





From Traditional to Online Methods for Generating Business Ideas

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Abstract: The traditional methods for generating venture ideas are in use for more than 70 years in the business, while the development of information and communication technologies (ICT) opened new opportunities for generating and harvesting business ideas, available to entrepreneurs of any kind. Our initial research discovered that there is a missing link in the academic literature between the traditional and the emerging online methods for generating business ideas and therefore, in this paper, we study the traditional and online sources and methods in parallel. The purpose of our study is to improve the venture idea creation process from an applicable perspective, and to add to the existing ideation literature by (1) identifying and classifying the sources of ideas to create the necessary link between the onsite and online access to idea sources; (2) explaining the traditional methods for generating business idea through their dominant features in order to (3) further identify and elaborate the online sources and ideation methods through these features and link them to the known traditional approaches. The sources, methods, and tools we examine and elaborate in this paper could be used for both, generating ideas for traditional and online business models. Hence, our findings have practical and applicable value for the first step in the entrepreneurial process. Additionally, our study could be used as a starting point for further research in the field of online ideation, a field that needs to be yet, more extensively, addressed by practitioners and research scholars.

Keywords: Idea-generating; business ideas; business opportunities; creative thinking; idea management; ideation

Introduction

Every business starts with an idea. According to Vesper (1990), five key elements must be recruited by the entrepreneur to start a business: the venture idea, physical resources, technical know-how, personal contacts, and sales orders. He believes that the venture idea is one of the most difficult ones to acquire and most important since if it is good, it facilitates the acquisition of the remaining elements. (Vesper, 1990). The stages of new venture creation (Deakins & Whittam, 2000) consist of the formation of an idea, opportunity recognition, pre-start planning and preparation, entry into entrepreneurship launch, and post-entry development. *Idea generation* and *Idea Screening* are the first two of the 8 stages in the New Product Development Process elaborated by Kotler and Armstrong (2010). While the resources and the approach for executing new ideas are crucial, the quality of the initial (raw) idea is also important, since it leads to a greater level of success (Kornish & Ulrich, 2014).

Business idea development, creativity, innovation, and invention are related terms but essentially different. Creativity, as a cognitive function, produces ideas, while innovation is the process that attempts to put those ideas into practical use through

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commercialization. Creativity is a quality, talent, ability, skill that enables individuals and groups to generate ideas. The creative ability may also be helpful to spot business opportunities or to implement ideas and made them available to markets and society. Creativity, formally defined as the generation of novel and useful ideas is the obvious point of departure for innovation to take place (Skerlavaj et al., 2014). Innovation can come in form of technological innovation, product and service innovation, and process innovation. On the other hand, inventions are novel, breakthrough ideas (products, concepts, or processes) created for the first time and can be also commercialized like the other, incremental, and creative ideas through the process of innovation. Another important concept to reflect on, when discussing business idea generation, is the business opportunity. In one viewpoint, a business opportunity recognition could be a proceeding phase or a prerequisite for developing business ideas (Koen et al. 2001), but in another, a business opportunity could be perceived as a refined and well-researched business idea ready for implementation (Vogel, 2017). Taking this into account, it is evident that the business idea and the business opportunity as terms are closely related and interdependable, and therefore, for the purpose of this paper, we will observe them as synonyms.

The methods for generating business ideas as part of the venture creation process are used for many decades in the business and are also extensively researched and elaborated by scholars in the academic literature. With the introduction of ITC and especially with the help of the Internet many of the traditional sources for ideas and idea-generating methods become improved and easily available online but also new tools and methods emerged.

Having in mind that the idea-generating process, otherwise known as ideation, is the initial and therefore very important step of the new venture creation, our research focused on identification and elaboration of available sources, methods, and tools for generating business ideas, starting from traditional (offline) methods, classifying these methods through their main features and further exploring and elaborating the available online ideation techniques. Our research discovered that there is a missing link in the academic literature between the traditional and the online methods for generating business ideas. While the literature is extensively studying and elaborating the traditional methods the online methods are sporadically researched, focusing only on single methods, without attempts to identify their main features and to make a systematic classification.

