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## **Start-ups Team Composition as a Driver of Dynamic Capabilities for Strategic Collaborations: The Case of Green Innovation and High-Tech Sectors.**

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### **Abstract**

Start-ups Team Composition as a Driver of Dynamic Capabilities for Strategic Collaborations: The Case of Green Innovation and High-Tech Sectors. Polytechnic University of Valencia INGENIO (CSIC-UPV) Ph.D. in Design, Manufacture and Management of Industrial Projects program Enrolled December 2014 – July 2017 Supervisors: Dr. Pablo D'Este, Research Fellow at the Spanish Council for Scientific Research (CSIC), INGENIO [CSIC-UPV] Dr. Monica Edwards, INGENIO [CSIC-UPV] Ph.D. Student Anna Karina Lopez Hernandez In the business ecosystems, a visionary management, accompanied by a well-integrated and self-motivated team performance develops strategic collaborations for new product/market development. The technology-based start-ups' real challenge is not just bridging the gap to the market regarding R&D activities; it lies in their ability to survive through collaborating with other organizations. The technology struggle and failure towards innovation, mostly, reveals the technology-based start-ups' inability to co-evolve as an organization and their incapacity of orchestrating expertise and relationships through creating and capturing value. The start-up dynamic capabilities incentive the organization to work for technology complementarities. Nonetheless, what kind of team member characteristics, team interaction and organizational elements inside start-ups catalysed dynamic capabilities? How do dynamic capabilities foster strategic collaborations with other start-ups? The start-up' survival process involves an observation of the market by a coordinated, flexible and lively active organization with the support of talented team members. The role of high-skilled professionals in the top-team is essential in the faster development of new capabilities in small organizations. Nevertheless, what kind of teams stem a particular amalgamation among their members and stimulate their interaction and influence the collaboration with other organizations. Previous studies regarding dynamic capabilities have applied to organizational resources, routines, processes, and competencies concerning the firm's resource-based. The contribution of this research focuses on explaining the relevance of high-skilled members and team interactions as key drivers of dynamic capabilities for collaboration. The start-ups' dynamic capabilities incentive business' best practices based on networking, absorption capacity, openness to innovation, and developing adapting organizational abilities for collaborative partnerships. This research involves a multidimensional analysis of start-ups members' characteristics, team composition, organization interaction and performance for strategic collaborations. The research will utilize mixed methods in two phases from primary empirical data; the first is a

first contact survey to get a general organizational picture of the start-up to identify relevant case studies and the second is based on interviews with the top-team members of 30 start-ups in the green innovation and high-tech sectors.

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In the business ecosystems, a visionary management, accompanied by a well-integrated and self-motivated team performance develops strategic collaborations for new product/market development. The technology-based start-ups' real challenge is not just bridging the gap to the market regarding R&D activities; it lies in their ability to survive through collaborating with other organizations. The technology struggle and failure towards innovation, mostly, reveals the technology-based start-ups' inability to co-evolve as an organization and their incapacity of orchestrating expertise and relationships through creating and capturing value. The start-up dynamic capabilities incentive the organization to work for technology complementarities. Nonetheless, what kind of team member characteristics, team interaction and organizational elements inside start-ups catalysed dynamic capabilities? How do dynamic capabilities foster strategic collaborations with other start-ups? The start-up' survival process involves an observation of the market by a coordinated, flexible and lively active organization with the support of talented team members. The role of high-skilled professionals in the top-team is essential in the faster development of new capabilities in small organizations. Nevertheless, what kind of teams stem a particular amalgamation among their members and stimulate their interaction and influence the collaboration with other organizations. Previous studies regarding dynamic capabilities have applied to organizational resources, routines, processes, and competencies concerning the firm's resource-based. The contribution of this research focuses on explaining the relevance of high-skilled members and team interactions as key drivers of dynamic capabilities for collaboration. The start-ups' dynamic capabilities incentive business' best practices based on networking, absorption capacity, openness to innovation, and developing adapting organizational abilities for collaborative partnerships. This research involves a multidimensional analysis of start-ups members' characteristics, team composition, organization interaction and performance for strategic collaborations. The research will utilize mixed methods in two phases from primary empirical data; the first is a first contact survey to get a general organizational picture of the start-up to identify relevant case studies and the second is based on interviews with the top-team members of 30 start-ups in the green innovation and high-tech sectors.

## **Start-ups Team Composition as a Driver of Dynamic Capabilities for Strategic Collaborations: The Case of Green Innovation and High-Tech Sectors.**

Introduction to the problem and justification of the topic

The technology-based start-up' survival pathway comprises an organizational evolution, accumulation of actions, knowledge and constant observation of the market conditions pursuing an entrepreneurial idea. The technology-driven start-ups' organization involves motivation, innovation and strategic management, resources and specific activities develop by a team of experts. The primary objective of this Ph.D. research focuses on 1) explaining the relevance of high-skilled members' role as key drivers of dynamic capabilities in start-ups for strategic collaborations. Nonetheless, 2) what kind of partnerships do these teams are prone to develop and for which proposes, e.g. to develop a new product, improve the existent, increase their market influence or reducing cost in production and distribution.

The team founder is the engine core of every entrepreneurship it pursuing to develop a coordinated, flexible and lively active organization with a proper infrastructure. The role of highly skilled professionals in the top-team is essential in the faster development of new capabilities in small organizations. Nonetheless, 3) what kind of teams stem a particular amalgamation among their members' interaction, resources and assets stimulating strategic collaborations with other small firms.

Technology-based start-ups have to face external and internal conditions that are always testing their organizational integration and efficacy. On one hand, the external conditions push the new organizations in challenging market environments, for instance, emergent technologies regarding renewal energy or new high-tech systems in the digital sector. Mainly, it is because they experience issues in the time to market processes and dealing with insufficient financial support. In addition, there are around high difficulties in regulatory norms and standards that might limit their introduction into the market, most of the time there are inexistent because the novelty of the

technology concept. Then, the prediction market trends regarding the emergent technology circumstances increase its uncertainty and risk level of new technology launching (K. Eisenhardt and Schoonhoven 1990).

On the other hand, the internal issues inside the start-up are focused on two primary failures regarding their organization structure and operations progression toward a continual in the innovation process. First of all, because their inability to co-evolve as an organization founded on the team composition. The teamwork interaction and cross-function task performance coordination are crucial and intense in the first years of the start-up. Secondly, it is owing to their incapacity of understanding their entrepreneurial context, lack of value attraction and deficiency in orchestrating expertise, and absence in active relationships management to creating and capturing value. Their organizational maturity process is full of massive failures in an ongoing learning-by-doing process, but also, their remarkable success in start-ups is because the overcoming those ups and downs (A. H. . Van de Ven 1986; A. H. Van de Ven et al. 1999).

The technology-based start-ups' activities found their efforts in the entrepreneurial capability to produce and capture value through offering unique solutions rooted in a combination of creative vision, know-how, and assets: capability (Loasby 1998). For instance, the entrepreneurial labour contents specific individual skills, expertise, new knowledge creation, and integration, which are gradually consolidated through the time in routines, processes and procedures (Loasby 2007).

### Start-ups and dynamic capabilities

When an entrepreneurial idea integrates a new technology concept, a single start-up has to configure specific capabilities to overcome uncertain market conditions to their sustainability and to level up their operations. The organizational capacities of technology-based start-ups meet specific characteristics of rapidly flexibility, absorptive and adaptability functions to survive. The building up of new organizational capacities defined the dynamic capabilities as the organizational capacity to identify opportunities and tune the operations to the new market conditions (David Teece and Pisano 1994; Zollo and Winter 2002; K. M. Eisenhardt and Martin 2000; Pavlou and El Sawy 2011).

