017). This highlights that strategic direction without support and safety is a recipe for creative stagnation.

Regarding the ELA stage, our findings extend the frameworks of West (1990) and Hackman (1987) by uncovering the non-linear utility of TO. Rather than constituting a constant requirement for refinement, TO functions as a temporal gatekeeper, becoming critical when transition from divergent ideation to convergent integration, where it helps prevent unbounded and endless idea generation. This confirms a stage-contingent perspective (Paulus *et al.*, 2020) where structural rigor is a phase-specific tool for navigating the initial

friction of convergence. However, once coordination routines are established, the necessity of strict task standards diminishes (Lewis et al. 2007).

Further successful convergence in ELA is achieved through two distinct climate logics: socio-emotional security or structural rigor. The configuration  $PS \sim SI^*VI$  challenges the traditional boundary conditions set by Edmondson (2008) and Paulus et al. (2020), by demonstrating that PS and VI remain efficacious during the convergent stage, providing the common direction and psychologically safe room for teams to critique and polish ideas without needing extra motivational support. Furthermore, the path  $PS^*SI \sim TO$  contests the assumption that strict performance standards (TO) are always mandatory for effective evaluation (West, 1990; Paulus et al., 2020). Contrary to the literature's emphasis on TO at the finish line, our research shows that the interplay between PS and SI in a context of low TO facilitates organic critical synthesis, a finding particularly relevant to self-managed entrepreneurial teams described by Hackman (1987).

Crucially, we identify a purely structural path to ELA stage success:  $\sim PS^*SI^*TO^*VI$ . This configuration uncovers a compensatory logic where structural rigor and strategic alignment substitute for absent socio-emotional safety ( $\sim PS$ ). In line with Hackman's (1987) emphasis on task clarity, this synergy suggests that entrepreneurial teams do not always require a "safe" environment to be effective. If the vision is clear and the task structure is robust, these factors provide the discipline necessary to convert a concept into a viable opportunity.

Finally, the negation paths identify climate misalignments that actively suppress the elaboration. The configuration  $\sim PS^* \sim SI^*TO$  reveals that TO, traditionally linked to excellence (West, 1990), becomes an obstacle when decoupled from socio-emotional buffers, suffocating reflective synthesis required for elaboration. The negation pathway  $PS^* \sim SI^* \sim VI$  reveals a state of strategic aimlessness. While PS fosters an environment of interpersonal trust (Edmondson, 2008), this safety becomes insufficient and potentially counterproductive when decoupled from a shared vision ( $\sim VI$ ) and support for innovation ( $\sim SI$ ). In such cases, psychological safety results in unproductive convergence- a perpetual loop of discussion that fails to reach the final elaboration of the entrepreneurial opportunity.

## 6. Contributions, limitations and future lines, conclusions

### 6.1. Theoretical Contributions

This study advances the literature on team creativity and entrepreneurial opportunity recognition by demonstrating how team climate- captured through the Team Climate Inventory (TCI; Anderson & West, 1998)- shapes the creativity-based opportunity recognition process in entrepreneurial teams (Hansen *et al.*, 2011). By integrating configurational analysis (fsQCA) with necessity analysis (NCA) and examining opportunity recognition at the team level, the study provides novel insights into when and how specific climate dimensions function as necessary and sufficient contextual conditions across different stages of creative collaboration.

First, the study extant the social influence theory reconceptualizing contextual press, Team Climate Inventory (TCI; Anderson & West, 1998), as a dynamic, stage-contingent team coordination mechanism rather than a static background condition for creative process. In doing so, the research empirically demonstrates that the interplay among climate dimensions evolves dynamically as entrepreneurial teams transition across different phases of collective creativity.

Second, the configurational logic of fsQCA reveals multiple causal recipes for the emergence of the creativity-based OR process, thereby advancing Hansen *et al.*'s (2011) insights and highlighting the principle of equifinality and asymmetry in entrepreneurial teams (Linder *et al.*, 2025). The creative process within entrepreneurial teams does not follow a linear path but rather an evolution of causal dependencies. While PS serves as a cross-cutting and indispensable substrate across most cases, structural conditions shift in prominence throughout the process: SI acts as the gatekeeper of the initial stage (PRE), ~TO unleashes the conceptual phase (CON), and TO functions as the quality filter in the final ELA stage. Conversely, failure patterns (~ELA) reveal a critical causality asymmetry: a lack of VI and SI transforms technical rigor into a barrier, confirming that PS devoid of strategic direction results in unproductive effort.

