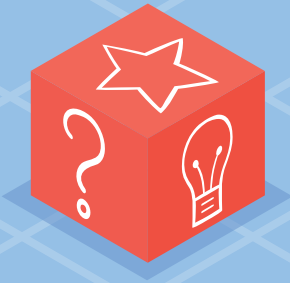from
PLAYER
to
ENTREPRENEUR

Unlocking opportunities for applying games in entrepreneurship and innovation

Rui Patrício
Ana Daniel
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Contents

Preface

This book is about the future of entrepreneurship and innovation education in gamified business and social environments. Entrepreneurship education promotes an entrepreneurial mindset and stimulates skills development beyond business. The impact of this discipline depends on the chosen teaching-learning strategy and methodology, as well as its capacity for effective implementation. In a relevant study on implementing innovative teaching methodologies in entrepreneurship, the authors concluded that "the skills traditionally taught in business schools are essential, but they are not enough to make a successful entrepreneur" [1]. This "need" for new skills challenges finding alternative forms and non-traditional methods for instructors and educational institutions to teach this subject.

Everyone in the education space is eager to test and apply fresh approaches that can motivate educators, students, and professionals to drive entrepreneurship forward. This book argues that game approaches respond to critical, societal, pedagogical, and business changes by providing active learning dynamics and narratives that engage and trigger future entrepreneurs.

The authors of the book are a group of researchers with relevant professional backgrounds in entrepreneurship, innovation, design, and communication (see the short-bios in the next page), involved in a research project, "Design and Game Approaches for Entrepreneurship" under a Grant by the Fundação para a Ciência e Tecnologia (FCT) No. UIDB/DES/00711/2020 to UNIDCOM/IADE – Unidade de Investigação em Design e Comunicação, Lisbon, Portugal. The main reason for writing this book is to provide entrepreneurs, educators, and trainers with actionable tools and guidelines to apply game approaches in entrepreneurship and innovation processes.

To achieve this goal, the authors mapped and systematized background concepts essential to applying games in entrepreneurship and innovation effectively without overlooking the practicalities and the toolset required by educators and entrepreneurs. More than half of the book content was based on publicly available game approaches that everyone can apply. The in-depth research conducted during the "Design and Game Approaches for Entrepreneurship" project made exploring, discovering, and testing many tools possible. The authors overcame information and time constraints to end up with almost 50 games. Nevertheless, this is an ongoing work with many other games to identify, describe and characterize. Co-editing is the key to keeping this book updated, which will be done online with a game factsheet that game creators or users can fill in.

The authors hope readers will be as inspired by the book as they were during their research and writing process. Let us make entrepreneurship an excellent and accessible experience for everyone!

Rui Patrício, PhD

Rui coordinates the Strategic Design and Innovation Lab and the MSc in Marketing and Innovation at IADE. He holds a European Ph.D. in Marketing and Strategy from the University of Aveiro with research mobility at the Design School of the Politecnico di Milano. Before moving to academia, Rui held management roles at leading companies and as a startup founder and entrepreneur.

Connect with Rui:

Ana Daniel, PhD

Ana, currently serving as a Professor of Entrepreneurship at the University of Aveiro, has dedicated the past decade to extensive research in entrepreneurship education and entrepreneurial ecosystems. This commitment has resulted in numerous publications in these domains, accompanied by several entrepreneurship awards recognizing her contributions, particularly in the development of technology-based spin-offs.

Connect with Ana:

Rodolpho Tsvetcoff, MSc

Rodolpho holds a Masters in Marketing and Innovation and is a researcher at UNIDCOM/IADE in education, game approaches, future of work and territorial marketing. Additionally, he is a professional with experience in design and book editing, having worked on projects for various institutions such as Alliance Francaise and the Education Ministry of Brasil.

Connect with Rodolpho:

Yannara Negre, MSc

Yannara holds a Masters in Audiovisual Communication and Multimedia by IADE (2023) with an award as Best Student in Marketing and Communication. Art Director by UNIARA (2016) and bachelor in Cinema and Video by UNESPAR (2014). Researcher at UNIDCOM/IADE, and member of the DGE project (Design and Game-Approaches for Entrepreneurship). She also researches metaverse and cyberculture.

Connect with Yannara:

1

Introduction

Entrepreneurship goes beyond the act of creating companies and is increasingly understood as a mindset or a way of thinking and acting. In this case, entrepreneurship refers to an individual's ability to turn ideas into action, to think creatively and innovatively, to have a proactive attitude and to be able to take risks, as well as to plan and manage projects with the aim of to achieve the objectives proposed[2]. Underlying the teaching of entrepreneurship is the conviction that this is a practice and a discipline and, therefore, capable of being taught[3]. The teaching of entrepreneurship has, therefore, the purpose of "(…) produce graduates who can identify opportunities and developing ventures, through setting up new ventures or developing and growing part of an existing venture. It encourages students to apply enterprising skills and attributes to various contexts, including new or existing businesses, charities, non-governmental organizations, the public sector, and social enterprises"[4].

Despite its relevance, there are several challenges related to entrepreneurship teaching at the various levels of formal education (Figure 1). These have compromised the implementation of new non-traditional teaching methods, where experimentation and practice assume a preponderant role and the teacher acts as a mentor in the learning process[5]. However, these challenges must be considered as opportunities for change and differentiation of educational institutions. In the case of higher education institutions, these have been key players in teaching entrepreneurship, acting as early adopters of many of the new methodologies.
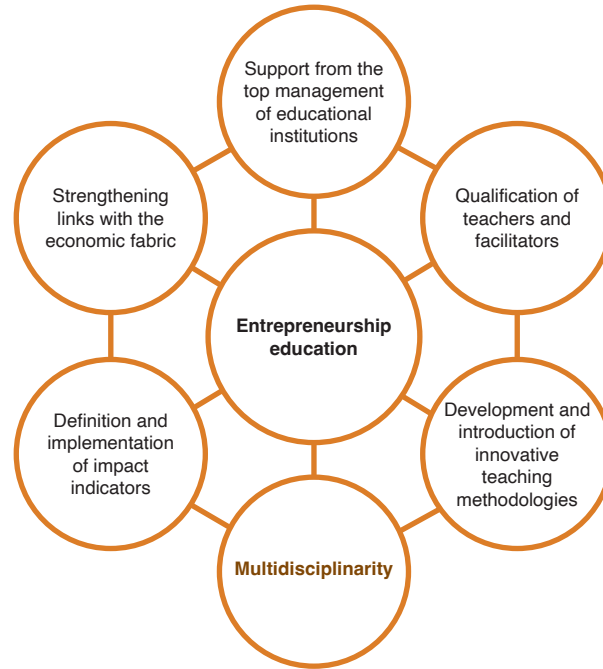
Figure 1 - Success factors in entrepreneurship education
[adapted from Herrmann (2008)].

Transforming the way entrepreneurship is taught is currently a challenge for educational institutions. To this end, it is necessary to develop a strategy involving various stakeholders, from the top management of higher education institutions to teachers and government entities, highlighting the importance of teaching entrepreneurship and promoting the development and implementation of new methodologies of teaching/learning and activities that enhance the creation of an entrepreneurial ecosystem.

2

Understanding the concept of entrepreneurship

While there is a consensus on the significance of entrepreneurship, there is a lack of unanimity when it comes to its precise definition. Entrepreneurship has been subject to various interpretations over time, shaped by the contributions of scholars from diverse fields such as economics and sociology. Consequently, the understanding of entrepreneurship has evolved over time. This has obviously had an impact on what is considered relevant or fundamental in entrepreneurial activity and, therefore, on the syllabus content and pedagogical methodologies considered relevant for teaching the subject. Several authors have even highlighted the great confusion regarding the approaches and the different paradigms related to entrepreneurship teaching, as well as their purposes, methods and learning objectives[6,7,8,9]. This feeling of confusion is easily understood when analyzing the various definitions of entrepreneurship.

While we do not aim to provide an exhaustive analysis of the primary contributions to the semantic evolution of the terms 'entrepreneur' and 'entrepreneurship', it is pertinent to offer a general overview of the etymological changes in the concept of entrepreneurship. Within the scope of economic theory, this term originated in France around the 18th century. The intention was to describe the practice of purchasing goods at established prices and subsequently selling them at prices subject to uncertainty, all while accepting the inherent risks associated with this activity[10]. This definition was proposed by Richard Cantillon in 1730, in his book "Essay on Economic Theory". In turn, Jean Baptiste Say in 1816 considers that the entrepreneur can gather the factors of production to transact products, recover the invested capital, pay wages, interest, rents and make a profit[11]. At the beginning of the

20th century, Joseph Schumpeter, in his book "Theory of Economic Development," defined entrepreneurship as the "process of creating new combinations of factors", as a determining factor of economic growth[12]. This author also proposed that innovative actions can introduce cyclical discontinuities in the economy, originating what he termed "creative destruction" through the introduction of new products, new production methods, new markets and new forms of industrial organization[13]. This idea is also underlying other variations of the concept that emerged later and that interconnect entrepreneurship and the capacity for innovation[14,15].

According to Peter Drucker[16], entrepreneurship's essence lies in the creation of a new company, regardless of its long-term sustainability or profit potential. For Drucker, the mere act of founding a new company suffices to classify an individual as an entrepreneur. This perspective allows us to differentiate entrepreneurship from management activities and resource allocation within established organizations. Although it can be viewed as a simplistic definition, it is linked to the nature of entrepreneurial action: risk, uncertainty, and creativity. According to Peter Druker, the entrepreneur is not an investor because "(…) entrepreneurs innovate. Innovation is the specific instrument of the entrepreneurial spirit. It is the act that allows resources to be given a new capacity to create wealth. (...) In economics, there is no greater resource than creative power. And creative power is the fruit of the innovative entrepreneur"[16]. Also, for Jeffry Timmons[17] entrepreneurship "(…) is the ability to create and build something from practically nothing. (...) It is the ability to detect an opportunity, where others only see chaos, contradiction, and confusion".

Kirzner[18], in turn, argues that the ability to recognize and act on opportunities is a fundamental element of entrepreneurship. This author explains the concept of entrepreneurship as a state of alertness to opportunities and the discovery of previously unknown knowledge. For Krizner, the competitive market and entrepreneurship are inherently linked, as free competition has, in its essence, entrepreneurial capacity. Other authors, such as Penrose[19], Bygrave[20] and S. Shane and Venkataraman[21], also stress that entrepreneurship is the process that involves the activities and actions associated with the identification of opportunities and the creation of the business. Still in this line, Stevenson[22] presents a stricter definition, in which entrepreneurship consists of "(…) the search for opportunities beyond the resources currently controlled".

On the other hand, researchers linked essentially to the areas of psychology and sociology have analyzed the concept of entrepreneurship from an essentially behavioral perspective. This type of concern was initially addressed by David McClelland[23], which associated entrepreneurship with the desire for personal fulfillment, defining the entrepreneur as a person who aspires to success and, to that end, is capable of assuming the inherent risks. Subsequently, several other researchers sought to identify the attributes or characteristics of entrepreneurs that distinguished them from the rest of the population, such as self-confidence, the ability to withstand risk and uncertainty[24,25,26]. Of these, the definition proposed by S.D. Sarasvathy and Venkataraman[27] in which entrepreneurship is "(…) something that reinforces the potential of human nature".

More recently, the concept of entrepreneurship has also been applied in social innovation, which may cover processes and activities not directly related to the market or the creation of companies, but rather to the creation of social value. This gave rise to the emergence of a new "species of entrepreneur. These are entrepreneurs with a social mission"[28], as well as the concept of social entrepreneurship. Although it is worthily intended to distinguish social entrepreneurship as a distinct area of entrepreneurship, there appear to be similarities that show the parenting between the two concepts. For example, like the entrepreneur who identifies and exploits an opportunity to create economic value, the social entrepreneur identifies and acts on opportunities to create social value[29]. Likewise, underlying both concepts is the figure of the entrepreneur, to whom distinctive characteristics are attributed, as they are considered "pioneers of innovation for the benefit of humanity. These change agents seize opportunities (…) with a view to improving systems, inventing new approaches and creating sustainable solutions to change society for the better"[30].