According to David J. Teece et al., dynamic capabilities are a framework founded on different resources inside an organization: resource-based view (RBV)(Wernerfelt 1984; Helfat and Peteraf 2003). Start-up, like many other organizations establishing their value in the configuration of intangible resources, such as knowledge-based, operations and processes. All rooted in their human capital, intellectual property, financial resources consolidating their capacities (R. M. . Grant and Baden-Fuller 1995; Conner and Prahalad 1996; Nonaka 1991; Nonaka, Toyama, and Konno 2000). Also, physical resources are showed in their facilities, technology basis, and infrastructure. Dynamic capabilities are the result of particular relation and interaction between the knowledge-base and the resource-based of the start-ups.

R&D activities and marketplace processes in technologic-based start-ups demand exploration and exploitation activities stimulate the organizational adaptation (Dixon, Meyer, and Day 2014). These two activities and dynamic capabilities are strategic components that incentive and support technologic complementarities in their way to operational cospecialization, and hence, the start-ups' capacities to collaborate with other organizations (Foss 1998; DavidJ. Teece 1996; D. J. Teece 2006).

The development of fast track of organizational abilities, dynamic capabilities, allows technologic organizations to progress through collective activities in their processes of creating and capturing value. The creation and capturing value progressions are the primary goals of every start-up. The development of fast-track capabilities to market condition adaptation are idiosyncratic and considered as high-level of organizational abilities to reconfigure different competencies in business organizations (D. J. Teece 2012; D. J. Teece, Pisano, and Shuen 1997). They are defined: “ *higher-level competencies that determine the firm's ability to integrates, build and reconfigure internal and external resources/competencies to address and possibly shape, rapidly changing business environments*” (D. J. Teece 2012, 1395; David Teece and Pisano 1994; D. J. Teece, Pisano, and Shuen 1997; K. M. Eisenhardt and Martin 2000; Verona and Ravasi 2003).

The concept of dynamic capabilities has been discussed and criticized because its complexity and uniqueness as each organization foundation. Eisenhardt et al. define dynamic capabilities as: “*The firm's processes that use resources-specifically the processes to integrate, reconfigure, gain and release resources- to match and even*

create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configuration as markets emerge, collide, *split, evolve and die*” (K. M. Eisenhardt and Martin 2000, p. 1107). This definition empowers the capacity of organizations in a broad vision not just regarding adaptation but to influence the market. Therefore, dynamic capabilities incentive a continuous development of the start-ups’ capabilities and they influence them to define their current position in their ecosystem context.

Dynamic capabilities allow the start-ups to integrate new knowledge, to adapt and to open their capabilities to new opportunities particularly collaborating with other companies. The interaction and recombination of their assets produce value to customers collectively (D. J. Teece 2012). The know-how of their market context give a big picture of their complementarity opportunities; these organizational abilities are based on early stages of the start-up as entrepreneurial actions and its top management core (Helfat 1997). Also, dynamic capabilities incentive the creation of new operational and market tools, taking action at strategic management level in the way to orchestrate skills, resources, and assets mixed by entrepreneurial efforts (Jarratt 2008).

The most relevant activities identified in dynamic capabilities framework is the gathering of specific tasks regarding sensing, seizing and transforming processes of new product and market development (D. J. Teece 2011; D. J. Teece 2012). Because dynamic capabilities are the organizational foundation, they transcend from individual skills and knowledge content in their top members. Therefore, the leadership plays a relevant role in the team interaction and task performance. For instance, in the R&D activities demand a close observation of the client needs and characteristics, highlighting the market prospects and future conditions, involving the development and commercial introduction of new products, technology, and services, as a primary goal of the organization.

Table 1. These are the listed activities conducted to create and capture value to build dynamic capabilities (D. J. Teece 2010, p. 694).

	Sensing	Seizing	Transforming
Creating Value	Spotting opportunities.	Investing discipline.	Achieving organizational and operational recombination(s)
	Identifying opportunities for research and development.	Commitment to research and development. Building competencies.	
	Conceptualizing new customers need and new models.	Achieving new combinations.	
Capturing Value	Positioning for first mover and other advantages.	Intellectual property qualification and enforcement;	Managing threats. Honing the business model.
	Determining desirable entry timing	Implementing business models. Leveling complementary assets.	Developing new complementarities.
		Investment or co-investment in “production” facilities.	

New technologies are the result of technical and technological know-how as continuous actions of creating and capturing value. The technologically based start-ups focus their efforts to continue and improve their R&D operations towards specialization. Both green innovations and high-tech sectors content continuous specialization operations and demand openness to technologic complementation towards cospecialization (DavidJ. Teece 1996; D. J. Teece 2006). Nonetheless, in both entrepreneurial organizations are technology foundations their operational structures focus on new technology and services integration is through their business models where the dichotomous conditions arise.

#### The role of key team members in start-ups

The core of technological-based start-ups centre their origin on the resource-based view integrating new know-how creation content in their value proposition. During their organizational process conformation, they combine diverse intangible and tangible resources. For instance, the team founder members’ focus their efforts and visions pursuing the same goal for a functional organization. It is through the entrepreneurial team efforts where the venture’s responsibility and activities divided

among each members' interest and skills. The team configuration is an ongoing mix of skills and expertise integration, creation, and development of an idea for specific purposes (Cooney 2005).

The concept of the human organization integrates specific activities combining different resources pursuing a particular goal. The nature of enterprises involves organizational processes frequently compared with biological organisms such as life cycle (Penrose 1952) and linked with its environment adaptation for its survival. Regarding the born of new firms, all “attempt to maximize profits” and gain a presence in their market (Penrose 1952, p. 804).

Technology-oriented start-ups' team – as a case study regarding green innovation and high-tech start-ups - defined their foundations on knowledge-based as an intangible resource of the organization (Paradkar, Knight, and Hansen 2015). The entrepreneurship and research nourishes by teamwork efforts share same beliefs and commitment (Davis, Aldrich, and Longest 2009). Moreover, the role of the entrepreneurial team involves trust principally, but also union, interdependence, and relatively same interest assumed working together. Despite the team definition, the entrepreneurial personality plays a relevant role in the start-up. Added to that, in the literature the identification of essential elements in team members is still unveiled, the entrepreneurial and scientific background define them just as heterogeneous groups that are sharing knowledge (Nissen, Evald, and Clarke 2014), with particular characteristics, expertise, and abilities.

The start-up's dynamic capabilities are diverse and unique, specifically because their need to an ongoing conduction of R&D. Therefore, an absorptive capacity is essential to be assumed by the organization towards technologic complementarities in innovation (Cohen and Levinthal 1990; Bosch, Wijk, and Volberda 2003; Newey and Zahra 2009).

The absorptive capacity of the start-up is at an organizational level, but it is defined as the ability to recognize the value of different external knowledge, integrate it, and apply it to profitable proposes (Cohen and Levinthal 1990; Camisón and Forés 2010). This organizational capacity begins from individual members to the team reason why it is a collective capacity linked to the incremental process of learning by doing (Wenger 1998; A. H. Van de Ven et al. 1999), sometimes by mistakes and problem-

solving experiences (A. H. . Van de Ven 1986; Harper 2008). Most of these experiences merge individual explicit knowledge and tacit knowledge developed by experience. Therefore, knowledge creation is a self-transcending knowledge process of change to a different individual perception (Nonaka, Toyama, and Konno 2000, p. 8). According to Nonaka et al. the knowledge is dynamic, and at knowledge-based approach dynamic capabilities also involve knowledge-management as a relevant capability. Defining that from the micro (individual) and macro (environment) co-exist and in their interaction influence each other (Nonaka 1991; Nonaka, Toyama, and Konno 2000). At the organizational level, the constant interaction produce, share and transferred knowledge by coding in their daily basis among the team members in entrepreneurial activities.