Regarding the identified gap in the literature the main research questions that arose in our study are:

1. Which are the main sources of business ideas and how can we classify them?
2. Which are the most widely used and researched traditional methods for generating business ideas and which are their important properties/features?
and,
3. Which are the online sources, tools, and methods for generating business ideas?

Having the main research questions in mind, the purpose of our work is to add to the existing ideation literature and help the ideation process from a practical point of view by:

- identifying and classifying the sources of ideas to create the necessary link between the onsite and online access to idea sources.
- explaining the traditional methods for generating business ideas through their dominant features so that we could link and compare them to online methods
- identifying and elaborating the online sources and ideation methods.

Since the genesis of feasible business ideas is a very important step of the entrepreneurial process, and additionally as the ICT brings new opportunities for generating business ideas, in this paper, we study the traditional and online sources and methods in parallel in an attempt to develop a bigger picture for the researchers and the practitioners regarding the ideation process. We believe that such a holistic approach could help scholars further investigate the emerging online approaches for discovering business ideas and also improve and foster the generation of ideas among potential and existing entrepreneurs

and companies. The researchers could challenge or add up to our concepts and/or could be incentivized to deepen their studies in the field of business ideation regardless it is traditional, online, or combined. The practitioners, on the other hand, could use our findings to identify methods, sources, and tools for generating business ideas that are best suitable for their needs and circumstances.

Literature review

The academic literature is abundant in research for the traditional idea-generating methods. Starting from the Brainstorming technique (Besant, 2016; Girotra, Terwiesch, & Ulrich, 2010), many other methods are described and analyzed in the literature, including but not limited to Mindmapping (Davies, 2010), Lateral thinking (de Bono, 1971), Problem-Solving methods (Nickerson et al., 2007), SCAMPER (Serrat, 2017), Shanzhai (Orr & Roth, 2012), Cross-Industry Innovation (Enkel & Gassmann, 2010), Design thinking (Martin & Martin, 2009; Dam & Siang, 2018), The Innovator's DNA (Dyer et al., 2009), The Delphi Technique (Hsu & Sandford, 2007), Idea Management approach (Vandenbosch et al., 2006), etc.

Several works elaborate numerous methods (in a bundle) and try to classify them according to chosen criteria (Asanuma et al., 2011; Burns, 2017; Creative Education Foundation, 2015; Hanington & Martin, 2019). Since these listings and classification didn't fit our research needs, we have proposed classifications based on some important features of the numerous idea-generating methods (Figure 2).

While academic literature treats the traditional idea-generating methods extensively, we sporadically came across studies that deal with online sources, methods, and techniques for generating business ideas. These studies explore (unconnectedly) electronic brainstorming (Gallupe et al., 1992; Gallupe et al., 1994; Michinov, 2012; Paulus & Kenworthy, 2019), crowdsourcing of ideas (Howe, 2006), and idea mining (Kruse et al., 2013; Lee & Sohn, 2019; Ayele, 2020), without trying to classify them or generally to observe the online ideation methods or the web environment as a source for business ideas. Several studies research the use of available search engine data for business purposes (Jun, Yoo, & Choi, 2018) but not for idea generation. The studies about idea management systems (Gorski & Heinekamp, 2002; Sandstrom & Bjork, 2010) focus mostly on the concept leaving out their facet for generating business ideas. To the best of our knowledge, there aren't research papers addressing the online ideation sources, methods, tools, and their possible classification in a systematic approach. To avoid unnecessary repetition, the additional literature we have researched will be presented/cited in parallel with the elaborated methods and other concepts later through this paper.

Methodology

The type of our research paper is conceptual, a combination of theory synthesis and typology paper (Jaakkola, 2020). The main goal of such an approach is to address the literature gap between traditional and newly emerging online tools and idea-generating methods. Our research is mainly *descriptive* since we identify different sources and ideation methods and elaborate a selected set of ideation methods for generating ideas through their main features. Additionally, since there are also detected gaps in the academic literature regarding online ideation, the paper also gets an *exploratory* dimension, where we use the observation methodology and online research to identify the most present and popular methods for generating ideas. Images and tables were also added to the paper to present our findings in more clear, visual way.