## 6.2. Practical Contributions

This study offers several practical implications for entrepreneurial practitioners, coaches, and educators. Primarily, team climate should be viewed as a dynamic factor rather than a static one. Practitioners must actively monitor and adjust climate conditions as teams transition through different stages, focusing on preventing the suppression of creative collaboration.

During preparation, managers should prioritize socio-emotional support and diverse dialogue while delaying rigid goal setting to allow for effective problem construction. In the conception stage, the priority

shifts to protecting divergent thinking: managers should minimize performance standards and judgment to facilitate open exploration.

Finally, as entrepreneurial teams move toward elaboration, increased structure and stringent criteria become necessary to ensure focus. However, to avoid counterproductive rigor, managers must provide clear task orientation and a shared purpose, ensuring these convergence mechanisms are anchored in a foundation of continued trust and support.

### 6.3. Limitations and future lines

This study identifies several promising avenues for future research and addresses inherent limitations. First, the findings highlight the importance of conceptualizing team climate as a dynamic and evolving construct towards specific team processes. Future studies could examine how TCI dimensions evolve across different stage-based team processes- such as e.g. team learning (Edmondson, 2008), or innovation (Hülshager *et al.*, 2009).

Second, this research refined Hansen *et al.*'s. (2011) OR process model by integrating team creativity literature, and merging evaluation stage into elaboration, following design thinking logic. Future research could deconstruct these stages to test if distinct contextual dynamics emerge during evaluation. Third, adopting a comprehensive Input-Process-Output (IPO) framework (Pavez *et al.*, 2022) could integrate team composition (Bell, 2007) and commercial performance as critical variables.

Methodologically, while fsQCA and NCA effectively captured team complexity, robustness checks indicated lower stability for configurations involving ELA and the negation of CON. Subsequent research should incorporate additional factors relevant to divergent and convergent thinking to strengthen these causal foundations. Finally, as the sample was limited to Spanish entrepreneurial teams, expanding this analysis to different entrepreneurial teams and to diverse organizational and cultural contexts would enhance the generalizability of these findings.

## 7. Conclusions

This study demonstrated that the relevance of each TCI dimension is not fixed, rather, it shifts across the creative opportunity recognition process- guiding how teams align, collaborate, and refine ideas. Such a dynamic approach captures the changing and progressing logic of team climate context, where

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motivational, emotional, and structural conditions interact differently as teams move from exploration to convergence.

The findings suggest that the TCI, when managed strategically, functions as a mechanism for orchestrating creative teamwork. Within this framework, PS serves as the essential substrate for the entire creative process to which all other dimensions are built. While the need for vision or task rigor may wane depending on the phase, PS provides the constant psychological security required to sustain the entire creative lifecycle. Ultimately, this research highlights that successful entrepreneurial outcomes depend on the team's ability to recalibrate its climate in real-time. By moving beyond a one-size-fits-all model, we provide a more nuanced roadmap for venture leaders: one where the climate breathes, expanding to foster cognitive flexibility during discovery and contracting to provide structural discipline during the final path toward business opportunity elaboration.

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Table I.