Inside an organization, the teams' interaction and operation involve particular qualities that defined them. In the literature teams have been studied at different levels such as personal ties but also organizational flexibility (Zolin, Kuckertz, and Kautonen 2011) regarding cross-functional activities, in specific routines and attitudes toward learning, sharing and openness. The team's learning and exchange knowledge processes have particular structures that are the basis of new capabilities build in the start-ups as an essential toolkit for specialization process in horizontal structures, for instance, R&D processes (Laudel 2001).

#### Strategic collaborations from the environment

The evolutionary theory of the firm supports the efficiency of knowledge integration towards innovation; it implies that most of the technology-based start-ups involved in innovation development should pursue complementarity (R. M. Grant and Baden-Fuller 1995; R. M. Grant and Baden-Fuller 2004). The technological complementarity leads the organizational change through the time in their way of specialization. Nevertheless, why and under which conditions start-ups collaborate? The classic school defined that collaboration between other organizations, also defined alliances, they are based on elite thinking and because strategic reasons principally they are pursuing power and influence with their products and services in the market.

Strategic collaborations can be developed horizontally through supplier chain to price production by fixing control through their processes, for instance, to face technological competition (R. M. . Grant and Baden-Fuller 1995; R. M. . Grant and Baden-Fuller 2004). Also, collaborations can be vertical for developing unique sourcing

and distribution arrangements, because market strategies reduce the market uncertainties and pursue product complementarities through their network. Regarding dynamic capabilities framework, these relationships are defined in specific objectives between exploitative commercial or explorative technological actions (Colombo, Grilli, and Piva 2006). According to Grant et al., strategic options should be defined for all collaboration partners involving value-creating opportunities in common.

Alternatively, the co-evolutionary view of the start-up's market context as the business landscape is constantly changing but it can be influenced by economic coordination (D. J. Teece 2010b; Moore 2006; Peltoniemi and Vuori 2004). It is possible to affect the market by coordinated actions, for instance, small firms can do it through the creation of the start-ups ecosystems with other complementary businesses. The co-evolution of markets stimulates competence between start-ups by continuous innovation (Moore 2006) towards complementarity among similar technologies and partners in their enterprise ecosystem.

#### The start-up's ecosystem and the market

The innovation literature defines the start-up ecosystem as their context where the organization establishes and deliver their operations. In an ecosystem, they co-exist and interact with institutions, government, banks, agents, suppliers, competitors, customers' niches and the market. The start-up's ecosystem is the primary source of new knowledge creation and adaptation through their business models and commercial strategies due to their continuous observation and interaction (D. J. Teece 2010b; Clarysse et al. 2014).

Nevertheless, the start-ups ecosystem complexity demands to deal with different elements in the process to define a stable organization able to contain the harsh market conditions. Therefore, the start-ups team member composition is a significant driver of complementary technical and technological assets of organization capability (D. J. Teece 2011, p.540). Adding a rapid process of decision making in integrating specific skills, resources, operations, and circumstances to materialized an entrepreneurial idea (Paradkar, Knight, and Hansen 2015).

Alternatively, the co-evolutionary view sees the start-up's market context as the business landscape, uncertain because the dynamic conditions. Despite their constant

change it can be influenced just by economic coordination (D. J. Teece 2010b; Moore 2006; Peltoniemi and Vuori 2004). It is possible to impact the market by coordinated actions, for instance, small firms can do it through the creation of the start-ups ecosystems with other complementary businesses. The co-evolution of markets stimulates competence between start-ups by continuous innovation (Moore 2006) towards complementarity among equal and complementing partners in their enterprise ecosystem.

The capabilities for collaboration among different companies' synergies requires specialized knowledge and managerial resources mastered with fast actions to overcome the uncertainty of the market (Moore 2006; Stieglitz 2007; Helfat 1997). This co-evolution of markets occurs when competitors start to work together to survive defined as creating mutualisms. This is the integration of the big picture of the firm's environment with a symbiotic relationship (Moore 2006). Collaboration among small and flexible organizations such as start-ups is a continuing process of expertise and performance synergies linked to their business model towards cospecialization and innovation. The development of value chaining actions demands product-market, processes, knowledge, abilities, and coordination with other actors through their business models (Korunka et al. 2003; D. J. Teece 2010a). Coordination among start-ups involves know-how in market share and their level of complementarities integrating profits in common. This means this requires exceptional leadership with collective vision and influence focus on mixing and matching capabilities, processes, networks to eventually configure a business ecosystem (Moore 2006; Peltoniemi and Vuori 2004; D. J. Teece 2012; Clarysse et al. 2014).

The management of innovation technologies demands a deep knowledge of their business and innovation ecosystems. The start-up should be aware of their context and market position regarding horizontal, and vertical complementarities (Helfat 1997; David J. Teece 1996). Either in the case, between competitors and suppliers, both complementation among them support the long-term sustainability of each organization. The collaboration between start-ups requires from inside each organization, the output of advanced know-how, visionary strategy, and self-motivated management performance; added to that, the integration of highly skilled professionals and accurate organizational environment amalgamation.

## Research questions

This research addresses the dynamic capabilities framework as the prime milieu of organizational abilities in technology-driven start-ups that reinforce technologic complementarities. The research questions are:

What kind of team member characteristics, team interaction and organizational elements inside start-ups catalysed dynamic capabilities?

The relevance high skilled professionals allocation and their close cooperation in technology-driven activities point them as potential drivers of dynamic capabilities in small organizations. This question pursuing to digging in their characteristics, interactions, influence level in the team organization- other assets and outside regarding their market environment perception. The environment knowledge (big picture vision) expressed in their business model and that product-organizational-market elements push them to catalyse strategic collaborations.

The role of founding team members in small organizations is crucial, particularly in the technology sector, and its importance lies in the integration of highly skilled professionals (D. J. Teece 2011; D. J. Teece 2010b). However, how do they involve their knowledge, experience, interaction and level of influence inside and outside the organization as fast-track drivers of dynamic capabilities? The primary objective is to highlight their presence in start-ups and to unveil the mechanisms of their organizations that foster strategic collaborations.

On one hand, the co-evolutionary process of start-ups, as small firms, implies well-orchestrated capacities supported by organizational, flexibility, absorptive and adaptability capacities. In a biological perspective; however, how do they prepare the organizational basis to adapt the organization to future conditions? This recalls an organic view of the most capable and efficient changed organization to adverse market conditions surviving. On the other hand, the start-up efforts demand a continuous monitoring of their internal operations, with the market demand, through a coordinated, flexible and active organization with the support of talented team members at management level.

Regarding the payroll of talented individuals, Teece highlights their most relevant skills as crucial elements to execute the firm's strategy: literati, numerati, and

entrepreneur. On one side, the definition of literati and numerati cluster highly skilled professionals; they are professionals with specialization in sciences, engineering, marketing, administration, law, etc. On the other side, the entrepreneurial personality continues taking part as a relevant piece of the team integration. This means putting all of them as important parts that interact and participate in the same group.