From this discussion, it can be deduced that, given the diversity of perspectives and definitions proposed by various authors, entrepreneurship, due to its multidisciplinary and comprehensive nature, is extremely difficult, or even impossible, to define objectively. Nevertheless, in the context of this book, entrepreneurship involves the creation of a new entity that aims to exploit an opportunity through developing a solution that responds to a market and/or social need.

3

The entrepreneurial process

Entrepreneurship is a complex process involving multiple steps, which may or may not be sequential. Although several models purport to describe this process, they usually comprise a first opportunity recognition/identification phase, followed by an opportunity development phase and, finally, the opportunity exploration phase (Figure 2).

Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service development)

Exploring opportunities
- Attract talent and build the team
- Build partnerships and ecosystems
- Deploy solutions: make the market known and sell
- Finance the venture
- Go-to-market strategy
- Startup and then scale up

Figure 2 - Main phases of the entrepreneurial process.

In the first phase, the entrepreneur seeks to identify a market need that is sufficiently relevant and likely to be suppressed by creating a new product or service. In this case, a market need is nothing more than a problem or a "pain" felt by a group of users or customers. For example, before the emergence of Uber, customers and users of taxis could not, most of the time, control the cost, time, and route of the trip (these can be considered "the pains" of customers). These needs were suppressed when Uber implemented its trip scheduling platform, making this

process more transparent and user-friendly. This phase encompasses several key activities, including the generation and evaluation of business ideas using criteria deemed relevant by the entrepreneur. It also involves an in-depth analysis of the market and the quantification of its attractiveness. Innovation methodologies, such as Design Thinking, in conjunction with the "Jobs to be done" framework, can be effectively applied during this phase to gain a deeper understanding of the motivations, objectives, and evolving needs of current customers and users.

The second phase involves developing a solution that eliminates or lessens the identified need or "pain". This solution can be a new product or service, so gathering human, physical, and financial resources is often necessary to allow prototyping and testing of the solution. Design Thinking and Lean Startup innovation approaches are generally applied at this phase to validate assumptions and learn through interaction with real customers and users. In this case, the solution is co-created with the users, reducing the risks associated with introducing a new product/service in the market. Simultaneously, there is the development of the model and the business plan, which must also be validated from the interaction with the market.

Finally, there follows the opportunity exploration phase, which involves implementing the project by gathering the necessary human and financial resources and implementing phygital marketing strategies, including growth hacking approaches, to win the first customers and promote the growth and sustainability of the new company. Lean Startup can also be applied in this phase.

4

Entrepreneurship education

Can entrepreneurship be taught, or instead, can it be learned? This is a question that has fuelled a broad and long-standing debate. Undoubtedly, education plays an essential role in developing attitudes and promoting skills. This assumption has fostered the proliferation of initiatives and courses to teach entrepreneurship. However, large the offer, its impact is indeed conditioned by elements such as "what?" and "how?". That is, what is taught and how.

Looking at what the practices used in teaching entrepreneurship are today, it is easy to identify that the most common activities involve drawing up business plans, holding lectures with the participation of guest speakers (in particular, entrepreneurs who have created their own companies), the analysis of case studies and the development of entrepreneurial projects. This prevalence of practices is linked to the traditional paradigm of entrepreneurial activity, focused on business creation and innovation. Thus, a current trend is the promotion of entrepreneurship as a daily practice[31] which can cover other aspects that go beyond the creation of companies, such as the development of skills or abilities, of which the capacity for initiative, persuasion, flexibility, creativity, leadership and risk taking stand out, among others[32]. Also Steyaert and Katz[31] underline that in teaching entrepreneurship one should not only have the perspective of creating companies and economic growth, but also the creation of value in a broader sense, through empowerment and personal fulfilment of the individual. Entrepreneurship is thus understood as an activity not just reserved for a restricted group of individuals, with exceptional skills, capable of identifying market opportunities, developing a business plan

appropriately and persuading financiers. A new paradigm places the person at the center of all creation, identification, and action on opportunities, which can occur in various contexts, inside or outside organizations. Entrepreneurship is thus no longer seen as a process in which the input variables and outputs are known, to be considered a method in which the final output is unpredictable[19]. When this perspective incorporates the definition of entrepreneurship, it becomes necessary to define new methodologies for its teaching.

In this sense, a more holistic structure should be considered in terms of the concepts addressed and the scope of entrepreneur's action and their role in the context of established companies, highlighting the concept of intrapreneurship. That is, entrepreneurship within organizations, has been identified as relevant in promoting innovation and competitiveness of organizations.

In terms of methodology, ideally, any practice adopted for teaching entrepreneurship should:

► allow for individual development, either through the acquisition of new skills or through the development of attitudes;

► be based on action and practice;

► be inclusive, in the sense that it should make it possible to relativize the assessment process to the unique condition of each student. For this, it would be necessary to use tools that evaluate ex-ante and ex-post knowledge acquisition.

A context must also be created that promotes creativity, innovation, and the ability to solve problems by thinking outside the box. These methodologies are based on the constructivist perspective, in which the student is autonomous and is responsible for his learning process. The teacher assumes the role of tutor or advisor, guiding and supporting the student. For constructivists, knowledge is the product of interaction with the physical and social environment and intelligence, which is why experimentation and exploration activities are encouraged. Therefore, the emphasis is on interaction and experience, building knowledge through argumentation and collaborative work. The aim is for the student to build internal representations of knowledge, through the personal interpretation of their experiences.

However, when collaboration between students is promoted, this process is greatly enhanced, since the various elements contribute with different perspectives. They can thus contribute to analyzing a problem from different perspectives, negotiating the various options to build a shared solution. In a pedagogical practice with a constructivist orientation, autonomy, interaction, and cooperation are central dimensions.

It should be noted that there is no "universal pedagogical recipe" for teaching entrepreneurship. To achieve success, it is necessary to be able to identify the optimal point between the technical skills to be acquired, the methodologies to be applied and the needs and expectations of the students. There are several pedagogical methods that apply the principles of constructivist theory, game-based approaches being an excellent example.
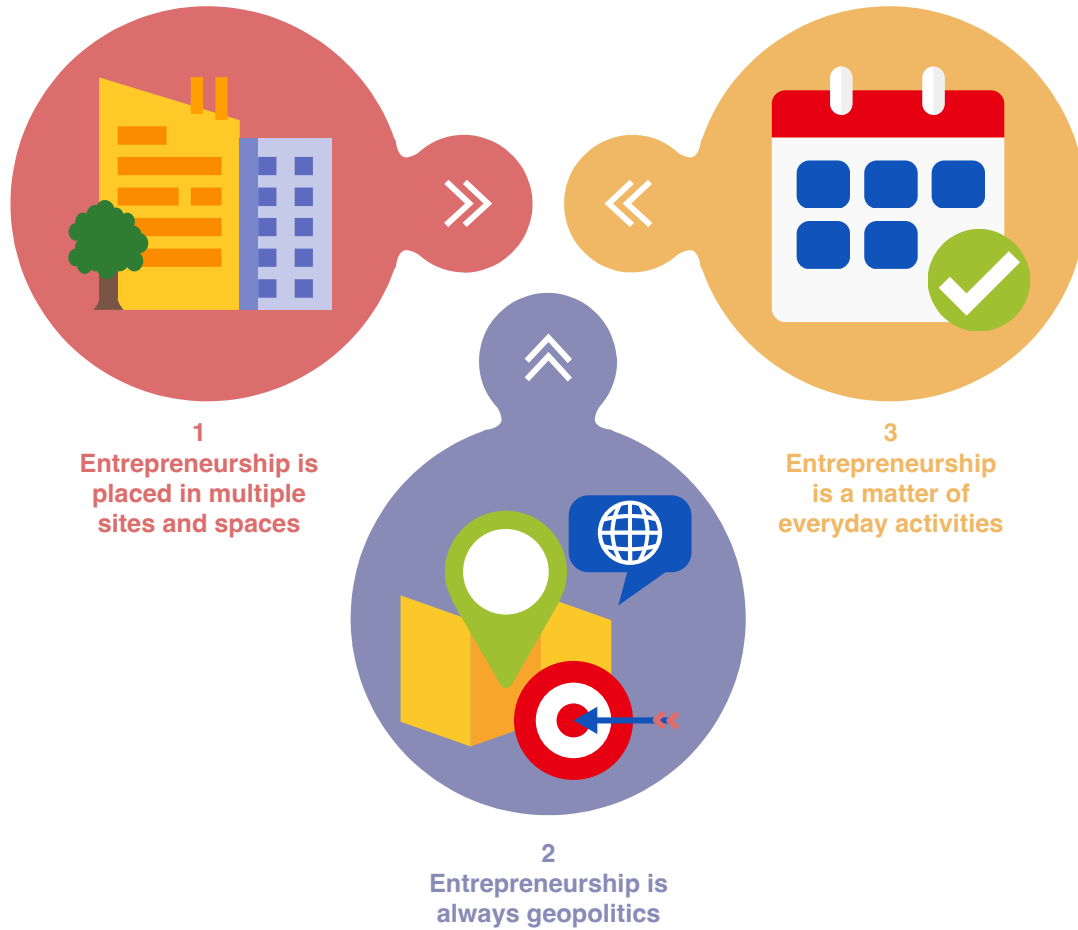
Figure 3 - The conceptual axes of how entrepreneurship emerges
[created from the work of Steyaert, C., & Katz, J. (2004)].

5

The use of games in entrepreneurship

Games motivate people to change their behaviours and achieve the desired goals when it taps into crucial motivational drivers of human behaviour. This is achieved through a balanced mix of reinforcements that can be both extrinsic (i.e., prizes, money, status or fame, points and badges, trophies, fear of failure or punishment, penalties and even progress bars) and intrinsic (i.e., sense of fun and enjoyment, belonging to a group, mastery, purpose in work carried out, learning from an activity, personal achievement or more responsibility, autonomy and power).

The core elements of game approaches are characterized by:

i.   Game dynamics raise significant emotions in the form of recognition, happiness, excitement, competitiveness, and motivation, capable of generating ideas in a fun and constructive environment.

ii. Game mechanics are what drive player involvement and engagement. The most visible mechanics in gamification approaches are challenges, competition, and feedback. Most cases are characterized by questions that require effort to reach solutions (time, skill, and creativity), such as challenges.

iii. Game components involve points or badges. Points are typically given for a specific performance (e.g., reaching a new level in missions or quests) that results in an increase in intrinsic motivation when goals are realistic and challenging. It introduces excitement and competitiveness because a player must win or increase the status to achieve defined game objectives.

Most game approaches have focused on education, social challenges, healthcare, and business processes like marketing, sales, consumer behaviour, and people development.

Given its characteristics, game approaches are particularly relevant to entrepreneurship. The use of game approaches to entrepreneurship may compel the creation of a culture that supports innovative behaviours and capabilities such as creativity, collaboration, experimentation, risk-taking, questioning the status quo and promoting a can-do attitude, and a desire for personal growth and development. Applying games in entrepreneurship often requires underlying assumptions to be challenged and the creation of new methods and tools that bring such values and norms to life through visible and tangible symbols and actions.

The potential of applying game approaches to entrepreneurship is summarized in Figure 4.

Structuring the entrepreneurship and innovation process	• Shaping a culture that supports entrepreneurial and innovative behaviours • Underlining challenge assumptions and influence desirable behaviours among teams • Connecting the dots and generate flash insights for future solutions

Promoting cross contamination with different technologies and knowledge	• Facilitating the engagement of key actors to leverage impact of new technologies and ideas • Managing multi-actors in knowledge creation • Bringing different cognitive obstacles by working against common patterns of thinking

Optimizing the use of resources	• Creating communication processes for the entire entrepreneurship and innovation ecosystem • Using metaphors for business goals to ensure better coordination of multiple partners • Improving knowledge sharing and deployment of collaboration capabilities • Empowering self-management and non-hierarchical teams

Figure 4.

Shaping an entrepreneurship and innovation culture is a decisive outcome of using game approaches. The other significant outcome is entrepreneurship education. Game approaches:

► Help to develop new capabilities and create a different mindset, more open, and innovative thinking. It contributes to promoting debate and accepting opposing viewpoints, taking risks, or cautiously questioning assumptions, explaining things in a different way and collaborating in a more open and engaged manner.