## Measurement Model Assessment

| Composites/Dimension/ Indicator      | VIF                      | Loadings (M1/M2/M3) | Weight (M1/M2/M3) | CR (M1/M2/M3)         | AVE (M1/M2/M3)        |
|--------------------------------------|--------------------------|---------------------|-------------------|-----------------------|-----------------------|
| <b>Vision (mode A)</b>               | <b>1.706/1.746/1.667</b> |                     |                   | <b>.851/.827/.852</b> | <b>.588/.551/.591</b> |
| Vision_1                             | 1.697                    | .772/.751/.796      | .245/.231/.297    |                       |                       |
| Vision_2                             | 1.445                    | .758/.906/.736      | .363/.634/.320    |                       |                       |
| Vision_3                             | 1.412                    | .721/.581/.748      | .298/.142/.338    |                       |                       |
| Vision_4                             | 1.539                    | .812/.694/.792      | .395/.244/.348    |                       |                       |
| <b>Task_Orientation (mode A)</b>     | <b>1.604/1.583/1.592</b> |                     |                   | <b>.803/.803/.804</b> | <b>.672/.672/.673</b> |
| Task_orientation1                    | 1.141                    | .876/.760/.766      | .694/.516/.525    |                       |                       |
| Task_orientation2                    | 1.141                    | .760/.876/.871      | .516/.694/.686    |                       |                       |
| Task_orientation3                    | -                        | -                   | -                 |                       |                       |
| <b>Support Innovation (mode A)</b>   | <b>1.714/1.574/1.712</b> |                     |                   | <b>.788/.784/.784</b> | <b>.553/.548/.548</b> |
| Suppor_innov1                        | 1.145                    | .745/.790/.771      | .491/.558/.530    |                       |                       |
| Suppor_innov2                        | 1.239                    | .725/.737/.670      | .400/.434/.320    |                       |                       |
| Suppor_innov3                        | 1.247                    | .761/.690/.775      | .452/.347/.487    |                       |                       |
| <b>Participation Safety (mode A)</b> | <b>1.891/1.901/1.860</b> |                     |                   | <b>.873/.871/.872</b> | <b>.632/.628/.631</b> |
| Part_safety1                         | 1.832                    | .829/.770/.802      | .357/.244/.309    |                       |                       |
| Part_safety2                         | 1.644                    | .802/.835/.800      | .343/.401/.327    |                       |                       |
| Part_safety3                         | 1.726                    | .770/.746/.754      | .263/.252/.245    |                       |                       |
| Part_safety4                         | 1.638                    | .778/.815/.820      | .291/.355/.373    |                       |                       |
| <b>Preparation (mode B)</b>          |                          |                     |                   | <b>na</b>             | <b>na</b>             |
| Preparation_1                        | 1.277                    | .865                | .677              |                       |                       |
| Preparation_2                        | 1.297                    | .718                | .352              |                       |                       |
| Preparation-3                        | 1.020                    | .453                | .357              |                       |                       |
| <b>Conception (HOC mode A)</b>       |                          |                     |                   | <b>.756</b>           | <b>.621</b>           |
| <b>Incubation (mode A)</b>           | <b>1.104</b>             | <b>0.955</b>        | <b>.860</b>       | <b>.751</b>           | <b>.513</b>           |
| Incubation_1                         | 1.207                    | .822                | .574              |                       |                       |
| Incubation_2                         | 1.234                    | .790                | .494              |                       |                       |
| Incubation_3                         | 1.060                    | .488                | .282              |                       |                       |
| <b>Insight (mode A)</b>              | <b>1.104</b>             | <b>.575</b>         | <b>.311</b>       | <b>.803</b>           | <b>.682</b>           |
| Insight_1                            | 1.314                    | .986                | .895              |                       |                       |
| Insight_2                            | 1.314                    | .625                | .188              |                       |                       |
| <b>Elaboration (mode A)</b>          |                          |                     |                   | <b>.787</b>           | <b>.650</b>           |
| Elaboration_1                        | -                        | -                   |                   |                       |                       |
| Elaboration_2                        | 1.102                    | .852                | .685              |                       |                       |
| Elaboration_3                        | 1.102                    | .758                | .550              |                       |                       |

**Note:** VIF: Variance inflation factor, CR: Composite Reliability, AVE: Average Variance Extracted  
All values were significant based on percentile bootstrapping ( $n = 10,000$ ; two-tailed test).  
M1: Preparation stage; M2 Conception stage; M3: Elaboration stage  
Source: Authors' own work

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Table II.

Necessary conditions-QCA

| Condition | PRE   |      | ~PRE  |      | CON   |      | ~CON  |      | ELA   |      | ~ELA  |      |
|-----------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
|           | Cons. | Cov  | Cons. | Cov  | Cons. | Cov  | Cons. | Cov  | Cons. | Cov  | Cons. | Cov  |
| PS        | .751  | .739 | .582  | .510 | .730  | .694 | .617  | .571 | .745  | .735 | .625  | .541 |
| SI        | .727  | .756 | .521  | .483 | .685  | .680 | .582  | .564 | .673  | .714 | .595  | .553 |
| TO        | .705  | .729 | .511  | .472 | .636  | .625 | .601  | .576 | .668  | .686 | .618  | .557 |
| VI        | .720  | .695 | .625  | .538 | .695  | .648 | .655  | .596 | .751  | .723 | .637  | .538 |
| ~PS       | .502  | .574 | .702  | .716 | .549  | .595 | .669  | .708 | .535  | .619 | .695  | .705 |
| ~SI       | .503  | .540 | .737  | .707 | .561  | .579 | .670  | .675 | .578  | .619 | .692  | .650 |
| ~TO       | .489  | .529 | .707  | .681 | .569  | .593 | .609  | .620 | .568  | .629 | .651  | .632 |
| ~VI       | .521  | .609 | .645  | .673 | .567  | .628 | .614  | .662 | .521  | .621 | .672  | .703 |