Team interaction regarding highly- skilled professionals is related to a different kind of leadership and management. The classic model of authority where the employees cover hours and functions with the model of hiring the same skills via price system of obeying directions (Coase 1937; D. J. Teece 2010b). This management model limits the capacity of the team creation. These particular teams inside the start-up development of their own rules and work culture.

In technology-driven constantly pursuing innovation, traditional team structures do not work for high-skilled team members. To what extent they have autonomy, decision-making influence regarding the start-up structure, organization (resources) and operations. Fischer et al. define two types of team organization, conservative teams – includes average team members- and virtuoso team, they hold elite of experts (Fischer and Boynton 2005).

Table 2. Key difference between traditional teams and virtuoso teams, (D. J. Teece 2010b, p.705; Fischer and Boynton 2005)

Team characteristics	Traditional Teams	Virtuoso Teams
Membership	Members are chosen based on who has available time	Members are chosen based on expertise
Culture	Collective	Collective and individual
Focus	Tight project management. “On time” and “On Budget” more important than content.	Ideas, understanding, and breakthrough thinking emphasized
Clients	Mundane	Sophisticated
Intensity	High/Medium	High
Stakes	Low/medium	High

How do dynamic capabilities foster strategic collaborations with other start-ups?

The partnerships between start-ups represent a tremendous organizational challenge in their process of bridging the gap between their product and the market. In a nutshell, the focus of this question is to define which elements are crucial in their venture journey process to survive. Nonetheless, what is their decision making process to left independence and jump into the interdependent organization, pursuing taking part as a collective (cluster) and facing market uncertainties.

This approach considers the start-ups as specialized teams, which integrate highly skilled individuals, how the production and absorption of new knowledge are made and how do they incorporate this knowledge into their business models. Then, how do they define their specialization and adapt their capacities to work in a entreprising collectivity.

## Aim

- The aim of this research is to contribute to the study and understanding of the foundation of dynamic capabilities framework in innovation processes of technologic-based start-ups.

## Methodology

This research encompasses a multidimensional analysis(K. Eisenhardt and Schoonhoven 1990) of the start-ups members' characteristics, team composition, organization interaction, market strategies and networking-regarding strategic collaborations. Identifying the kind of team interaction suit with their current organization. Their perceptions regarding their current capabilities and in order to collaborate identify which elements do they have to cover, regarding dynamic capabilities framework- leading by diverse tasks classification and hierarchy of skills and functions coordinated and controlled.

The research will utilize mixed methods in two phases from primary empirical data.

1. The first phase is a first contact survey asking (briefly) to the start-up general organization, it will describe their current conditions: it is a picture of the start-up, it will allow me to know: the founder team and to identify if there are talented individuals attracted to the start-up, classification of team interaction,

communication, networking, the perception of the work environment - the market and strategic vision. In this specifically related to openness, cooperation on the contribution of skills, synergies in the development of innovation, values, and objectives to influence the market positively.

2. The second phase will be based on interviews with the top-team members:

- The interview in appointment (30-40 minutes), pursues to reveal which elements and resources are relevant, in the process of new capabilities building and what kind of capabilities they catalyse for collaboration strategies with other organizations.
- The characteristics of the team members' interaction with a short survey to identify team interaction and influence in making decisions: regarding how do they support the organization.
- Inside the team how through they routines determine their process of adaptable assets to the start-up's environment and their relations between other organizations specializing develop.
- To identify elements that contribute to building new capabilities to collaborative strategies for creation of new products (innovation) with their competitors or other different and that such partnerships developed between them.
- How do they contribute and perception and potentialities to reinforce their sustainability, scalability and operational dynamism.

### The technology-based start-ups characteristics:

Technology-based (Renewable energy systems, green innovation technologies in housing, high-tech: software, programing developing, applications in business development, etc. Mature organizations (2-3 years), with annual sales.

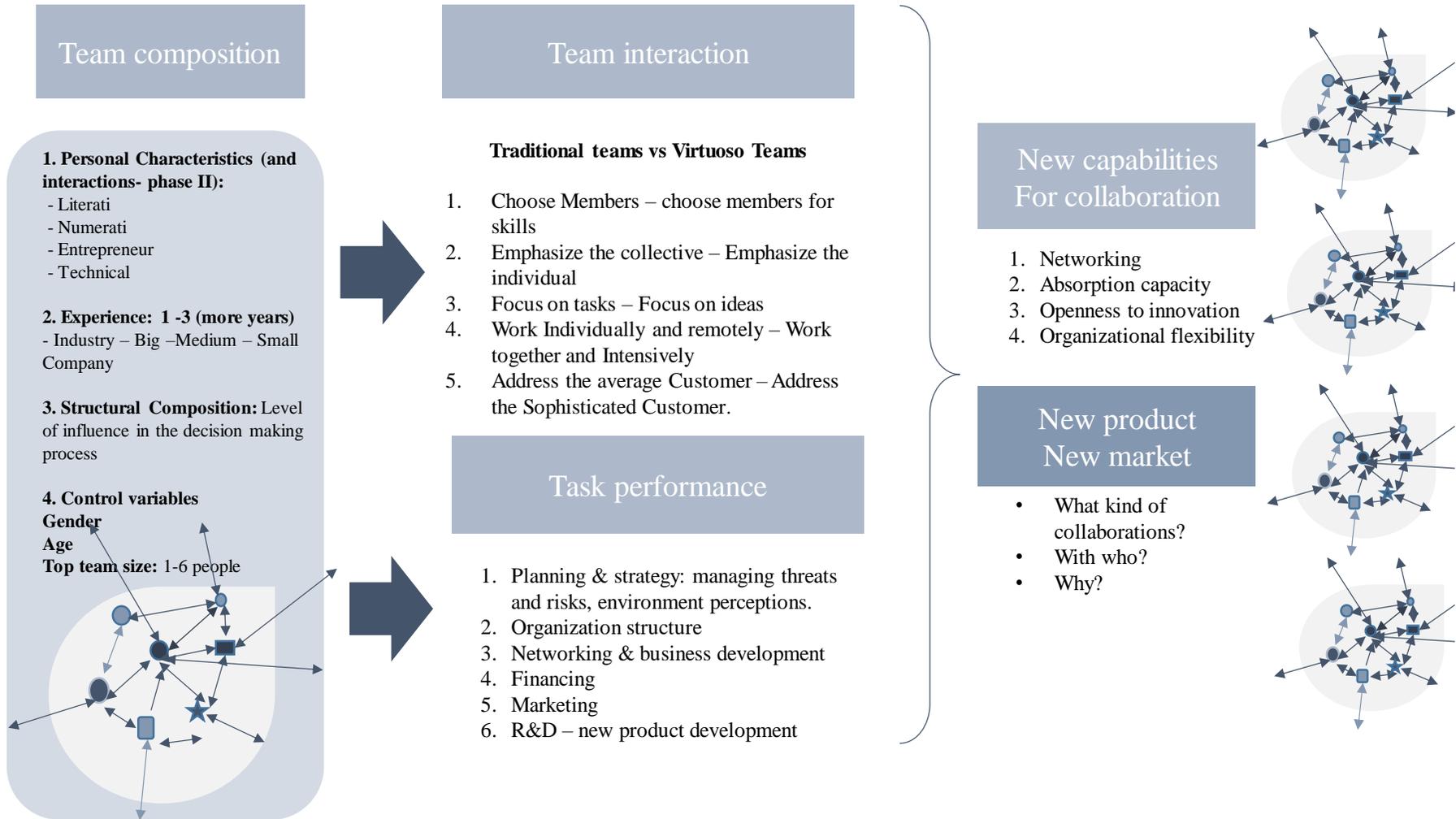
- ✓ University Polytechnic of Valencia (UPV) Start-UPV - University cluster.
- ✓ Climate KIC -Valencia: Accelerator 40-50 start-ups (level of maturity not confirmed yet).