► Address challenges in a more structured manner: helping to easily reach a common conclusion, getting everyone on the same page and acting in the same direction, which will build actionable consensus about the best direction to take.

► Enhance, enrich, and develop ideas. It reduces the time to get good ideas to market or internal implementation by effectively converting ideas into prototypes/working concepts.

► Shape the strengths of teams and identifies hidden talents. It helps to create team spirit in an inspiring and collaborative environment. It also encourages contributions from all players, in a more balanced manner and gaining valuable insights even from the more reserved team members.

Games represent intricate patterns of innovation that engage multiple interdependent players, endure over time, and are characterized by complexity. These games encompass various strategies and rules, necessitating that

firms formulate decisions regarding creativity and innovation to maintain their competitiveness[33]. However, decisions are best developed when employees engage in behaviors achievable within a climate of high trust, where games can significantly enhance relationships and team building[34].

In fact, using games in the workplace can help spread this trust relationship among employees. Games can play a centering role in helping to develop trusting relationships within changes in the workplace that require creativity and innovation, and high trust[34].

Foster new social capabilities and promotes an open and innovative mindset.

Help to easily reach a common conclusion.

Convert ideas into prototypes and enhance the development process.

Uncover hidden talents, and foster an inspiring and collaborative environment to cultivate team spirit.
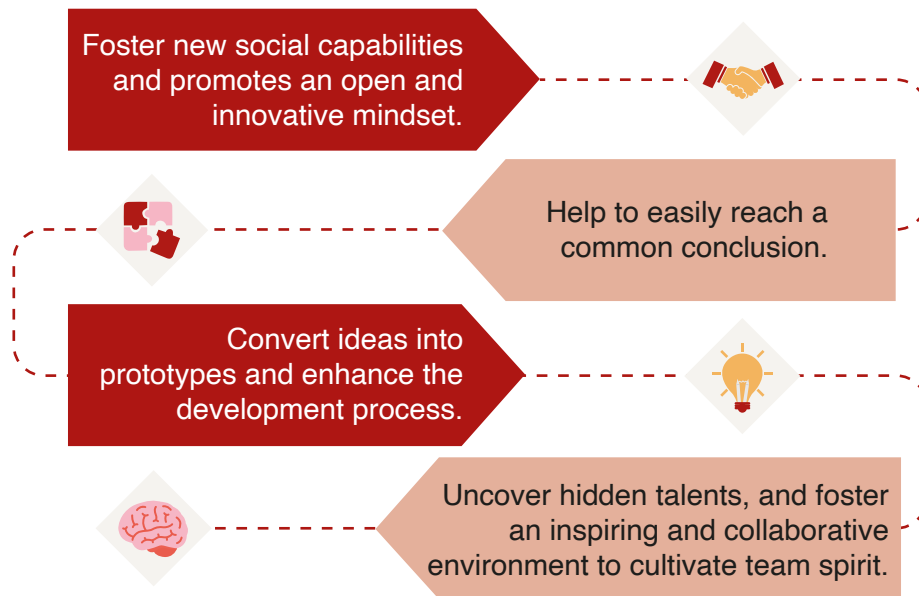
Figure 5 - Game approaches summary.

6

Types and categories of games

Before exploring the potential of available games to support entrepreneurship processes, it is essential to understand what types of games exist and what characteristics differentiate them. This is not an easy task because there are multiple names for game approaches that can be used successfully in entrepreneurship processes and others that add little. As their terms vary greatly, for example, serious games, playful games, ludic games, video games, gamification, and simulation games, it becomes complicated to understand their potential for application, as well as their attributes, functionalities, and alignment with the entrepreneurship process, in its different phases.
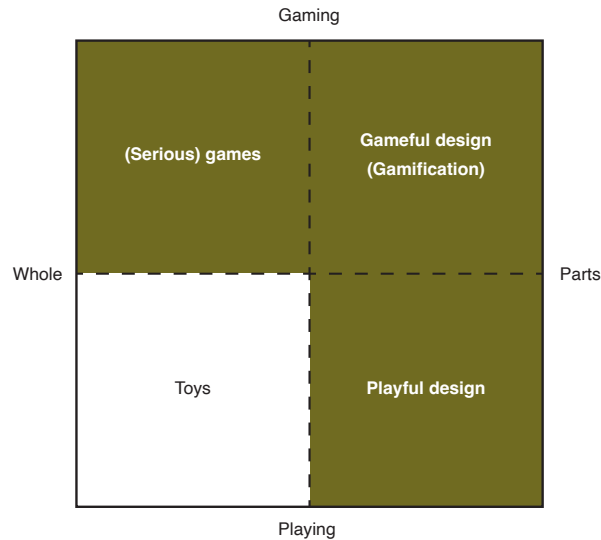
Figure 6 - The three colored spaces refer to the categories of games included in this book. Toys are not featured since they offer a different experience than games. [adapted from Deterding (2011)].

Since there is no convention or unanimity when it comes to designating the type of games for entrepreneurship, we decided to use the research work of Deterding[35] to classify games with the potential to support the various stages of the entrepreneurship process into three categories (see the matrix in figure 6).

This typology results from two dimensions: i) the game's character, more playful or more rule-oriented, and ii) the more or less immersive character of the game. In the first dimension, "gaming" is considered to be a subset of "playing" because, in addition to the voluntary and playful actions of "play," "gaming" implies a set of very explicit rules and objectives to be achieved. In the case of the second dimension, immersion is measured by the number and intensity of game elements (see chapter 8, i.e., game dynamics, mechanics, and components) during their use in the business process, in this case, entrepreneurship.

Based on the matrix, it becomes evident that serious games are those in which users are wholly immersed in the game's rules and components. In such instances, users require ample room or opportunities to engage in tasks associated with the phase and business process where the game is being applied. However, the primary goal is not to immediately master these tasks; rather, it's about cultivating the skills needed to excel in these business activities later on. For instance, this may involve developing team management skills without directly practicing team management, either partially or comprehensively.

It is therefore considered that "gamification" implies that the rules and elements of the game can be applied directly to carrying out a concrete task in the entrepreneurship process of the company or organization where the game is being used.

In the context of "playful design," the underlying principle of "gamification" still holds, but it's applied to the concrete process in a different manner. Here, the focus is not on adhering to explicit rules for its execution. Instead, this type of game allows for a more playful approach, reducing the pressure associated with strict rules or predefined objectives.

In such an extensive universe of games that are available for free or commercially, it was no easy task to map out those that make sense to apply in one or more phases of the entrepreneurship process. To arrive at the 50 or so games presented in this book, a method was developed consisting of the following phases:

1. Characterization of the entrepreneurial phase: The characteristics of the stages of entrepreneurship (presented in chapter 3) were compared with the attributes and functionalities offered by a considerable number of games, oriented towards the business world and applications around education, mapped throughout extensive research. To facilitate this comparison, generative artificial intelligence was used to define the evaluation criteria for the mapped games (see games assessment checklist).

2. Characterization of the game category and available format (analog, digital, or phygital) using the classification resulting from the matrix.

Many of the games selected were not explicitly designed for entrepreneurship but incorporated features that respond to needs expressed during one or more phases of this process. All the chosen games have value because of their possible application to a business process. This also differentiates them from other games whose value is mere "entertainment."

For instance, there could be business games that primarily emphasize financial aspects but still have relevance in the "finance the venture" phase. Conversely, there are games that provide a broader set of features, encompassing multiple stages of entrepreneurship. The goal is to enable the reader to readily select and employ one or more games that suit their specific needs at various points in the process. What's more critical than simply being aware of these tools is acquiring the knowledge of how to effectively utilize them.
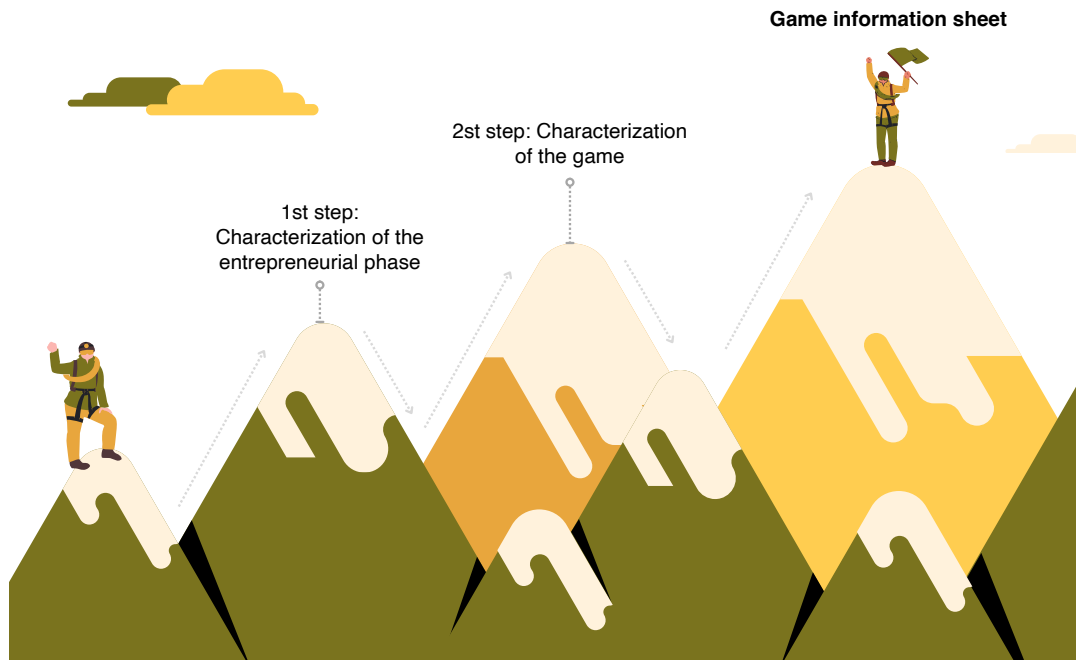
Figure 7.

7

Games assessment checklist

Reasons to use a checklist

The following checklist is critical to identify how a game can support the different pahses and processes of the entrepreneurial process (mentioned in [chapter 3](#)). It can aid those interesed in identifying how games can be useful for entrepreneurship education.

Stage 1

Identifying opportunities

Forecast future demand

- ▶ Does the game simulate market trends and allow players to predict demand for their products or services?
- ▶ Are there mechanisms in place to analyze and interpret market data?

Recognize and shape opportunities

- ▶ Does the game allow players to identify and seize potential business opportunities in the market?
- ▶ Can players make decisions that influence the direction of their ventures?

Analyze the market

▶   Does the game offer tools or mechanisms for players to analyze the in-game market?

▶   Can players gather market research data, assess competition, and make well-informed decisions based on the information gathered?

Generate ideas (products, services, and business models)

▶   Does the game encourage players to develop innovative product, service, or business model ideas?

▶   Are there features that stimulate creativity and provide players with options for experimentation?

Evaluate ideas

▶   Does the game provide a mechanism for players to evaluate their ideas' viability and potential success?

▶   Can players assess their concepts' feasibility, market fit, and profitability?

Stage 2

Developing opportunities

Evaluate the target market

► Does the game allow players to assess and understand their target market?

► Can players identify their target audience's needs, preferences, and behavior within the game's context?

Develop business plan and business models

► Does the game require players to create a comprehensive business model or plan for their virtual venture?

► Are there features that guide players through outlining their goals, strategies, and financial projections?

Create concepts (more elaborated ideas)

► Does the game enable players to develop their initial ideas into more detailed concepts?

► Based on feedback or new insights, can players refine their products, services, or business models?

Prototype and validate concepts

▸ Does the game offer a mechanism for players to create and test prototypes of their ideas within the virtual market?

▸ Can players gather feedback, iterate on their concepts, and validate their assumptions?

Develop and deploy solutions (new product / service deployment)

▸ Does the game allow players to develop and implement their solutions within the virtual market?

▸ Can players navigate the process of production, distribution, and sales?

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Stage 3

Exploring opportunities

Attract talent and build the team

► Does the game allow players to recruit and manage a team within their virtual startup?

► Can players consider factors such as team dynamics, skills, and roles?

Build partnerships and ecosystems

► Does the game facilitate forming partnerships and collaborations between players' startups?