Note: Cons.: Consistency; Cov, Coverage PRE: Preparation stage; CON: Conception stage; ELA: Elaboration stage

PS=Participation Safety; SI=Support Innovation; TO=Task Orientation; VI=Shared Vision; ~: negation

Source: Authors' own work

Table III.  
Bottleneck analysis PREPARATION and ELABORATION

| PRE | PS   | SI   | TO   | VI   | ELA | PS | SI  | TO   | VI  |
|-----|------|------|------|------|-----|----|-----|------|-----|
| 0   |      |      |      |      | 0   |    |     |      |     |
| 10  |      |      |      |      | 10  |    |     |      |     |
| 20  |      |      |      |      | 20  |    |     |      |     |
| 30  |      |      |      |      | 30  |    |     |      |     |
| 40  |      |      |      |      | 40  |    |     |      |     |
| 50  |      | 91.2 |      |      | 50  |    |     |      |     |
| 60  |      | 81.2 |      | 98.8 | 60  |    |     |      |     |
| 70  |      | 71.3 |      | 96.9 | 70  |    |     |      |     |
| 80  |      | 61.3 |      | 94.9 | 80  |    |     | 75.9 |     |
| 90  | 87.0 | 51.4 | 98.2 | 93.0 | 90  |    |     | 39.3 |     |
| 100 | 63.3 | 41.4 | 93.9 | 91.0 | 100 |    | 2.7 | 2.7  | 0.7 |

Notes: Effect size (SI-PRE) = .15; p value = .000; Effect size (TO-ELA) = .17; p value = .007

PRE: Preparation stage; PS=Participation Safety; SI=Support Innovation; TO=Task Orientation;

VI=Shared Vision; ELA: Elaboration stage

Source: Authors' own work

Table IV.

Causal Configurations for Preparation and ~Preparation

| condition | PRE                                                                         |       |        | ~PRE                                                                        |        |
|-----------|-----------------------------------------------------------------------------|-------|--------|-----------------------------------------------------------------------------|--------|
|           | Term1                                                                       | Term2 | Term 3 | Term 1                                                                      | Term 2 |
| PS        | ●                                                                           | ●     |        |                                                                             | ○      |
| SI        | ●                                                                           | ●     | ●      | ○                                                                           | ○      |
| VI        |                                                                             | ○     | ○      |                                                                             | ●      |
| TO        | ●                                                                           |       | ●      | ○                                                                           |        |
| inclS     | .847                                                                        | .870  | .845   | .812                                                                        | .866   |
| PRI       | .750                                                                        | .680  | .621   | .697                                                                        | .660   |
| covS      | .498                                                                        | .310  | .278   | .590                                                                        | .363   |
| covU      | .251                                                                        | .063  | .031   | .282                                                                        | .056   |
|           | Solution Consistency= .830<br>Solution Coverage= .593<br>Solution PRI= .717 |       |        | Solution Consistency= .806<br>Solution Coverage= .646<br>Solution PRI= .687 |        |

Note: inclS: Solution Consistency; PRI: Proportional Reduction of Inconsistency, covS: Coverage of the solution, covU: Unique Coverage of the solution.

PRE: Preparation stage; PS=Participation Safety; SI=Support Innovation; TO=Task Orientation; VI=Shared Vision; ~: negation sign. Black circle indicates the presence of the condition; white circle indicates the negation of the condition; large circles represent core conditions, while small circles represent peripheral conditions.

Source: Authors' own work

Table IV.