### Data collection and analysis

The research was applied, qualitative and quantitative mix methods:

- ✓ The surveys will be electronically distributed via LimeSurvey. Data basis collection from the platform.
- ✓ Data analysis will be using MaxQDA or Nvivo. I recently took introductory courses to select the program.

**Figure 2. Conceptual Research approach**



## Ethical considerations

The study will be carried out under ethical standards and confidentiality, and the information will consider for statistical purposes of empiric information. Start-up valuable information such as commercial tactics or elements that are not related to the topic will be avoided.

Risks, the number of start-ups is relatively small and the timing to interview might be a problem because the agenda of the entrepreneurial team members.

## The survey

The study includes the principal team members, 1) their organizational interaction, relatively mature start-ups (from 2 to 3 years). 2) their market stage, technology-based (value proposition). 3) business model: green innovation and high-tech start-ups. 4) Their environment, as a small organization what is their level of context knowledge and how do they integrate that information in they operations: identification of complementarities, networking, public participation, e.g. attendance in public acts and technology expos or contexts.

Sensing, seizing, and transform are processes linked with strategic thinking, and it involves a multidimensional analysis connected to the top-management team. Routines description according to dynamic capabilities cluster description

Team members	Team interaction	Business model	The start-up big picture
<p><i>Members' background:</i> through their linked in (members, their experience, and ties) who is who: literati, numerate, entrepreneur, other relevant. -Via LinkedIn (D. J. Teece 2011; D. J. Teece 2010b; Ellen, Wikström, and Jantunen 2009)</p> <p>Identify their interaction and communication level.</p>	<p>Traditional teams vs Virtuoso Teams</p> <ol style="list-style-type: none"> <li>1. Choose Members – choose members for skills</li> <li>2. Emphasize the collective – Emphasize the individual</li> <li>3. Focus on tasks – Focus on ideas</li> <li>4. Work Individually and remotely – Work together and Intensively</li> <li>5. Address the average Customer –</li> </ol>	<p>Resources (tangible assets, organization structure and infrastructure Sales, their business operations conditions Evaluate the integration of the big picture</p> <p>Control variables</p> <p>Identify the business toolkit they use: canvas, other processes, how they connect with their business ecosystems.</p> <p>-</p>	<p>Their level of marketplace competition and networking level.</p> <p>Ask them in which position of the innovation chain they are?*( Interview)</p>

Which specific routines allow them to have information about their context, market, competitors, suppliers, other organizations.	Address the Sophisticated Customer. (Fischer and Boynton 2005)	The strategy, are they include in their business model: scaling up their business or operations; (how) is R&D included in their plans; what is their level of networking, strategic collaborations (horizontal or vertical) is considering (with who, and why); how do they planning to get more resources.	Their business environment perceptions and information about the market trends and how they adapt the organization for the future.
	<p>Performance</p> <p>Identify the orchestration capacities(Mumford et al. 2002) (focus on operations and strategies), transformational leadership(Shin et al. 2012), flexibility(Zolin, Kuckertz, and Kautonen 2011), absorptive and adaptability:</p> <ol style="list-style-type: none"> <li>1. Planning &amp; strategy: managing threats and risks, environment perceptions.</li> <li>2. Organization structure</li> <li>3. Networking &amp; business development</li> <li>4. Financing</li> <li>5. Marketing</li> <li>6. R&amp;D – new product development</li> </ol> <p>(Lechler 2001)</p>		

## Contribution

- This research contributes to entrepreneurship theory by investigating the effects of high-skilled professional on entrepreneurial team formation and unveiling the of team interactions as relevant drivers of dynamic capabilities to incentive technological complementarities through strategic collaborations. This builds on work of Teece et al. regarding dynamic capabilities (D. J. Teece, Pisano, and Shuen 1997; D. J. Teece 1996; Zollo and Winter 2002; K. M. Eisenhardt and Martin 2000) .

## References

- Bosch, FAJ Van Den, R Van Wijk, and HW Volberda. 2003. "Absorptive Capacity: Antecedents, Models and Outcomes." [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=411675](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=411675).
- Camisón, César, and Beatriz Forés. 2010. "Knowledge Absorptive Capacity: New Insights for Its Conceptualization and Measurement." *Journal of Business Research* 63 (7). Elsevier Inc.: 707–15. doi:10.1016/j.jbusres.2009.04.022.
- Clarysse, Bart, Mike Wright, Johan Bruneel, and Aarti Mahajan. 2014. "Creating Value in Ecosystems: Crossing the Chasm between Knowledge and Business Ecosystems." *Research Policy* 43 (7). Elsevier B.V.: 1164–76. doi:10.1016/j.respol.2014.04.014.
- Coase, R.H. 1937. "The Nature of the Firm." *Economica*, New Series 4 (16): 386–405. [http://www.colorado.edu/ibs/es/alston/econ4504/readings/The Nature of the Firm by Coase.pdf](http://www.colorado.edu/ibs/es/alston/econ4504/readings/The%20Nature%20of%20the%20Firm%20by%20Coase.pdf).
- Cohen, Wesley, and Daniel Levinthal. 1990. "Absorptive Capacity: A New Perspective on Learning and Innovation." *Administrative Science Quarterly* 35 (1): 128–52. doi:10.2307/2393553.
- Colombo, Massimo G., Luca Grilli, and Evila Piva. 2006. "In Search of Complementary Assets: The Determinants of Alliance Formation of High-Tech Start-Ups." *Research Policy* 35 (8 SPEC. ISS.): 1166–99. doi:10.1016/j.respol.2006.09.002.
- Conner, Kathleen R., and C. K. Prahalad. 1996. "A Resource-Based Theory of the Firm: Knowledge Versus Opportunism." *Organization Science* 7 (5): 477–501. doi:10.1287/orsc.7.5.477.
- Cooney, T. M. 2005. "What Is an Entrepreneurial Team?" *International Small Business Journal* 23 (3): 226–35. doi:10.1177/0266242605052131.
- Davis, a. E, H. E Aldrich, and K. C Longest. 2009. "Resource Drain or Process Gains? Team Status Characteristics and Group Functioning Among Startup Teams." *Frontiers of Entrepreneurship Research* 29 (11): 2.
- Dixon, Sarah;, Klaus; Meyer, and Marc Day. 2014. "Building Dynamic Capabilities of Adaptation and Innovation: A Study of Micro-Foundations in a Transition Economy." *Long Range Planning* 47 (4): 186–205. doi:10.1016/j.lrp.2013.08.011.
- Eisenhardt, Kathleen M, and Jeffrey A Martin. 2000. "Dynamic Capabilities: What Are They?" *Strategic Management Journal* 21 (10/11): 1105–21.
- Eisenhardt, Km, and Cb Schoonhoven. 1990. "Organizational Growth: Linking Founding Team, Strategy, Environment, and Growth among US Semiconductor Ventures, 1978-1988." *Administrative Science Quarterly* 35 (3): 504–29. doi:10.2307/2393315.
- Ellonen, Hanna Kaisa, Patrik Wikström, and Ari Jantunen. 2009. "Linking Dynamic-Capability Portfolios and Innovation Outcomes."