► Can players establish relationships with other in-game entities to leverage resources, networks, or expertise?

Deploy solutions: Make the market known and sell

► Does the game simulate the process of marketing and selling products or services within the virtual market?

► Can players develop promotional strategies, manage advertising campaigns, and attract customers?

Finance the venture

▶ Does the game incorporate financial management, such as budgeting, funding, and investment decisions?

▶ Can players secure capital, manage cash flow, and make financial projections?

Go-to-market strategy

▶ Does the game require players to develop a go-to-market strategy for their products or services?

▶ Can players identify distribution channels, pricing models, and promotional tactics?

Startup and then Scale-up

▶ Does the game simulate the startup journey, starting from a small operation and allowing players to scale up their ventures?

▶ Can players expand their market presence, increase their production capacity, and grow their business?

8

How to develop a new educational game?

Sebastian Deterding published an article in 2015, entitled "The Lens of Intrinsic Skill Atoms: A Method for Gameful Design", which provides an actionable contribution to game development (see Figure 8). Although it does not cover all aspects of game development, it provides an easy and comprehensive way of starting this process and acknowledging the significant requirements and resources.

According to Deterding[36], "A skill atom describes a feedback loop between the user and system that is organized around a central challenge or skill: A user acts, which forms an input into the system's rule engine that determines state changes of its tokens, which get put out as feedback to the user, which she integrates into her mental model of the system. Through repeated interaction—multiple run-throughs of the atom—the user masters its skill: training hand–eye coordination, understanding the rules, and so on".
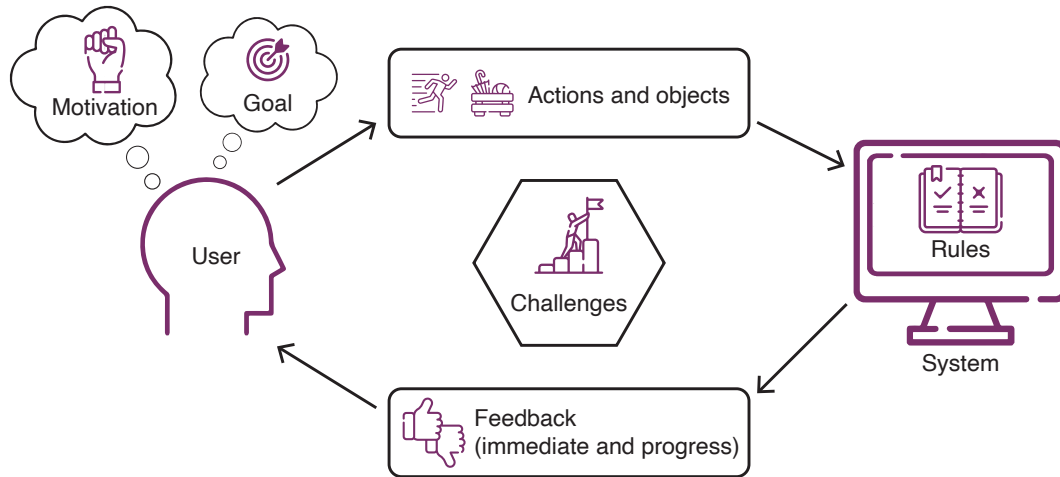
Figure 8 - The Skill Atom Components method [adapted from Deterding (2015)].

Skill Atom Components

▶ **Goals:** The system states the user attempts to achieve. The system typically explicitly suggests goals but must be actively pursued by the user to be goals.

▶ **Actions:** What the user can do to approach their goals.

▶ **Objects:** Entities the user acts upon; their configuration embodies the system state.

▶ **Rules:** Specifications what actions the user can take and how they affect the system state. These may be algorithms, humanly enacted rules, physical laws, or a combination thereof.

▶ **Feedback:** Sensory information that informs the user of system state changes resulting from their actions or autonomous system processes; entails immediate feedback on each action and progress feedback on the user's accumulated progress.

▶ **Challenge:** The perceived challenge of achieving the user's current goal, posed by the current system state relative to the user's perceived skill.

▶ **Motivation:** The psychological needs energize and direct the user to seek out and (continue to) engage with the system – typically competence.

The Skill Atom Components method [adapted from Deterding (2015)].

Deterding[36], provides the example of chess, where "the goal is to deliver a checkmate to an opponent. The actions are moving the users' figures on the game board (objects). The rules specify which figures a user can move when, how, and how this affects the game state (a pawn being exchanged for a queen, etc.). The user receives feedback by changing figure positions on the board. The inherent challenge of chess is choosing the move that will put the user in the most advantageous position toward checkmating their opponent, assessing different strategies, and predicting likely countermoves by the opponent. The motivation is typically competence needs satisfaction.

The skill atom model was applied to the development of an innovation game, ideaGardener, that already has more than 150 users in academia and will have a commercial version coming soon[37]. ideaGardener was created by two design-innovation researchers, Rui Patrício and Zhieng Zhang, to address the need for remote innovation co-design methods and tools.

ideaGardener is a gamified system based on creative problem-solving and human-centered design, which allows new ideas and concepts (new products, services, or business models) to be developed in a virtual space. This new approach allows users to work individually and as a team to develop new solutions to meet business and social innovation challenges.

ideaGardener is a modular system comprising five games that address different objectives while developing new solutions (see Figure 9). This gamified virtual space is prepared to support challenges posed to online or remote teams (made up of 3 to 5 players). It can be used entirely online or complemented by

face-to-face collaboration formats (for example, replacing synchronous virtual workshops with real-time face-to-face workshops), face-to-face discussion, and other consensus-building mechanisms.
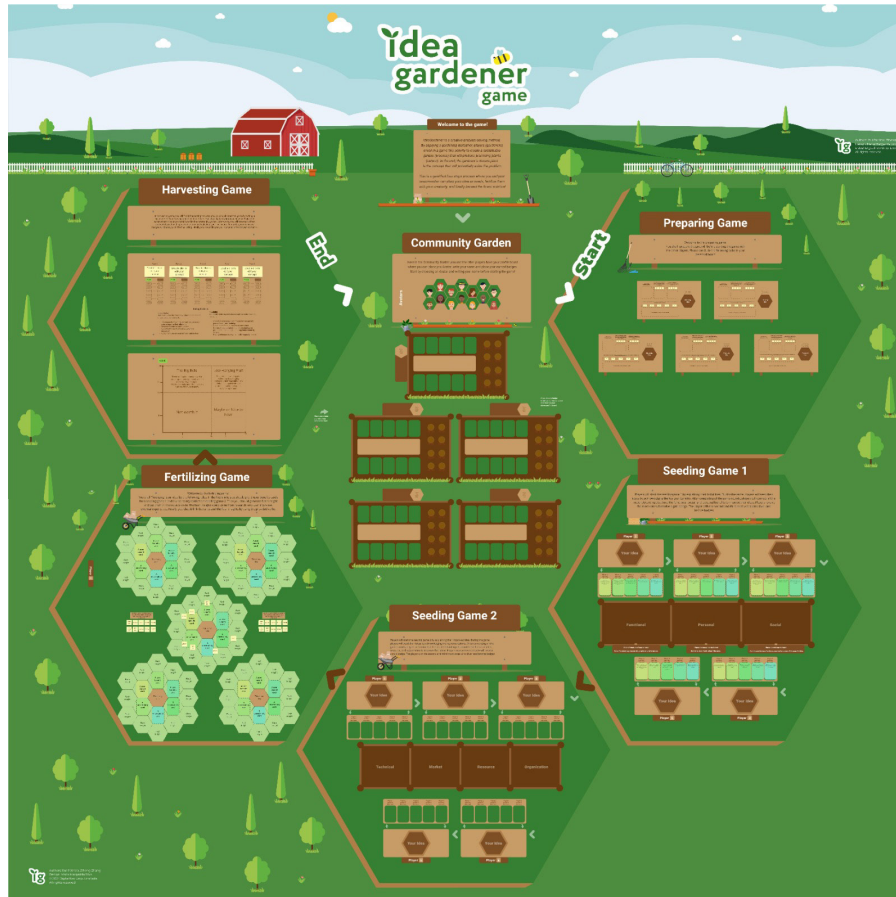
Figure 9 - ideaGardener. Game design by Rui Patrício and Ziheng Zhang.
© 2022 Digitalflow Unip. Limitada. All rights reserved.

Applying a gardening metaphor to the innovation process, players (gardeners) sign up for a game-like process to create promising solutions (plants). This framework provides a structured process for "preparing", "seeding" and finally "harvesting" the promising solutions. In the end, one of the solutions (plants chosen by the gardeners) will be able to meet the challenge. The chosen solution is the concept (most elaborate idea) resulting from the consensual decisions of the players from each team.

Mechanics-Dynamics-Aesthetics (MDA) framework helps to understand how to design and develop games. It demonstrates the mechanics, dynamics, and aesthetics of the ideaGardener game, explaining the system rules and how they relate to each other and influence the overall player's experience.

Mechanics

There are various mechanics throughout the game, for example, various groups of cards with questions that require knowledge, experience, and creativity to answer; competition between players supported by the system and peer evaluation criteria; in parallel, cooperation forces players to join to obtain the best solutions; there are also different rewards for players who have achieved different goals.

Dynamics

The "gardening" metaphor and the game scenario inspire a comprehensive and coherent understanding of the innovation process and its critical problems. The question cards challenge players to give answers within a pre-defined time limit and encourage the exchange and sharing of knowledge, such as improving your concepts by exchanging cards with others' answers; according to the rules,

players depend on each other's contribution to give the best possible shape to the solution they are developing. Peer evaluations invoke the desire to win, recognition, happiness, and creativity, among other aspects determining the players' motivation and game dynamic.

Aesthetics

The visual environment and the avatars that the players can use emphasize the metaphor of "gardening"; the visual presentation of the cards with questions guides, provides an engaging narrative that integrates the players' contributions; the rating points show the players' performance and progress; the badges provide visual representations of the players' performance.

▸ **Fantasy:** ideaGardener introduces a fantasy world where gardening is a metaphor for the innovation process.

▸ **Avatar:** the customizable avatars provided to players are a virtual representation of themselves.

▸ **Points and badges:** after each task, players will receive the votes of others as gardener points. The simple mechanism consists of awarding badges to players who get enough points, while badges can increase players' final points, thus increasing their chances of winning.

▸ **Leaderboards:** according to their final points, the players and their most elaborated concepts will be placed in a "priority matrix" ("not worth it", "nice to have", "the big bets", "low hanging fruit"), where the concepts placed in the "low-hanging fruits" area will be the game winners.

Figure 10 illustrates how ideaGardner applied the Skill Atom Components method.

THE USER ATTEMPTS TO ACTIVELY ACHIEVE PROMISING CONCEPTS (PLANTS) THAT RESPOND TO THE ORGANIZATIONAL CHALLENGE BY CREATING A SUSTAINABLE GARDEN THAT MATCHES WHAT THE RULES EXPLICITLY SUGGEST AS GOALS.

THE USER INDIVIDUALLY RESEARCHES, COLLECTS DATA, AND EXCHANGES VIEWS AND INSIGHTS WITH OTHER PLAYERS TO ACHIEVE GOALS. GAME LEVELS AND COMMUNITY GARDEN EXPRESS THE SYSTEM STATE AND THE TYPE OF CHOICES THE USER MUST MAKE.

Goal

Actions and objects

User

Challenges

Rules

System

Motivation

Feedback (immediate and progress)

THE NEEDS THAT ENERGIZE AND DIRECT THE USER TO CONTINUE ENGAGING WITH THE SYSTEM ARE FUNDAMENTALLY AUTONOMY (I.E., GAME MODULE RULES INCREASE A PARTICIPANT'S OPTIONS AND CHOICES, SUCH AS FOCUSING ON BIG BETS OR MORE BREAKTHROUGH SOLUTIONS), COMPETENCE (I.E., RECEIVING POSITIVE FEEDBACK AFTER GAME MODULES) AND RELATEDNESS (I.E., BEING CONNECTED TO A SUSTAINABLE WAY OF DRIVING INNOVATION FORWARD).

THE USER FACES SEVERAL CHALLENGES, E.G., QUESTIONS FROM CARD DECKS REQUIRING PERSONAL SKILLS AND KNOWLEDGE FROM THE SYSTEM STATE.