Causal Configurations for Conception and ~Conception

| condition | CON                                                                         |       | ~CON                                                                           |
|-----------|-----------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------|
|           | Term1                                                                       | Term2 | Term 1                                                                         |
| PS        | ●                                                                           | ●     | ○                                                                              |
| SI        | ●                                                                           |       | ○                                                                              |
| VI        |                                                                             | ○     | ●                                                                              |
| TO        | ○                                                                           | ○     |                                                                                |
| inclS     | .855                                                                        | .878  | .836                                                                           |
| PRI       | .687                                                                        | .647  | .611                                                                           |
| covS      | .338                                                                        | .322  | .335                                                                           |
| covU      | .081                                                                        | .065  | --                                                                             |
|           | Solution Consistency= .850<br>Solution Coverage= .403<br>Solution PRI= .672 |       | Solution Consistency=<br>.836<br>Solution Coverage= .335<br>Solution PRI= .611 |

Notes: inclS: Solution Consistency; PRI: Proportional Reduction of Inconsistency, covS: Coverage of the solution, covU: Unique Coverage of the solution.

CON: Conception stage; PS=Participation Safety; SI=Support Innovation; TO=Task Orientation; VI=Shared Vision; ~: negation sign. Black circle indicates the presence of the condition; white circle indicates the negation of the condition; large circles represent core conditions, while small circles represent peripheral conditions.

Source: Authors' own work

Table VI

Configuration for Elaboration and ~Elaboration

| Condition | ELA                                                                         |       |        | ~ELA                                                                        |        |        |        |
|-----------|-----------------------------------------------------------------------------|-------|--------|-----------------------------------------------------------------------------|--------|--------|--------|
|           | Term1                                                                       | Term2 | Term 3 | Term 1                                                                      | Term 2 | Term 3 | Term 4 |
| PS        | ●                                                                           | ●     | ○      |                                                                             | ○      | ○      | ●      |
| SI        | ○                                                                           | ●     | ●      |                                                                             | ○      | ●      | ○      |
| VI        | ●                                                                           |       | ●      | ○                                                                           |        | ○      | ○      |
| TO        |                                                                             | ○     | ●      | ○                                                                           | ●      |        |        |
| inclS     | .868                                                                        | .842  | .873   | .798                                                                        | .849   | .855   | .877   |
| PRI       | .671                                                                        | .637  | .503   | .498                                                                        | .590   | .553   | .626   |
| covS      | .359                                                                        | .327  | .264   | .415                                                                        | .341   | .331   | .352   |
| covU      | .137                                                                        | .092  | .057   | .027                                                                        | .057   | .038   | .049   |
|           | Solution Consistency= .834<br>Solution Coverage= .542<br>Solution PRI= .641 |       |        | Solution Consistency= .776<br>Solution Coverage= .584<br>Solution PRI= .511 |        |        |        |

Notes: inclS: Solution Consistency; PRI: Proportional Reduction of Inconsistency; covS: Coverage of the solution; covU: Unique Coverage of the solution.

ELA: Elaboration stage; PS=Participation Safety; SI=Support Innovation; TO=Task Orientation; VI=Shared Vision; ~: negation sign. Black circle indicates the presence of the condition; white circle indicates the negation of the condition; large circles represent core conditions, while small circles represent peripheral conditions.

Source: Authors' own work

Table VII.

## Robustness Test

| Parameters               | PRE  | ~PRE | CON   | ~CON  | ELA   | ~ELA  |
|--------------------------|------|------|-------|-------|-------|-------|
| Fit-oriented robustness  |      |      |       |       |       |       |
| RFcons                   | .987 | .963 | .968  | .965  | .951  | .995  |
| RFcoverage               | 1    | 1    | 1.025 | 1.030 | 1.013 | 1.034 |
| RFsc-minTS               | .729 | .767 | .728  | .450  | .464  | .864  |
| RFsc-maxTS               | .567 | .632 | .627  | .450  | .464  | .585  |
| Case-oriented robustness |      |      |       |       |       |       |
| RCC_Rank                 | 2    | 2    | 2     | 2     | 2     | 2     |
| RCR <sub>typ</sub>       | .536 | .667 | .560  | .250  | .481  | .475  |
| RCR <sub>dev</sub>       | .250 | .375 | .353  | .111  | .281  | .321  |