- Technovation 29 (11): 753–62.  
doi:10.1016/j.technovation.2009.04.005.
- Fischer, Bill, and Andy Boynton. 2005. “Virtuoso Teams.” Harvard Business Review, Organizational Culture, no. July-August.  
<https://hbr.org/2005/07/virtuoso-teams>.
- Foss, Nicolai J. 1998. “The Resource-Based Perspective: An Assessment and Diagnose of Problems.” Scandinavian Journal of Management 14 (3): 133–49.  
doi:doi: 10.1016/s0956-5221(97)00030-4.
- Grant, R. M., and C. Baden-Fuller. 1995. “A Knowledge-Based Theory of Inter-Firm Collaboration.” Academy of Management Proceedings 1995 (1): 17–21.  
doi:10.5465/AMBPP.1995.17536229.
- Grant, Robert M., and Charles Baden-Fuller. 2004. “A Knowledge Accessing Theory of Strategic Alliances.” Journal of Management Studies 41 (January): 61–84.
- Harper, David a. 2008. “Towards a Theory of Entrepreneurial Teams.” Journal of Business Venturing 23 (6): 613–26.  
doi:10.1016/j.jbusvent.2008.01.002.
- Helfat, Constance E, and Margaret A Peteraf. 2003. “THE DYNAMIC RESOURCE-BASED VIEW : CAPABILITY LIFECYCLES” 1010: 997–1010.  
doi:10.1002/smj.332.
- Helfat, Constance E. 1997. “Know-How and Asset Complementarity and Dynamic Capability Accumulation: The Case of R&D.” Strategic Management Journal 18 (5): 339–60. doi:Article.
- Jarratt, Denise. 2008. “Testing a Theoretically Constructed Relationship Management Capability.” European Journal of Marketing. Emerald Insight.  
doi:10.1108/03090560810891172.
- Korunka, Christian, Hermann Frank, Manfred Lueger, and Josef Mugler. 2003. “The Entrepreneurial Personality in the Context of Resources, Environment, and the Startup Process— A Configurational Approach.” Entrepreneurship Theory and Practice, 23–42.  
doi:10.1111/1540-8520.00030.
- Laudel, Grit. 2001. “Collaboration, Creativity and Rewards: Why and How Scientists Collaborate.” International Journal of Technology Management 22 (7-8): 762–81.  
doi:10.1504/ijtm.2001.002990.
- Lechler, Thomas. 2001. “Social Interaction: A Determinant of Entrepreneurial Team Venture Success.” Small Business Economics 16 (4): 263–78.  
[http://download.springer.com/static/pdf/404/art%253A10.1023%252FA%253A1011167519304.pdf?originUrl=http%3A%2F%2Flink.springer.com%2Farticle%2F10.1023%2FA%3A1011167519304&token2=exp=1449161448~acl=%2Fstatic%2Fpdf%2F404%2Fart%25253A10.1023%25252FA%25253A1011167519304.pdf%3ForiginUrl%3Dhttp%253A%252F%252Flink.springer.com%252Farticle%252F10.1023%252FA%253A1011167519304\\*~hmac=b9a5e45b491ae7b469753bdd24ee9dd32054110d094c44707b48525e26776d5e](http://download.springer.com/static/pdf/404/art%253A10.1023%252FA%253A1011167519304.pdf?originUrl=http%3A%2F%2Flink.springer.com%2Farticle%2F10.1023%2FA%3A1011167519304&token2=exp=1449161448~acl=%2Fstatic%2Fpdf%2F404%2Fart%25253A10.1023%25252FA%25253A1011167519304.pdf%3ForiginUrl%3Dhttp%253A%252F%252Flink.springer.com%252Farticle%252F10.1023%252FA%253A1011167519304*~hmac=b9a5e45b491ae7b469753bdd24ee9dd32054110d094c44707b48525e26776d5e).

- Loasby, Brian J. 1998. "The Organisation of Capabilities." *Journal of Economic Behavior & Organization* 35 (May 1995): 139–60. doi:10.1016/S0167-2681(98)00056-0. doi:10.1016/0024-6301(96)81509-3.
- Loasby, Brian J. 2007. "A Cognitive Perspective on Entrepreneurship and the Firm." *Journal of Management Studies* 44 (7): 1078–1106. doi:10.1111/j.1467-6486.2007.00729.x.
- Moore, James F. 2006. "Business Ecosystems and the View from the Firm." *Antitrust Bulletin* 51 (I): 31–75. doi:Article.
- Mumford, Michael D., Ginamarie M. Scott, Blaine Gaddis, and Jill M. Strange. 2002. "Leading Creative People: Orchestrating Expertise and Relationships." *Leadership Quarterly* 13 (6): 705–50. doi:10.1016/S1048-9843(02)00158-3.
- Newey, Lance R., and Shaker a. Zahra. 2009. "The Evolving Firm: How Dynamic and Operating Capabilities Interact to Enable Entrepreneurship." *British Journal of Management* 20 (SUPP. 1). doi:10.1111/j.1467-8551.2008.00614.x.
- Nissen, Helle Aaroe, Majbritt Rostgaard Evald, and Ann H??bjerg Clarke. 2014. "Knowledge Sharing in Heterogeneous Teams through Collaboration and Cooperation: Exemplified through Public-Private-Innovation Partnerships." *Industrial Marketing Management* 43 (3). Elsevier Inc.: 473–82. doi:10.1016/j.indmarman.2013.12.015.
- Nonaka, Ikujiro. 1991. "The Knowledge Creating Company." *Harvard Business Review* 69: p96–104.
- Nonaka, Ikujiro, Ryoko Toyama, and Noboru Konno. 2000. "SECI, Ba and Leadership: A Unified Model of Dynamic Knowledge Creation." *Long Range Planning* 33 (1): 5–34. doi:10.1016/S0024-6301(99)00115-6.
- Paradkar, Amit, John Knight, and Paul Hansen. 2015. "Innovation in Start-Ups: Ideas Filling the Void or Ideas Devoid of Resources and Capabilities?" *Technovation* 42: 1–10. doi:10.1016/j.technovation.2015.03.004.
- Pavlou, Paul a, and Omar a El Sawy. 2011. "Understanding the Elusive Black Box of Dynamic Capabilities." *Decision Sciences* 42 (1): 239–73. doi:10.1111/j.1540-5915.2010.00287.x.
- Peltoniemi, Mirva, and Elisa Vuori. 2004. "Business Ecosystem as the New Approach to Complex Adaptive Business Environments." *Proceedings of eBusiness Research Forum*.
- Penrose, Edith Tilton. 1952. "Biological Analogies in the Theory of the Firm." *The American Economic Review* 42 (5): 804–19. <http://www.jstor.org/stable/1812528>.
- Shin, Shung J., Tae Yeol Kim, Jeong Yeon Lee, and Lin Bian. 2012. "Cognitive Team Diversity and Individual Team Member Creativity: A Cross-Level Interaction." *Academy of Management Journal* 55 (1): 197–212. doi:10.5465/amj.2010.0270.
- Teece, David J. 1996. "Firm Organization, Industrial Structure, and Technological Innovation."