THE USER RECEIVES CLEAR AND SEQUENTIAL INSTRUCTIONS FOR PLAYING THE GAME MODULES AND ENVISIONS HOW THEY AFFECT THE SYSTEM STATE.

THE USER RECEIVES INFORMATION FROM THE SYSTEM STATE CHANGES RESULTING FROM ACTIONS IN THE FORM OF POINTS AND BADGES, ILLUSTRATING THE USER'S ACCUMULATED PROGRESS AND ENGAGEMENT LOOP IN THE LEADERBOARD.

Figure 10 - The Skill Atom Components method applied to the ideaGardener game [adapted from Deterding (2015)].

The user aims to achieve promising concepts (plants) that respond to the organizational challenge. The actions are completing the game board modules, which require collecting data and exchanging views and insights with their peers. The rules specify the level of concept detail and comprehensiveness the user must achieve based on the building blocks of the innovation process. The user receives feedback by improving and pitching the idea over time. The inherent challenge is the skills and knowledge required to individually develop an idea and, in parallel, assess the other players in developing their ideas. The motivation is to feel part of a sustainable innovation collaborative effort to create promising solutions that address organizational challenges.

Figure 11 - Badges from ideaGardener.

9

Game approaches

In this chapter there is a list of games that support entrepreneurship education. It does not intend to provide a selection or endorsement of any game approaches. Since this is a preliminary match, it is subject to a more detailed analysis based on information provided by the game creators and its use in concrete cases and feedback from our readers. All the information displayed was taken from the game website public information.

Games information sheet

Each game information sheet has the same layout. It features some images of the same ifself. The following basic information:

- ▶ **Format:** if the game is digital, physical or phygital (hybrid/mixed).
- ▶ **Language(s):** in which language(s) the game is available.
- ▶ **Game category(ies):** it can be a serious game, gamification, playful design, etc.
- ▶ **Country of origin:** where the game comes from.
- ▶ **Game access:** how the game is accessed, purchased and played.
- ▶ **Contact(s):** ways to get in touch with the game creators or distributors.

Each game is also catalogued according to its potential to be used as a learning tool of each of the phases and processes framework of the entrepreneurial process.

Figure 12 below displays how each section of the game information sheet is structured visually and where each of the fields are located. It can be read in a single page of double page view.
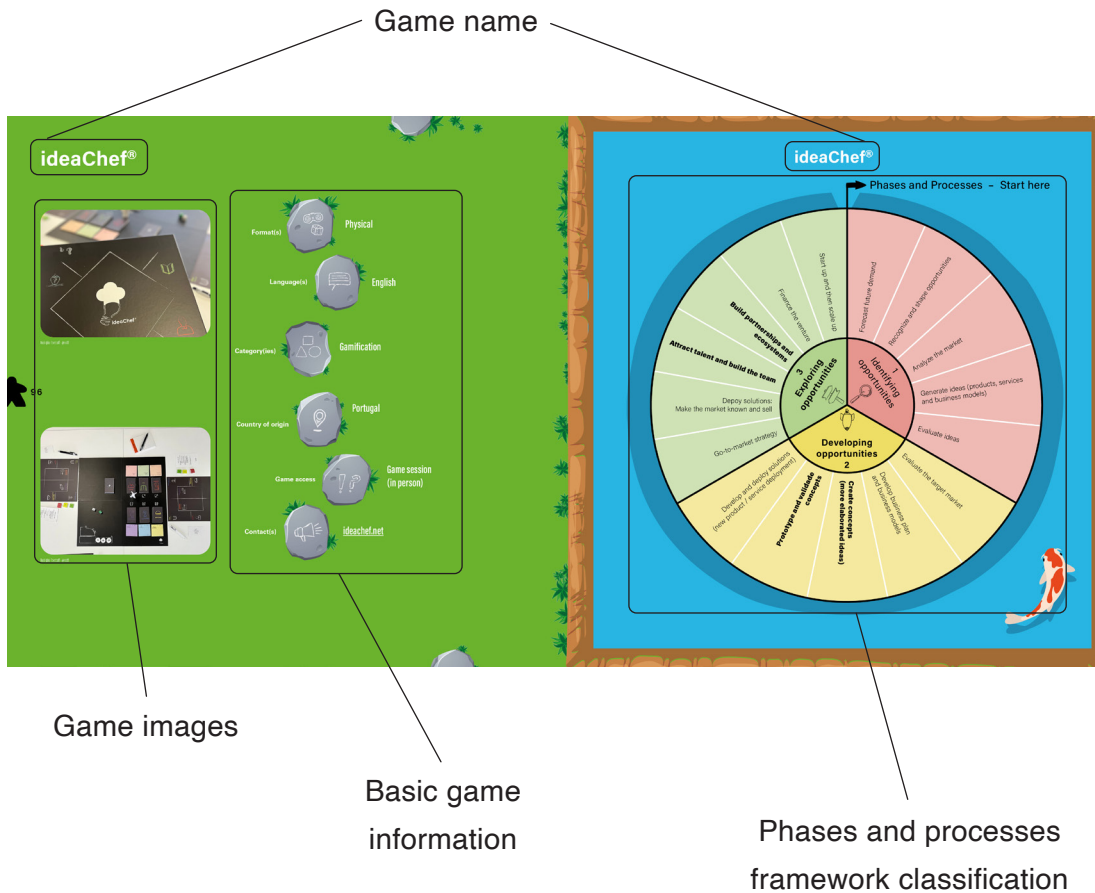
Figure 12.

The games in the following pages are a initial compilation and the authors wish to enrich this list and keep it updated. If you wish to contribute, you can add games by clicking on the buttom below or scan the qr code on the side and fill the form. The authors greatly appreciate your contribution!

Click here to acess and fill the form

1. What is your name, company name or institution where you are affiliated?

   _____

2. What is the name of your game approach?

   _____

3. What is your game approach format?
   ☐ Analog (card game, board game, etc.)
   ☐ Digital (video game, mobile app, etc.)
   ☐ Phygital or hybrid (has physical and digital components)

4. In which language(s) is your game approach available?

   _____

5. How is your game approach accessed?
   ☐ It is free   ☐ One-time payment   ☐ Subscription service

6. How can we find more information about the game approach?
   (please list websites, social media profiles, e-mail addresses, etc.)

   _____

7. For which entrepreneurial process(es) is your game approach suited?
   ☐ To forecast future demand
   ☐ To recognize and to shape opportunities

- ☐ To analyze the market
- ☐ To generate ideas
- ☐ To evaluate ideas
- ☐ To develop business models
- ☐ To evaluate the target market
- ☐ To develop business plan
- ☐ To create concepts (products, services, processes)
- ☐ To prototype and to validate concepts
- ☐ To develop and to deploy solutions
- ☐ To go-to-market strategy
- ☐ To deploy solutions: Make the market known and sell
- ☐ To attract talent and to build the team
- ☐ To build partnerships and ecosystems
- ☐ To finance the venture
- ☐ To startup and then to scale up

8. Are there complementary game approaches that might be used before and/ or after this game? If so, please list them below.

   _____

9. Please, provide an abstract of your game approach (up to 2.000 characters. Please include the year of release, country of origin, number of players, playtime, designers, creators, publisher, and affiliated institution, among other information).

   _____

10. Please, provide links for downloading rich media material about your game approach, such as photos and YouTube videos.

   _____

Binnakle®

68

Format(s) — Physical or Digital

Language(s) — English / Spanish

Category(ies) — Serious game

Country of origin — Spain

Game access — Game session (online or in person)

Contact(s) — www.binnakle.com/en/

Binnakle®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

CELEMI® Apples & Oranges®

https://celemi.com/apples-oranges-digital-and-face-2-face/

https://celemi.com/apples-oranges-digital-and-face-2-face/

Format(s) — Physical or Digital

Language(s) — Chinese / English / French / German (among other undisclosed languages)

Category(ies) — Serious game

Country of origin — Sweden

Game access — Game session (online or in person)

Contact(s) — celemi.com/apples-oranges-digital-and-face-2-face/
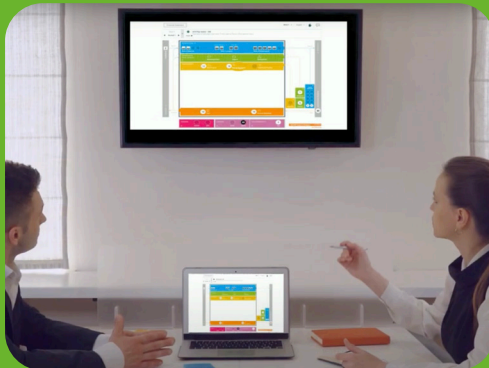
CELEMI Apples & Oranges®

Phases and Processes – Start here

1 Identifying opportunities

- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities

- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities

- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- **Finance the venture**
- Start up and then scale up

Cesim Global Challenge®

https://www.cesim.com/simulations/cesim-global-challenge-international-business-strategy-simulation-game

https://www.cesim.com/simulations/cesim-global-challenge-international-business-strategy-simulation-game

72

Format(s) — Digital

Language(s) — Dutch / English / Finnish / French / Italian / Mandarin Chinese / Portuguese / Romanian / Serbian / Spanish

Category(ies) — Playful Design

Country of origin — Finland

Game access — Request a demo via authorized facilitadors

Contact(s) — cesim.com/simulations/cesim-global-challenge-international-business-strategy-simulation-game
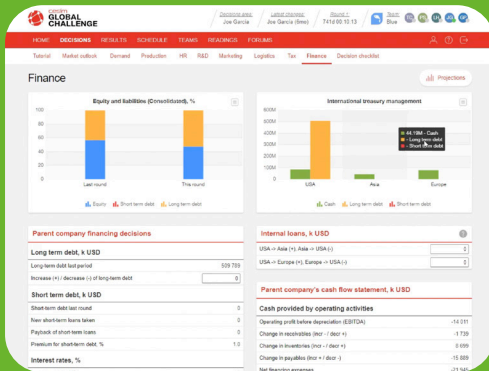
Cesim Global Challenge®

Phases and Processes – Start here

Phase 1 – Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Phase 2 – Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

Phase 3 – Exploring opportunities
- Start up and then scale up
- Finance the venture
- Build partnerships and ecosystems
- Attract talent and build the team
- Deploy solutions: Make the market known and sell
- Go-to-market strategy

Cícero®

https://befirst.it/img/cicero-deck-product.webp

https://befirst.it/img/befirst-cicero-deck-on-table.webp

Format(s) — Physical

Language(s) — English / French / Italian / Spanish

Category(ies) — Playful Design

Country of origin — Italy

Game access — Buy the game online

Contact(s) — cicerodeck.com/

Cícero®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Entrepreneur Essentials®

https://www.wttg.net/wp-content/uploads/2018/06/Game-Board-ENTREPRENEUR-ESSENTIALS-center-crop-1.jpg

https://www.wttg.net/wp-content/uploads/2018/06/learning-games-slider-2.jpg

Format(s) — Physical

Language(s) — English

Category(ies) — Serious Game

Country of origin — United States

Game access — Buy the game online

Contact(s) — www.wttg.net/product/entrepreneur-essentials-version/

Entrepreneur Essentials®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Start up and then scale up
- Finance the venture
- Build partnerships and ecosystems
- Attract talent and build the team
- Deploy solutions: Make the market known and sell
- Go-to-market strategy

Entrepreneurship Game®

https://interactive.wharton.upenn.edu/academic/entrepreneurship-game/

https://interactive.wharton.upenn.edu/academic/entrepreneurship-game/

Format(s) — Digital

Language(s) — English

Category(ies) — Serious Game

Country of origin — United States

Game access — Has to became a certified instructor, prices are qouted after registration

Contact(s) — interactive.wharton.upenn.edu/academic/ entrepreneurship-game/
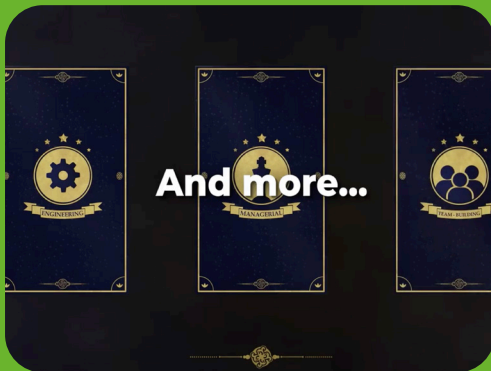
Entrepreneurship Game®