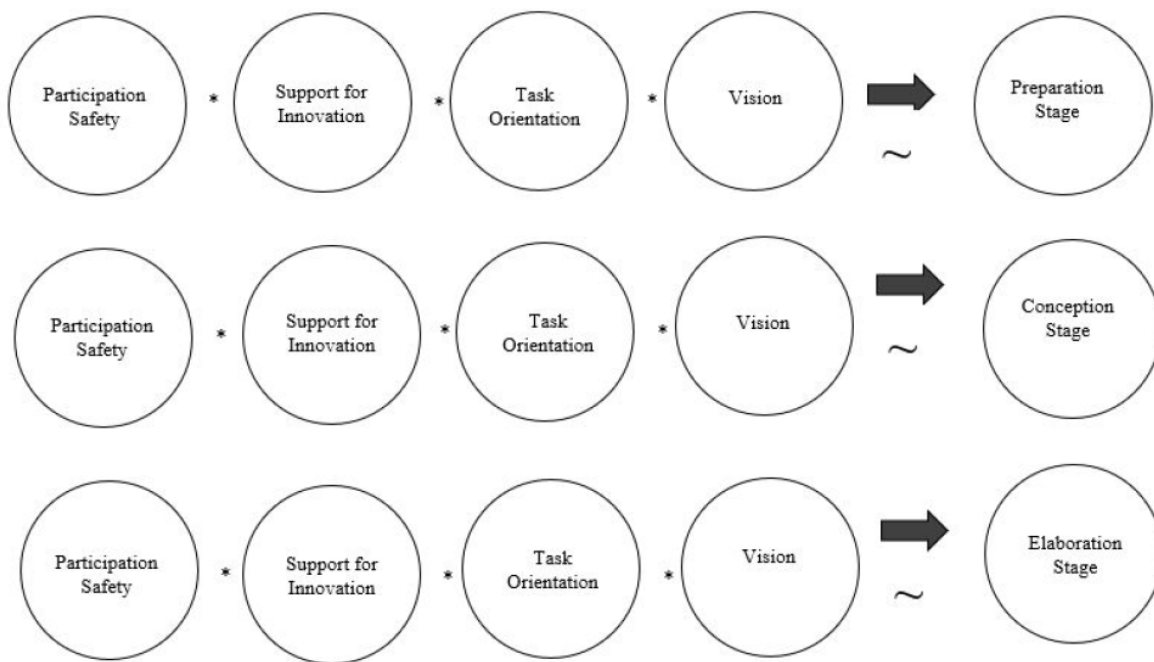
**Note:** RFcons: Robustness Factor Consistency; RFcoverage: Robustness Factor Coverage, RFsc-minTS: RF solution Consistency-Minimum Threshold; RFsc-maxTS: RF solution Consistency-Maximum Threshold; RCC\_Rank: Robust Critical Case Rank; RCR<sub>typ</sub>: Robust Critical Rate Typical; RCR<sub>dev</sub>: Robust Critical Rate Deviant.

PRE: Preparation stage; ELA: Elaboration stage; CON: Conception stage; PS=Participation Safety; SI=Support Innovation; TO=Task Orientation; VI=Shared Vision; ~: negation sign

Source: Authors' own work

Figure 1.