- Journal of Economic Behavior and Organization 31 (2): 193–224.  
doi:10.1016/S0167-2681(96)00895-5.
- . 2006. “Reflections on ‘Profiting from Innovation.’” *Research Policy* 35 (8 SPEC. ISS.): 1131–46.  
doi:10.1016/j.respol.2006.09.009.
- . 2010a. “Business Models, Business Strategy and Innovation.” *Long Range Planning* 43 (2-3). Elsevier Ltd: 172–94.  
doi:10.1016/j.lrp.2009.07.003.
- . 2010b. “Technological Innovation and the Theory of the Firm: The Role of Enterprise-Level Knowledge, Complementarities, and (Dynamic) Capabilities.” In *Handbook Economics of Innovation*, Vol. 01, edited by Bronwyn H. Hall, USA University of California, Berkeley, California, The Netherlands University of Maastricht, Nathan Rosenberg, and USA Stanford University, Stanford, California, Second, 679–730. Amsterdam, Boston, Heidelberg, London, New York, Oxford, Paris, San Diego, San Francisco, Singapore, Sydney, Tokyo: Elsevier.  
doi:10.1016/S0169-7218(10)01016-6.
- . 2011. *Human Capital, Capabilities, and the Firm. Literati, Numerati, and Entrepreneurs in the Twenty-First-Century Enterprise*. Edited by J.-C. Burton-Jones, Alan; Spencer. The Oxford Handbook of Human Capital. 2011th ed. New York: Oxford University Press, Inc.  
doi:10.1093/oxfordhb/9780199532162.003.0022.
- . 2012. “Dynamic Capabilities: Routines versus Entrepreneurial Action.” *Journal of Management Studies* 49 (8): 1395–1401.  
doi:10.1111/j.1467-6486.2012.01080.x.
- Teece, David J., Gary Pisano, and Amy Shuen. 1997. “Dynamic Capabilities and Strategic Management.” *Strategic Management Journal* 18 (March): 509–33. doi:10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z.
- Teece, David, and Gary Pisano. 1994. “The Dynamic Capabilities of Firms: An Introduction.” *Industrial and Corporate Change* 3 (3): 537–56. doi:10.1093/icc/3.3.537-a.
- Teece, David J. 1996. “Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy.” *Research Policy* 15 (February): 285–305.  
doi:10.1016/0048-7333(93)90063-N.
- Van de Ven, A.H., D.E.; Polley, R.; Garud, and S.; Venkataraman. 1999. *The Innovation Journey*. First Edition. New York: Oxford University Press, Inc.
- Van de Ven, A.H.; 1986. “Central Problems in the Management of Innovation.” *Management Science* 32 (5): 590–607.  
doi:10.2307/2631848.
- Verona, Gianmario, and Davide Ravasi. 2003. “Unbundling Dynamic Capabilities: An Exploratory Study of Continuous Product Innovation.” *Industrial & Corporate Change* 12 (3): 577–606. doi:10.1093/icc/12.3.577.
- Wenger, Etienne. 1998. “Community of Practice: A Brief Introduction.” *Learning in Doing* 15: 1–7.

doi:10.2277/0521663636.

Wernerfelt, Birger. 1984. "A Resource-Based View of the Firm." *Strategic Management Journal* 5 (Apr-Jun): 171–80.

Zolin, Roxanne, Andreas Kuckertz, and Teemu Kautonen. 2011. "Human Resource Flexibility and Strong Ties in Entrepreneurial Teams."

*Journal of Business Research* 64 (10). Elsevier Inc.: 1097–1103.  
doi:10.1016/j.jbusres.2010.11.026.

Zollo, M., and S.G. Winter. 2002. "Deliberate Learning and the Evolution of Dynamic Capabilities." *Organization Science* 13 (3): 339–51.  
doi:10.1287/orsc.13.3.339.2780.

## Start-up survey

Start-up generals:

1. Start-up name
2. website
3. Foundation date
4. Logo
5. Telephone:
6. Confirm the start-up established address:
7. Project/start-up overview (breve description):
8. Who are your current top team members?

Name	Founder Yes/no	Principal Role	Studies Ph.D., Master, University	Finished /In progress	Previous job experience Firm/governme nt/industry/ other

**9. Please describe and explain your value proposition: (350 characters)**

**A value proposition is a business or marketing statement that summarizes why a consumer should buy a product or use a service. This statement should convince a potential consumer that one particular product or service will add more value or better solve a problem than other similar offerings. A value proposition can apply to an entire organization, or parts thereof, or customer accounts, or products or services.**

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**10. Your value proposition is a:**

- Product
- Service
- Technology
- Other: \_\_\_\_\_

**11. What would describe your competitive advantage?**

- We are excellent in what we do, because we try to keep on track of new advances and follow international standards regarding our sector.

- Our business model is advanced regarding price, product and delivery, because we have a strong marketing strategy
- We are informed about the market situation and we are a flexible and an adaptable organization, because we are cross-functional.
- Other : \_\_\_\_\_

**12. What are the current benefits that your end-user gain from your value proposition?**

*Please, select two options, if you select "other" as an option just write down the most accurate answer.*

✓	
	Time saving
	Cost saving (e.g. material, operations, logistics)
	Industrial processes improvement (e.g. our system improves production)
	Energy cost saving Renewable energy production (e.g. small or community scale)
	Natural resources protection (e.g. cleaning water systems, improving soil, biomaterials)
	Environmental impact reduction (e.g. CO2 emission reduction, mitigation)
	Sustainable living (e.g. we develop housing systems for food production)
	Climate change awareness (e.g. our technology promotes CC adaptation and mitigation)
	Community engagement (e.g. we collaborate with local organizations)
	We assist the integration of migrants to the society
	We are supporting vulnerable communities in overseas projects
	Other: _____

**13. Do you consider your value proposition innovative?**

- Yes
- No

**14. Why do you consider it innovative? (be spontaneous ten words maximum)**

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**15. Have you presented your value proposition in a contest?**

**If your value proposition has received recognition or special award: e.g. because its novelty, scientific base, original application, unique business model, contribution to the society.**

*If you select "other" as an option, just write down the most accurate answer*

- Yes, it has been awarded – fulfil the table below
- No, it has not yet

Date of award DD/MM/YYYY	Name and category of award/ contest/ recognition	Name of institution/ university/ contest	Local National International Regional	Kind of award (e.g. diploma, certification, prize of 2,000 €/£)

### 16. Value proposition target sector:

Please choose just one sector division and subdivision more suitable.

- Environmental and sustainability consulting /education/training
  - Climate change awareness
  - Sustainable behaviour dissemination
  - Community engagement (e.g. local product consumption, employment)
  - Other: \_\_\_\_\_
  
- Transport
  - Logistics transport efficiency
  - New transport concept
  - An improvement in the transport system
  - Other: \_\_\_\_\_
  
- Energy
  - Consumption reduction
  - Special fuels
  - Use of renewal energy
  - New source of energy
  - Other: \_\_\_\_\_
  
- Food safety
  - Urban agriculture
  - Compost organic waste
  - lifestyle sustainable living (e.g. organic food technologic/systems)
  - Other: \_\_\_\_\_
  
- Waste management
  - Waste to energy production
  - Recycling materials
  - Reduce material
  - Reuse, second chance products
  - Other: \_\_\_\_\_
  
- Construction
  - New materials and techniques
  - New technologies and systems installation
  - Design and development
  - Sustainable housing systems (e.g. recycling rain water)

- Other: \_\_\_\_\_
- Industry
  - Logistics and transport
  - Supplier system control
  - Technologies production
  - New materials for packaging
  - Other: \_\_\_\_\_
- Other: (e.g. green employment) \_\_\_\_\_

**17. Do you have a functional prototype or pilot service?**

Please *chose just one option, if you select "other" as an option just write down the most accurate answer.*

- Yes
  - It is in process to be validated
  - It is in process to be improved
- No
  - However, it has been validated already by someone else.
  - Because, we require financial support to develop it
  - Other \_\_\_\_\_

**18. Does your start-up hold the intellectual property, original authorship or rights /loyalty holder of your value proposition?**