Phases and Processes – Start here

1 Identifying opportunities

- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities

- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities

- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

eTeam Building®

80

Format(s) — Physical or Digital

Language(s) — Site is in English, but games are not language dependent

Category(ies) — Playful Design

Country of origin — Romania

Game access — Learn for free online

Contact(s) — www.eteambuilding.org

eTeam Building®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Fabula Cards®

https://befiat.it/img/landing-cards.jpg

https://befiat.it/img/home-assets.png

Format(s)	Physical
Language(s)	English / French / Italian / Spanish
Category(ies)	Playful Design
Country of origin	Italy
Game access	Buy the game online
Contact(s)	fabuladeck.com

Fabula Cards®

Phases and Processes – Start here

3 Exploring opportunities

- Start up and then scale up
- Finance the venture
- Build partnerships and ecosystems
- Attract talent and build the team
- Deploy solutions: Make the market known and sell
- **Go-to-market strategy**

1 Identifying opportunities

- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2

- Develop and deploy solutions (new product / service deployment)
- Prototype and validate concepts
- **Create concepts (more elaborated ideas)**
- Develop business plan and business models
- Evaluate the target market

Fizzinity®

https://fizzinity.nl/en/prospectus/

84

https://fizzinity.nl/en/prospectus/

Format(s) — Physical, Digital or Phydital

Language(s) — English

Category(ies) — Serious Game

Country of origin — Netherlands

Game access — Buy the game online

Contact(s) — fizzinity.nl/en/

Fizzinity®

Phases and Processes – Start here

1 Identifying opportunities

- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2

- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities

- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- **Attract talent and build the team**
- **Build partnerships and ecosystems**
- Finance the venture
- Start up and then scale up

FLIGBY®

86

Format(s)   Digital

Language(s)   English

Category(ies)   Playful Design

Country of origin   United States

Game access   Buy the game online

Contact(s)   fligby.com

FLIGBY®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Freshbiz®

88

Format(s) — Physical

Language(s) — English

Category(ies) — Gamification

Country of origin — United States

Game access — Buy the game online (game + certification)

Contact(s) — freshbizgame.com

Freshbiz®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Game Changer®

https://import.cdn.thinkific.com/502916sNou4g2lQAKz3uHN6iN4p_game_changer2.jpg

https://import.cdn.thinkific.com/502916Wx6QNiP5Ge4bF2Cdiva_gamechanger5_SMALL.jpg

Format(s) — Physical

Language(s) — English / Spanish

Category(ies) — Serious Game

Country of origin — United States

Game access — Buy the game online

Contact(s) — online.unschools.co/courses/game-changer-game

Game Changer®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- **Generate ideas (products, services and business models)**
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Hot Shot Business®

https://www.numuki.com/game/hot-shot-business/

92

https://www.numuki.com/game/hot-shot-business/

Format(s) — Digital

Language(s) — English

Category(ies) — Serious Game
Needs to be modded from the game itself.

Country of origin — United States

Game access — Free to play online

Contact(s) — numuki.com/game/hot-shot-business/
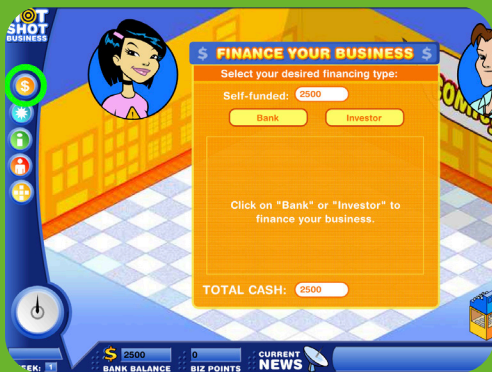
Hot Shot Business®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Start up and then scale up
- Finance the venture
- Build partnerships and ecosystems
- Attract talent and build the team
- Deploy solutions: Make the market known and sell
- Go-to-market strategy

ideaChef®

Rodolpho Tavetcovff - @rodtf

Rodolpho Tavetcovff - @rodtf

Format(s) — Physical

Language(s) — English

Category(ies) — Gamification

Country of origin — Portugal

Game access — Game session (in person)

Contact(s) — ideachef.net

ideaChef®

Phases and Processes – Start here

A circular wheel diagram divided into three main phases:

1 Identifying opportunities (pink section)
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2 (yellow section)
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities (green section)
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Ideku Innovation Tool®

https://dokument.tips/documents/innovation-tool-ideku.html?page=1

https://dokument.tips/documents/innovation-tool-ideku.html?page=2

Format(s)	Physical
Language(s)	English
Category(ies)	Playful Design
Country of origin	Germany
Game access	Buy the game online
Contact(s)	finnkollerup.com/methods_tools/ideku-process/

Ideku Innovation Tool®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- **Generate ideas (products, services and business models)**
- Evaluate ideas

2 Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Innovate!®

98

Format(s) — Physical

Language(s) — English

Category(ies) — Playful Design

Country of origin — United Kingdom

Game access — Free to download and print

Contact(s) — nesta.org.uk/feature/innovate-policymakers-board-game/

Innovate!®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Intùiti Creative Cards®

https://belinit.it/img/landing-intuiti.png

100

https://belinit.it/img/answer.jpeg

Format(s) — Physical

Language(s) — English / French / Italian / Spanish

Category(ies) — Playful Design

Country of origin — Italy

Game access — Buy the game online

Contact(s) — intuiti.it

Intùiti Creative Cards®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- **Generate ideas (products, services and business models)**
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Ixplora®

102

Format(s) — Digital

Language(s) — Dutch / English

Category(ies) — Playful Design

Country of origin — Netherlands

Game access — Buy the game online
In person session
(possibility to schedule a free demo)

Contact(s) — incontext.nl/en/ixplora/

Ixplora®

Phases and Processes – Start here

1 Identifying opportunities
- Recognize and shape opportunities
  - Forecast future demand
- Analyze the market
  - Generate ideas (products, services and business models)
  - Evaluate ideas

2 Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

L'année de l'innovation®

https://innovation-way.com/wp-content/uploads/2023/03/IW_offre_2023.pdf

http://innovation-way.com/wp-content/uploads/2022/03/IW_2022_catalogue_produits.pdf

Format(s) — Physical

Language(s) — English / French / Italian / Spanish

Category(ies) — Serious game

Country of origin — France

Game access — Buy the online game
Training programs available

Contact(s) — innovation-way.com/serious-game/

L'année de l'innovation®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Leap - The Business Model Game®

https://www.businessmodelgame.com/en/entrepreneurship-game

https://www.businessmodelgame.com/en/business-game

Format(s) — Physical

Language(s) — Danish / Dutch / English / French / German / Italian / Norwegian / Spanish / Swedish

Category(ies) — Playful Design

Country of origin — Denmark

Game access — Buy the online game

Contact(s) — businessmodelgame.com/en/home

Leap - The Business Model Game®

Phases and Processes – Start here

Identifying opportunities 1
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- **Develop business plan and business models**
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

Exploring opportunities 3
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Lego® Serious Play®

https://cdn-sf-live.slegnodn.com/is/image/LEGO/2000414?scl=1.7&op_sharpen=1

Format(s)	Physical
Language(s)	No language depedency
Category(ies)	Playful Design Modded from Lego bricks
Country of origin	Denmark
Game access	Buy the online game
Contact(s)	lego.com/pt-pt/themes/serious-play

https://seriousplay.community/mexico/wp-content/uploads/2019/05/img-serious-play-metodologiacapa3.jpg

Lego Serious Play®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

LinkXs®

110

Format(s) — Physical or Digital

Language(s) — Dutch / English

Category(ies) — Playful Design

Country of origin — Netherlands

Game access — Buy the game online
In person session
(possibility to schedule a free demo)

Contact(s) — incontext.nl/en/linkxs/

LinkXs®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Method Kits®

https://methodkit.com/wp-content/uploads/2020/03/hero-kit-1000x912.jpg

https://methodkit.com/wp-content/uploads/2020/08/all-kits-v4.png

Format(s)	Physical
Language(s)	English
Category(ies)	Playful Design
Country of origin	Sweden
Game access	Buy through the online store
Contact(s)	methodkit.com/kits/

Method Kits®

Phases and Processes – Start here

1 Identifying opportunities

- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- **Generate ideas (products, services and business models)**
- Evaluate ideas

Developing opportunities 2

- Evaluate the target market
- **Develop business plan and business models**
- **Create concepts (more elaborated ideas)**
- **Prototype and validate concepts**
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities

- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- **Build partnerships and ecosystems**
- Finance the venture
- **Start up and then scale up**

Mind Matters®

https://www.txchange.nl/mind-matters/

https://www.txchange.nl/wp-content/uploads/2018/09/small-office.png

Format(s)	Digital
Language(s)	English
Category(ies)	Serious Game
Country of origin	Netherlands
Game access	Buy the game online
Contact(s)	txchange.nl/mind-matters/

Mind Matters®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Mindset cards®

https://venturelab.org/wp-content/uploads/2020/08/Printable-Mindset-Cards-1024x1024.jpg

https://venturelab.org/forms/download-mindset-card-printable/

Format(s)	Physical
Language(s)	English
Category(ies)	Playful Design
Country of origin	United States
Game access	Download for free - PnP
Contact(s)	venturelab.org/mindset-cards/

Mindset cards®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Mintlab game®

https://soc.kuleuven.be/mintlab/blog/wp-content/uploads/2015/09/bord-overzicht-1200x628.jpg

https://soc.kuleuven.be/cei/blog/wp-content/uploads/2015/09/kaarten-300x200.jpg

Format(s) — Physical

Language(s) — German

Category(ies) — Playful Design, modded from the Game of Goose

Country of origin — Belgium

Game access — In person session

Contact(s) — soc.kuleuven.be/mintlab/blog/news/using-board-games-for-ideation-in-aorta/

Mintlab game®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Mount Everest®

https://forio.com/img/store/gfx/everest.png

120

https://forio.com/img/store/gfx/everest.png

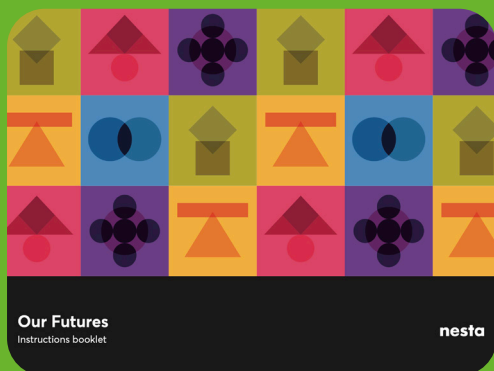|	
Format(s)	Digital
Language(s)	English
Category(ies)	Serious Game
Country of origin	United States
Game access	Buy the game throught the sales representative
Contact(s)	forio.com/store/harvard-everest-leadership-teamwork-simulation/

Mount Everest®

Center segments:

3 Exploring opportunities

1 Identifying opportunities

Developing opportunities 2

Segment 1 – Identifying opportunities:
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Segment 2 – Developing opportunities:
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

Segment 3 – Exploring opportunities:
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Our Futures®

Our Futures
Instructions booklet
nesta

122

Technologies	Technologies	Technologies
Digital twins	**Privacy enhancing technologies**	**Lab grown food**
A virtual version of a living thing or object that might be used to understand how it works or to make predictions about its behaviour.	Technologies that can mitigate security and privacy risks.	Food grown in a laboratory rather than through traditional agriculture.
4D printing	**Digital assistants**	**Ubiquitous computing**
3D printing with materials that can change their properties over time such as when exposed to heat or water.	A computer programme that helps people e.g. by answering questions or assisting with certain tasks.	The wireless communication and networking technologies behind Smart Homes and the Internet of Things.

Format(s) — Physical

Language(s) — English
Free to translate to other languages

Category(ies) — Gamification. Free to adapt.