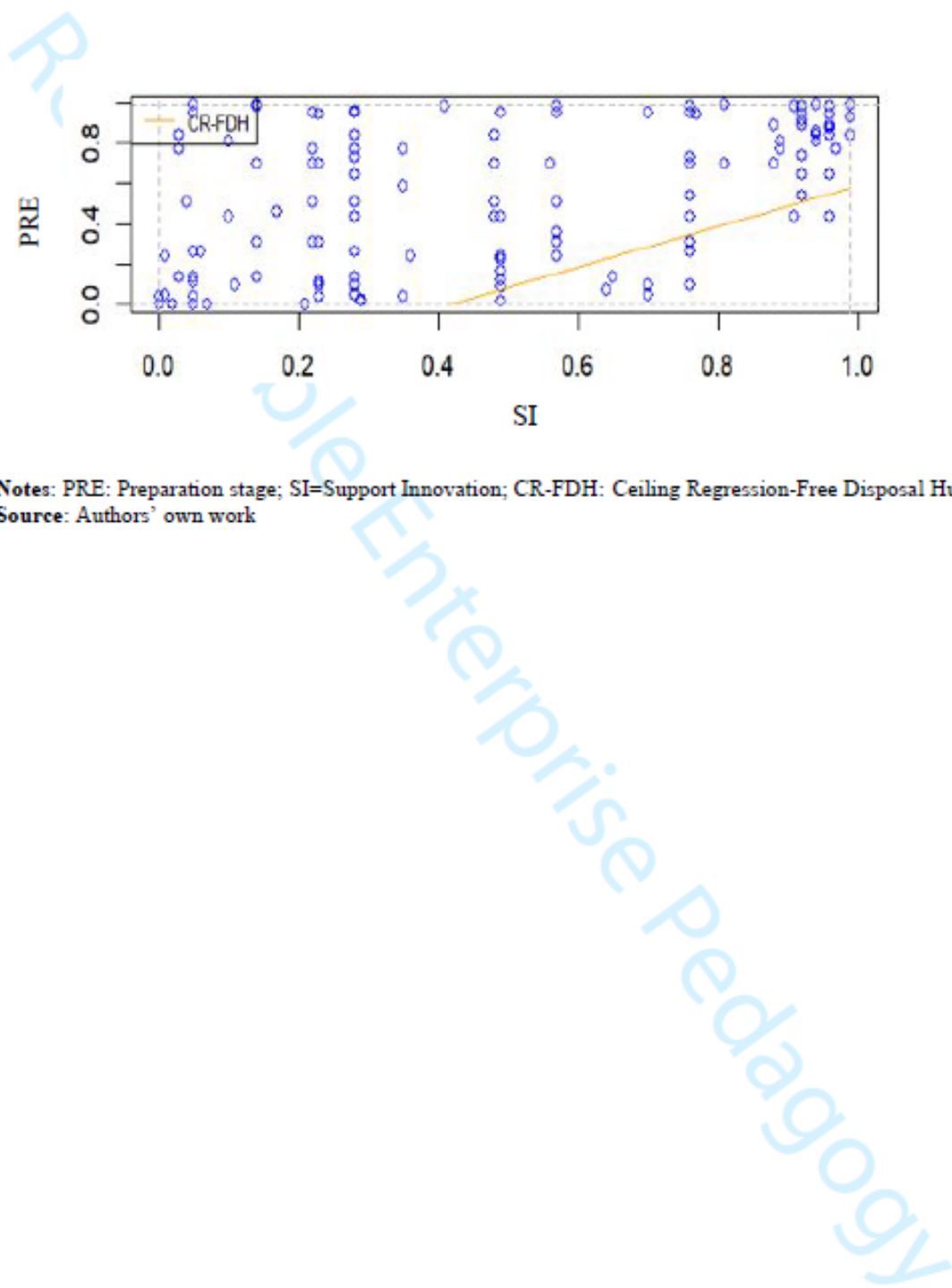
Conceptual Research Model



**Note:** ~ denotes negation sign.

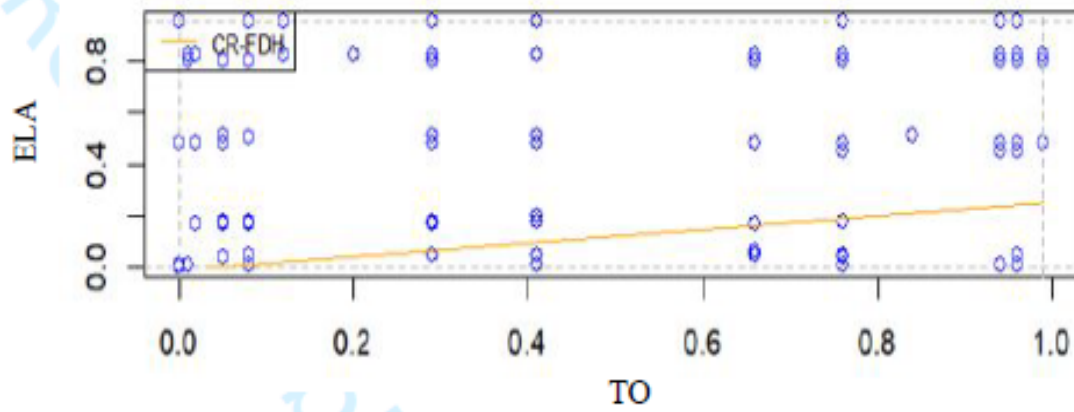
**Source:** Authors' own work

Figure 2:  
NCA Plot Support Innovation-Preparation



**Notes:** PRE: Preparation stage; SI=Support Innovation; CR-FDH: Ceiling Regression-Free Disposal Hull  
**Source:** Authors' own work

Figure 3:  
NCA Plot Task Orientation-Elaboration stage



**Notes:** ELA: Elaboration stage; TO: Task Orientation; CR-FDH: Ceiling Regression-Free Disposal Hull  
**Source:** Authors' own work