Please *chose just one option, if you select "other" as an option just write down the most accurate answer.*

- Yes, we hold it
- Yes, it is in process of registration
- No, we do not have enough funding to support the costs
- No, it is no necessary to have it almost anyone can develop it
- No, we are licensing/ it is a technology transfer
- Other: \_\_\_\_\_

**19. Size of the Market**

Please, quantify in units and percentage of the following market description

TAM – Total Addressable Market. (The whole market. The potential market)

Number: \_\_\_\_\_

Percentage: \_\_\_\_\_

SAM – Serviceable Available Market. (Reachable market)

Number: \_\_\_\_\_

Percentage: \_\_\_\_\_

SOM – Serviceable Obtainable Market (Share of market divided by SAM)

Number: \_\_\_\_\_

Percentage: \_\_\_\_\_

**20. What is your market vision?**

*Please, select just one option, if you select “other” as an option just write down the most accurate answer.*

- We are focused on working locally in our city to get more experience
- We focus on national market
- We focus on international market
- We are interested in the three previous options

**21. Please provide your best estimate of your company cash flow\*, turnover\*\* and number of employees. For organizations that are currently running their business since 2013.**

**\*Cash flow** is a financial statement that shows how changes in balance sheet accounts and income affect cash and cash equivalents and breaks the analysis down to operating, investing and financing activities.

**\*\*Turnover** is the ratio of annual sales to inventory; or equivalently, the fraction of a year that an average item remains in stock.

**Note: If your start-up does not cover any of these requirements, please go to the next question**

- Our start-up is the newly established company; we do not have this data.
- We have sales since 2013 or/and the following years – fulfill the table below

	2013	2014	2015	2016
<b>Cash flow:</b>				
<b>Turnover:</b>				
<b>Number of employees (permanent and temporary positions)</b>				

**Internal management**

22. Indicate, how likely is your team with each statement by marking the appropriate number and level of likely.

Team relation (1)= Absolutely Team A, (5)= Absolutely Team B

Team A	1	2	3	4	5	Team B
1. (1) Members assignment according to the individuals’ availability and past experience						1.(5) Insist on hiring only those with the best skills, regardless of the individuals’ familiarity with the problem.
2. (1) Fill the team as needed						2.(5) Recruit specialists for each position on the team.

3. (1) Repress individual egos						3.(5) Celebrate individual egos and elicit the best from each team member.
4. Encourage members to get along						4.(5) Encourage members to compete, and create opportunities for solo performance
5. Choose a solution based on consensus						5.(5) Choose a solution based on merit.
6. Assure that efficiency trumps creativity						6.(6) Assure that creativity trumps efficiency
7. We complete critical tasks on time						7.(5) Generate a frequent and rich flow of ideas among team members.
8. Get the project done on time						8.(5) Find and express the breakthrough idea on time
9. Require individual members to complete tasks on their own.						9.(5) Force members into close physical proximity.
10. Allow communication via email, phone, and weekly meetings						10.(5) Force members to work together at a fast pace.
11. Encourage polite conversations						11.(5) Force direct dialogue without sparing feelings.
12. Attempt to reach the broadest possible customer base; appeal to the average						12.(5) Attempt to surprise customers by stretching their expectations; appeal to the sophisticate.
13. Base decisions on established market knowledge.						13.(5) Defy established market knowledge.
14. Affirm common stereotypes.						14.(5) Reject common Stereotypes

### Regarding collaboration in innovation activities during 2013-2015

23. During this period, did your organization take part in innovation activities with other Institutions: Universities, Research Centres/ Associations/ Government?

Collaboration for innovation is an active and independent participation contributing with other institutions/firms/or non-commercial activities. Collaboration and teamwork are similar because they are both characterised by strong linkage and interdependency between members of a group or team. It is not necessary that involved actors have an immediate commercial benefit. This except outsourcing of third part without active cooperation.

**Yes**

**No**

24. Please mark your start-up's level of interest in collaborations for developing innovation with other organizations.

Please mark your start-up's level of interes regarding collaborations for developing innovation with other organizations.

Assess the following options 1= less relevant; 5= high relevant

In short(S), medium (M) or long (L) term respectively.

	1	2	3	4	5	S	M	L
... we want to develop our knowledge regarding our <u>value proposition improvement</u> , e.g. start-up and universities in research about effect of seeding with water stress.								
... we count with high performance in automated systems an interphase communication with and <u>our area</u> could support a new product improvement, e.g. automatize a growing food system.								
... our start-up's <u>activities are complementary</u> with others activities, e.g. harvesting and filtering rain water with green buildings adaptation.								
... our start-up's mission and vision integrate collaboration and innovation, we are opened to work with other organizations to develop a new product, e.g. integration of cooperative services for low carbon transport and delivery of urban agriculture products.								

25. Please mark if your start-up's level of interest in strategic collaborations for developing innovation with other organizations. Please check any case option you consider valuable, write the name possible partner

Assess the following options 1= Less relevant; 5= high relevant

1	2	3	4	5	
					a. Other start-up similar as partner: _____-
					b. Another start-up as supplier chain: equipment, materials, component, software supplier (who): _____/sector _____
					c. Other small and medium firms Who: _____/Sector _____
					d. Industry: who: _____
					e. Competitors and other companies with the same activities: who: _____
					f. Consulters or commercial labs: _____
					g. Government _____
					h. Universities and other education centres: _____
					i. Universities and research centres

26. Which elements are significant reasons to collaborate with others?

Assess the following options 1= less relevant; 5= high relevant:

	1	2	3	4	5
Scientific/technical complementarities					
Financial risk sharing in a specific commercial/ social project					

Know-how sharing, e.g. new product or technology development, experience in new process improvement.						
Trust to the agreement between them and us						
Respect and compromise to each organization						
Organizational flexibility and adaptation to the delivery times.						

25. Which would be your start-up's motives to look for collaboration with other organizations?

- Research Institutions
- Industry

Assess the following options 1= less relevant; 7= high relevant:

	1	2	3	4	5	6	7
1. To launch a new value proposition							
2. To solve a systemic problem such as social issues, e.g. unemployment, promoting social innovation.							
3. To improve our current proposition value							
4. To test a new idea, that require technical/technological complementarity							
5. To reduce systemic risk in the market acceptance of our product							
6. To reduce ethical issues and barriers related to our value proposition							
7. To solve a logistic distribution in our value chain.							
8. Access to financial sources and incentives for innovation							
9. Access to R&D facilities							

26. Please mention in which Incubator or/and accelerator's programs have you taken part?

Incubator/accelerator	Name	Dates	National/international	Which were your benefits e.g. mentoring, training, investment

27. Mention the principal financial support received to develop the start-up

Please, select at least three of these options, if you select "other" as an option just write down the most accurate answer.

Principal(s) Funders	Funder's name person/Institution/association	Amount (€/£)	Date

<input type="checkbox"/> Personal investment <input type="checkbox"/> From Friends and family. <input type="checkbox"/> Bank loan <input type="checkbox"/> International organizations (e.g. World Bank). <input type="checkbox"/> R&D project collaboration with other organizations <input type="checkbox"/> Angel investor <input type="checkbox"/> University start-up's contest <input type="checkbox"/> National start-up's contest <input type="checkbox"/> International start-up contest <input type="checkbox"/> From interested clients <input type="checkbox"/> Other: _____			
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End of the questionnaire

We appreciate so much your time, thank you!

\_\_\_\_\_

Please sign: Name \_\_\_\_\_ Date:  
\_\_\_\_\_ Position \_\_\_\_\_

\_\_\_\_\_