Country of origin — United Kingdom

Game access — Free to download and print

Contact(s) — nesta.org.uk/feature/our-futures/

Our Futures®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Play Rethink®

124

Format(s)	Physical
Language(s)	English
Category(ies)	Playful Design
Country of origin	United Kingdom
Game access	Delivery to UK ONLY
Contact(s)	playrethink.com/

Play Rethink®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- **Generate ideas (products, services and business models)**
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Playground for entrepreneurs®

https://playgroundforentrepreneurs.com/wp-content/uploads/2021/10/Playground-cards.jpg

https://playgroundforentrepreneurs.com/wp-content/uploads/2021/10/Playground-gameboard-3.jpg

Format(s)	Physical
Language(s)	English
Category(ies)	Playful Design
Country of origin	United Kingdom
Game access	Delivery to UK ONLY
Contact(s)	playgroundforentrepreneurs.com/entrepreneurship-game/

Playground for entrepreneurs®

Phases and Processes – Start here

1 Identifying opportunities
- Recognize and shape opportunities
  - Forecast future demand
- Analyze the market
  - Generate ideas (products, services and business models)
  - Evaluate ideas

Developing opportunities 2
- Develop business plan and business models
  - Evaluate the target market
  - Create concepts (more elaborated ideas)
  - Prototype and validate concepts
  - Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Playing Lean®

Format(s)   Physical

Language(s)   English

Category(ies)   Serious Game

Country of origin   Norway

Game access   Buy at the online store (there is a trainning session to became a facilitator)

Contact(s)   playinglean.com/

Playing Lean®

Phases and Processes – Start here

3 Exploring opportunities
- Start up and then scale up
- Finance the venture
- Build partnerships and ecosystems
- Attract talent and build the team
- Deploy solutions: Make the market known and sell
- Go-to-market strategy

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities
- Develop and deploy solutions (new product / service deployment)
- Prototype and validate concepts
- Create concepts (more elaborated ideas)
- Develop business plan and business models
- Evaluate the target market

Service Sandbox®

130

Format(s)	Physical
Language(s)	English
Category(ies)	Playful Design
Country of origin	Finland
Game access	Download for free - PnP
Contact(s)	servicesandbox.net
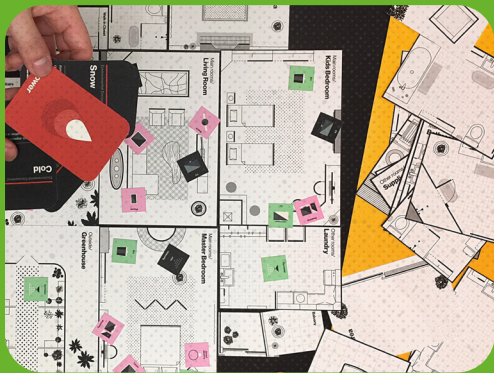
Service Sandbox®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- **Generate ideas (products, services and business models)**
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- **Create concepts (more elaborated ideas)**
- **Prototype and validate concepts**
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- **Attract talent and build the team**
- **Build partnerships and ecosystems**
- Finance the venture
- Start up and then scale up

Side Hustle®

132

Format(s)   Physical

Language(s)   English

Category(ies)   Playful Design, needs to be modded from the game itself

Country of origin   United States

Game access   Buy at the online store

Contact(s)   playsidehustle.com

Side Hustle®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Start up and then scale up
- Finance the venture
- Build partnerships and ecosystems
- Attract talent and build the team
- Deploy solutions: Make the market known and sell
- Go-to-market strategy

Sim Venture®

134

Format(s) — Digital

Language(s) — English

Category(ies) — Serious Game

Country of origin — United Kingdom

Game access — Subscription or license purchase

Contact(s) — simventure.com/

Sim Venture® (SimVenture Validate and SimVenture Classic)

Phases and Processes – Start here

3 Exploring opportunities
- Start up and then scale up
- Finance the venture
- Build partnerships and ecosystems
- Attract talent and build the team
- Deploy solutions: Make the market known and sell
- Go-to-market strategy

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

Simcompanies®

https://c0fxy898i8z6u.cloudfront.net/static/images/screenshots/playground-1.png

https://www.simcompanies.com/en/cyclopedia/0/resource/3/

Format(s) — Digital

Language(s) — English

Category(ies) — Serious Game

Country of origin — Czech Republic

Game access — Free to play online

Contact(s) — simcompanies.com/
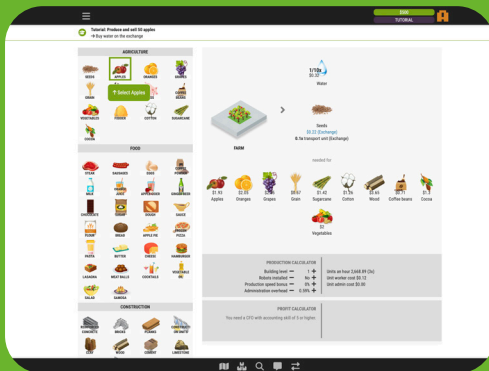
Simcompanies®

Phases and Processes – Start here

Forecast future demand

Recognize and shape opportunities

Analyze the market

Generate ideas (products, services and business models)

Evaluate ideas

Evaluate the target market

Develop business plan and business models

Create concepts (more elaborated ideas)

Prototype and validate concepts

Develop and deploy solutions (new product / service deployment)

Go-to-market strategy

Deploy solutions: Make the market known and sell

Attract talent and build the team

Build partnerships and ecosystems

Finance the venture

Start up and then scale up

3 Exploring opportunities

1 Identifying opportunities

Developing opportunities 2

Startup Company®

https://www.startupcompanygame.com/images/logo.png

138

https://www.startupcompanygame.com/StartupCompanyPresskit/screenshots/website.jpg/V1

Format(s) — Digital

Language(s) — English

Category(ies) — Serious Game

Country of origin — Denmark

Game access — Buy the game online

Contact(s) — startupcompanygame.com/
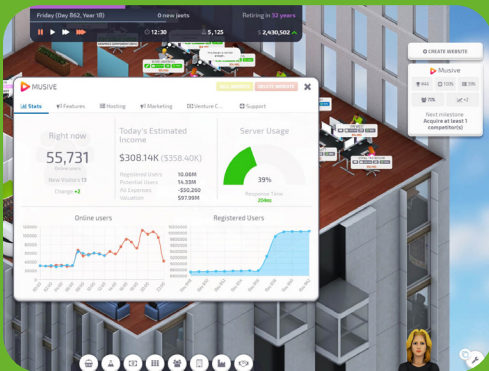
Startup Company®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities

Go-to-market strategy
- Deploy solutions: Make the market known and sell

Finance the venture
- Attract talent and build the team
- Build partnerships and ecosystems

Start up and then scale up

Startup Mundi®

140

Format(s) — Physical, Digital or Phydital

Language(s) — English / Portuguese

Category(ies) — Serious Game

Country of origin — Brasil

Game access — Game session (online or in person)
In-company license

Contact(s) — startupmundi.com/pt-br

Startup Mundi®

Phases and Processes – Start here

1 Identifying opportunities

- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities

- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities

- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

Story Cubes®

142

Format(s) — Physical

Language(s) — No language depedency

Category(ies) — Playful Design, needs to be modded from the game itself

Country of origin — France

Game access — Buy the game comercially

Contact(s) — storycubes.com/en/

Story Cubes®

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- **Generate ideas (products, services and business models)**
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

TeamUP®

https://b2608108.smushcdn.com/2608108/wp-content/uploads/2021/11/Mock-up-Feedback-challenge-2.png?lossy=0&strip=1&webp=1

https://incontext.nl/en/teamup/

Format(s) — Digital

Language(s) — Dutch / English

Category(ies) — Playful Design

Country of origin — Netherlands

Game access — Buy the game online
In person session
(possibility to schedule a free demo)

Contact(s) — incontext.nl/en/teamup/

TeamUP®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

The Sims® - Open to Business® (expansion pack)

https://www.ea.com/pt-br/games/the-sims/the-sims-4/store/addons/the-sims-4-get-to-work

Format(s) Digital

Language(s) Chinese / Czech / Danish / Dutch / English / Finnish / French / German / Italian / Japanese / Korean / Norwegian / Polish / Portuguese / Russian / Spanish / Swedish

Category(ies) Serious Game, needs to be modded from the game itself

146

Country of origin United States

Game access Buy the game online

https://www.ea.com/pt-br/games/the-sims/the-sims-4/store/addons/the-sims-4-get-to-work

Contact(s) ea.com/pt-br/games/the-sims/the-sims-4/store/addons/the-sims-4-get-to-work

The Sims - Open to Business® (expansion pack)

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
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2 Developing opportunities
- Evaluate the target market
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- Create concepts (more elaborated ideas)
- Prototype and validate concepts
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3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

The Ultimate Brainstorm Kit®

https://myndflo.com/cdn/shop/products/BrainstormKitcontents_1500x.jpg?v=1646864390

https://myndflo.com/cdn/shop/products/Workshopwithwhiteboardsheetsonotesandposthapellfestyle_1500x.jpg?v=1646864390

Format(s)	Physical
Language(s)	English
Category(ies)	Playful Design
Country of origin	United Kingdom
Game access	Buy the game online
Contact(s)	myndflo.com/products/brainstorm-kit-new-and-improved

The Ultimate Brainstorm Kit®

Phases and Processes – Start here

1 Identifying opportunities

- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- **Generate ideas (products, services and business models)**
- Evaluate ideas

2 Developing opportunities

- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities

- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

TOPSIM®

TOP**SIM**®– STARTUP

150

Foundation Tool
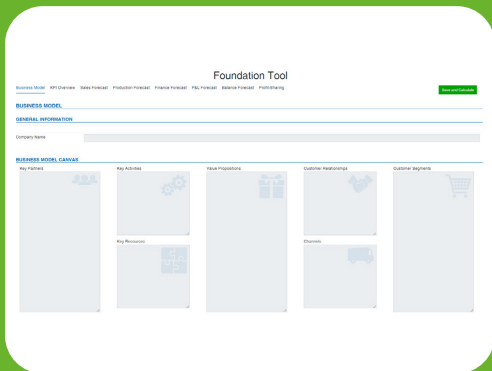
Format(s) — Digital

Language(s) — English / German

Category(ies) — Serious Game

Country of origin — Germany

Game access — Subscribe online
One-time seminar license

Contact(s) — topsim.com/en/education-solutions/

TOPSIM®

Phases and Processes – Start here

Identifying opportunities 1
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

Exploring opportunities 3
- Start up and then scale up
- Finance the venture
- Build partnerships and ecosystems
- Attract talent and build the team
- **Deploy solutions: Make the market known and sell**
- **Go-to-market strategy**

WakeUpBrain®

152

Format(s) — Physical

Language(s) — Arabic / English / Spanish

Category(ies) — Playful Design

Country of origin — Colombia

Game access — In person session
Authorized facilitators

Contact(s) — academy.wakeupbrain.com/en/
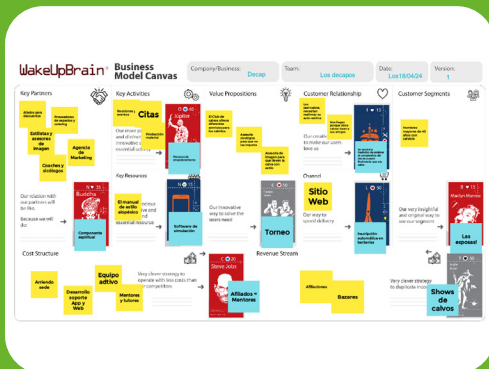
WakeUpBrain®

Phases and Processes – Start here

Start up and then scale up

Finance the venture

Build partnerships and ecosystems

Attract talent and build the team

Deploy solutions:
Make the market known and sell

Go-to-market strategy

3 Exploring opportunities

1 Identifying opportunities

Forecast future demand

Recognize and shape opportunities

Analyze the market

Generate ideas (products, services and business models)

Evaluate ideas

Developing opportunities 2

Develop and deploy solutions (new product / service deployment)

Prototype and validate concepts

Create concepts (more elaborated ideas)

Develop business plan and business models

Evaluate the target market

What's your point?®

Format(s) — Physical

Language(s) — English

Category(ies) — Playful Design, needs to be modded from the game itself

Country of origin — United States

Game access — Buy the game online

Contact(s) — speechlessinc.com/games

What's your point?®

Phases and Processes – Start here
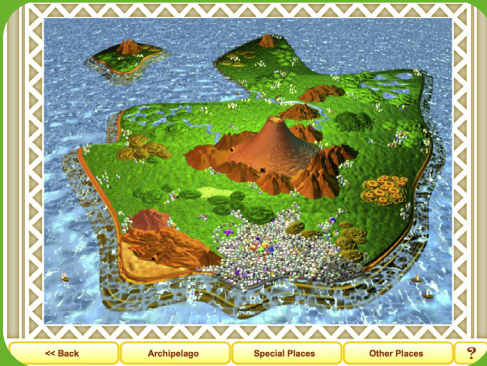
1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

Developing opportunities 2
Create concepts (more elaborated ideas)
- Evaluate the target market
- Develop business plan and business models
- Develop and deploy solutions (new product / service deployment)
- Prototype and validate concepts

3 Exploring opportunities
Go-to-market strategy
- Start up and then scale up
- Finance the venture
- Build partnerships and ecosystems
- Attract talent and build the team
- Deploy solutions: Make the market known and sell

Zapitalism®

156

Format(s) — Digital

Language(s) — English

Category(ies) — Serious Game

Country of origin — United States

Game access — Buy the game online
Buy educational guides

Contact(s) — lavamind.com/games/zapitalism/

Zapitalism®

Phases and Processes – Start here

1 Identifying opportunities
- Forecast future demand
- Recognize and shape opportunities
- Analyze the market
- Generate ideas (products, services and business models)
- Evaluate ideas

2 Developing opportunities
- Evaluate the target market
- Develop business plan and business models
- Create concepts (more elaborated ideas)
- Prototype and validate concepts
- Develop and deploy solutions (new product / service deployment)

3 Exploring opportunities
- Go-to-market strategy
- Deploy solutions: Make the market known and sell
- Attract talent and build the team
- Build partnerships and ecosystems
- Finance the venture
- Start up and then scale up

The following pages present the games that fit into each entrepreneurship phase. This is helpful for those interested in quickly visualizing which games are in each category.

1 Identifying opportunities

Forecast future demand

Cesim Global Challenge®

Our Futures®

Recognize and shape opportunities

Binnakle®

Freshbiz®

Ixplora®

L'année de l'innovation®

Lego® Serious Play®

Playground for entrepreneurs®

WakeUpBrain®

Analyze the market

Binnakle®

Cesim Global Challenge®

Freshbiz®

Ixplora®

L'année de l'innovation®

Playground for entrepreneurs®

Generate ideas (products, services and business models)

Binnakle®

Freshbiz®

Game Changer®

Ideku Innovation tool®

Intùiti Creative Cards®

L'année de l'innovation®

Lego® Serious Play®

Method Kits®

Mintlab game®

Play Rethink®

Service Sandbox®

Story Cubes®

The Ultimate Brainstorm Kit®

Evaluate ideas

Binnakle®

Freshbiz®

WakeUpBrain®

2 Developing opportunities

Evaluate the target market

–

Develop business plan and business models

Freshbiz®

L'année de l'innovation®

Leap - The Business Model Game®

Method Kits®

Playground for entrepreneurs®

Create concepts (more elaborated ideas)

Binnakle®

Fabula Cards®

Freshbiz®

ideaChef®

L'année de l'innovation®

Method Kits®

Service Sandbox®

WakeUpBrain®

What's your point?®

Prototype and validate concepts

Binnakle®   ideaChef®   L'année de l'innovation®

Lego® Serious Play®   Method Kits®

Service Sandbox®   WakeUpBrain®

Develop and deploy solutions
(new product / service deployment)

Binnakle®

3 Exploring opportunities

Go-to-market strategy

Binnakle®

Cesim Global Challenge®

Cícero®

Entrepreneur Essentials®

Entrepreneurship Game®

Fabula Cards®

Hot Shot Business®

L'année de l'innovation®

Playing Lean®

Side Hustle®

Sim Venture®

Startup Company®

Startup Mundi®

The Sims® - Open to Business®

TOPSIM®

What's your point?®

Zapitalism®

Deploy solutions: Make the market known and sell

Binnakle®

Cesim Global Challenge®

Entrepreneur Essentials®

Entrepreneurship Game®

FLIGBY®

Hot Shot Business®

L'année de l'innovation®

Playing Lean®

Side Hustle®

Sim Venture®

Startup Mundi®

The Sims® - Open to Business®

TOPSIM®

Zapitalism®

Attract talent and build the team

Binnakle®   Cícero®   Cesim Global Challenge®

Entrepreneur Essentials®   Entrepreneurship Game®   eTeam Building®

Fizzinity®   FLIGBY®   Hot Shot Business®   ideaChef®   Ixplora®

Lego® Serious Play®   LinkXs®   Mind Matters®   Mindset cards®

Mount Everest®   Service Sandbox®   Sim Venture®   Startup Mundi®

TeamUP®   The Sims® - Open to Business®   WakeUpBrain®   Zapitalism®   **163**

Build partnerships and ecosystems

Binnakle®
Entrepreneur Essentials®
Entrepreneurship Game®
Fizzinity®

Hot Shot Business®
ideaChef®
Innovate!®
Ixplora®
L'année de l'innovation®

Method Kits®
Playing Lean®
Service Sandbox®
Sim Venture®

Startup Mundi®
The Sims® - Open to Business®
WakeUpBrain®

Zapitalism®

Finance the venture

CELEMI® Apples & Oranges®
Cesim Global Challenge®

Entrepreneur Essentials®
Entrepreneurship Game®
Hot Shot Business®

Playing Lean®
Side Hustle®
Sim Venture®
Simcompanies®

Startup Company®
Startup Mundi®
The Sims® - Open to Business®

TOPSIM®
Zapitalism®

Start up and then scale up

Cesim Global Challenge®

Entrepreneur Essentials®

Entrepreneurship Game®

Hot Shot Business®

Method Kits®

Playing Lean®

Side Hustle®

Sim Venture®

Startup Company®

Startup Mundi®

The Sims® - Open to Business®

TOPSIM®

Zapitalism®

The following two pages present the selected games in table format. It provides a bird's-eye view of all the games and their respective phases of the entrepreneurial process. It helps to identify how many, and which games are available in each phase. Furthermore, it highlights the gaps and opportunities to develop new games. Hyperlinks for more information are available for all the games.

		Binnakle®	CELEMI® Apples & Oranges®	Cesim Global Challenge®	Cicero®	Entrepreneur Essentials®	Entrepreneurship Game®	eTeam Building®	Fabula Cards®	Fizzinity®	FLIGBY®	Freshbiz®	Game Changer®	Hot Shot Business®	ideaChef®	Ideku Innovation Tool®	Innovate!®	Intùiti Creative Cards®	Ixplora®	L'année de l'innovation®	Leap - The Business Model Game®	Lego® Serious Play®	LinkXs®
1 Identifying opportunities	**Forecast future demand**			★																			
	Recognize and shape opportunities	★										★							★	★		★	
	Analyze the market	★		★								★							★	★			
	Generate ideas (products, services and business models)	★										★	★			★		★	★			★	
	Evaluate ideas	★										★											
2 Developing opportunities	**Evaluate the target market**																						
	Develop business plan and models											★							★	★			
	Create concepts (more elaborated ideas)	★							★			★			★				★				
	Prototype and validate concepts	★													★				★			★	
	Develop and deploy solutions (new product / service deployment)	★																					
3 Exploring opportunities	**Go-to-market strategy**	★		★	★	★	★		★			★							★				
	Deploy solutions: Make the market known and sell	★		★		★	★				★	★							★				
	Attract talent and build the team	★		★	★	★	★	★		★	★	★	★						★			★	★
	Build partnerships and ecosystems	★				★	★			★		★	★				★		★	★			
	Finance the venture		★	★		★	★					★											
	Start up and then scale up			★		★	★					★											

	Activity	Method Kits®	Mind Matters®	Mindset cards®	Mintlab game®	Mount Everest®	Our Futures®	Play Rethink®	Playground for entrepreneurs®	Playing Lean®	Service Sandbox®	Side Hustle®	Sim Venture®	Simcompanies®	Startup Company®	Startup Mundi®	Story Cubes®	TeamUP®	The Sims® – Open to Business®	The Ultimate Brainstorm Kit®	TOPSIM®	WakeUpBrain®	What's your point?®	Zapitalism®
1 Identifying opportunities	Forecast future demand						●																	
	Recognize and shape opportunities								●													●		
	Analyze the market								●															
	Generate ideas (products, services and business models)	●			●			●			●						●			●				
	Evaluate ideas																					●		
2 Developing opportunities	Evaluate the target market																							
	Develop business plan and models	●							●															
	Create concepts (more elaborated ideas)	●									●											●	●	
	Prototype and validate concepts	●									●											●		
	Develop and deploy solutions (new product / service deployment)																							
3 Exploring opportunities	Go-to-market strategy									●		●	●		●	●			●		●		●	●
	Deploy solutions: Make the market known and sell									●		●	●		●				●		●			●
	Attract talent and build the team		●	●	●					●		●			●				●	●				●
	Build partnerships and ecosystems	●								●		●	●		●				●		●			●
	Finance the venture									●		●	●	●	●	●			●		●			●
	Start up and then scale up	●								●		●	●		●	●			●		●			●

Acknowledgments

This book is the result of multiple people coming together and joining forces. Our effort in writing this book is to deliver the most optimal content for you to design and deploy games for a successful entrepreneurship education experience. We wish you all the best in your future educational and entrepreneurial endeavours and we truly appreciate your time in reading this book.

We want this book to be just the beginning of your journey and we wish to transform this project into a co-creation space. If you wish to contribute, you can follow the link to fill out the form on . You can also reach us by clicking on our contact info under our pictures on .

Additionally, we want to leave you with some recommendations for books and websites where you can find more information about the topics covered in this book.

Other resources

Gamestorming: A Playbook for Innovators, Rulebreakers, and Changemakers (2010), by Dave Gray, Sunni Brown and James Macanufo
gamestorming.com/blog/

Serious Games at Work - Tom Grant Blog
seriousgamesatwork.org/category/business-problems/ideation/

Innovation Games: Creating Breakthrough Products Through Collaborative Play (2006), by Luke Hohmann
barnesandnoble.com/w/innovation-games-luke-hohmann/1100834995

The Thiagi Group
thiagi.com/resources

Gamification for Business: Why Innovators and Changemakers Use Games to Break Down Silos, Drive Engagement and Build Trust (2018), by Sune Gudiksen and Jake Inlove
amazon.com.be/-/en/Sune-Gudiksen/dp/0749487836

Gamification for Innovators and Entrepreneurs: Using Games to Drive Innovation and Facilitate Learning (2022), by Henning Breuer, John Bessant and Sune Gudiksen
doi.org/10.1515/9783110725582

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"Building on top of the last ten years of innovation games, the book From player to Entrepreneur focuses entirely on the application of games and playful designs in entrepreneurship processes. It has the potential to become a primer for those interested in how to educate and train entrepreneurship. The book is a quick read, easy to understand and visually well-crafted resulting in a practical handbook relevant for researchers, teachers and trainers who would like to be inspired by and use games in entrepreneurial education. Packed with typologies and game examples in conjunction with entrepreneurial development stages, it will be simple for the reader to get started using existing games and find the motivation to develop new ones."

Sune Gudiksen

Associate Professor in Strategic Design and Innovation Management at Design School Kolding, Denmark

"This engaging book provides an insightful exploration into the application of game approaches within entrepreneurship education. The authors argues convincingly for the potential of games to cultivate an entrepreneurial mindset, encourage skill development beyond traditional business competencies, and foster innovative behaviors. It builds on the authors' years of research and practical application, presenting an array of games designed to simulate real-world entrepreneurial challenges. I found it particularly meaningful in demonstrating how games can be effectively integrated into entrepreneurship education to enhance creativity, collaboration, and problem-solving skills. The authors, recognized for their expertise in entrepreneurship, innovation, design, and communication, offer actionable tools and guidelines, making this book an invaluable resource for entrepreneurs, educators, and trainers looking to apply game approaches in entrepreneurship and innovation processes."

Soumodip Sarkar

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