Regarding the used research methodology, our study is based on an extensive *literature review* accompanied by a review of contemporary web articles and other relevant web sources. To reach our research goals our study went to several steps. The first step was to

investigate as many as possible literature sources that address the ideation process. The number of reviewed sources exceeds the 85 listed in the reference since only the most relevant are cited. In the second (2) step, *analysis* of the chosen academic literature and popular web articles was used to identify existing sources, ideation methods, their main features, and existing classifications. As a third (3) step, *Inductive and deductive reasoning* were used to propose several classifications of the methods based on their dominant features. Then in the fourth (4) step, *a Comparison* of different methods was necessary to identify their similarities and to identify their main features in order to present only the representative methods in each feature group. *Online observation*, as the fifth (5) step was used to identify and examine the various available online sources, techniques, and products. Since the online tools and methods for generating ideas are still in development we observed and analyzed a large number of contemporary web articles and web resources (services and products) to identify additional possible methods and tools to be included in our study, not addressed in the academic literature. It is important to note that some of the researched sources (websites), tools, and methods are proprietary (provided by a company) and are chosen for the research based on criteria like prominence on the web, popularity, user base, user reviews, etc. without any intention to favor any particular brand. Most of these are provided free but might also have paid version. In the final, sixth (6) step, *theoretical synthesis* was used to develop the main concepts and conclusions of the study.

Sources of business ideas

Before we examine the methods for generating business ideas, we find it important to identify the main sources of new venture ideas. The traditional ideation methods traditionally access the sources of ideas, onsite, in direct contact with the source. On the other hand, the introduction of the ICT allowed assessing the existing traditional sources via the internet but also enabled new types of sources not accessible offline.

Entrepreneurship scholars (Shane, 2000; McKelvie & Wiklund, 2004; Gabrielsson & Politis, 2012) suggest that ability to successfully engage in entrepreneurial activities, including new business idea-generating, is largely a function of the education, training, accumulated work experience, and practical learning that people gain throughout their careers and professional lives. Among many different factors that play a role in the recognition of opportunities for new business ventures 3 (three) have been identified as especially important: (1) engaging in an active search for opportunities; (2) alertness to opportunities (the capacity to recognize them when they emerge); and (3) prior knowledge of a market, industry, or customers as a basis for recognizing new opportunities in these areas (Baron, 2006). Hence, the entrepreneur's cognitive capacity, described as human information processing system – IPS (Newell & Simon, 1972), can be considered as the essential source for generating business ideas since it is needed to search, recognize and adopt the ideas from other sources too. This represents the alertness and openness of the entrepreneur (or the innovator) for new business ideas from other sources. In other words, the other sources only strengthen the capacity of the entrepreneur to generate or accept potentially successful business ideas.

Kotler and Armstrong (2010) divide the sources of business ideas to internal (R&D, employees, customers,) and external as distributors, suppliers, competitors, others: universities, labs, innovators, online collaborative platforms, etc. The new approach of Open Innovation (OI) highlights the importance of using a wide range of sources of knowledge for a company's innovation activities, including customers, rivals, academics, and collaborative firms in unrelated industries, while simultaneously using creative methods (Chesbrough, 2003, as cited in Huurinainen, et al., 2006).

Having in mind the abovementioned observations by different scholars, we further suggest clustering the sources of business ideas and opportunities into 9 specific groups (Figure 1):

- Human information processing system - IPS (Own knowledge, experience, expertise, and cognitive capacity of individuals or groups),
- The personal environment of the entrepreneur (personal lifestyle, friends, family)
- Professional (work) environment (colleges, employees, other entrepreneurs, R&D)
- Customers (current and potential),
- Business partners (distributors, suppliers, collaborators, etc.)
- Competition (current, potential, direct, indirect),
- Special events (workshops, networks, conferences, fairs, etc.),
- Exclusively online sources (websites, social media, search engines, etc.), and
- Other sources (books, research, media, universities, etc.)

Regarding the means of approaching the sources, most of the source groups could be accessed in direct contact with the source - onsite, and/or online, using specific methods or tools. Exceptions to this are that the first group could be accessed by cognition (offline) and the "exclusively online sources" could be accessed solely online. The methods for generating business ideas (that we examine further), more or less, tend to exploit some or several of the above-mentioned sources.

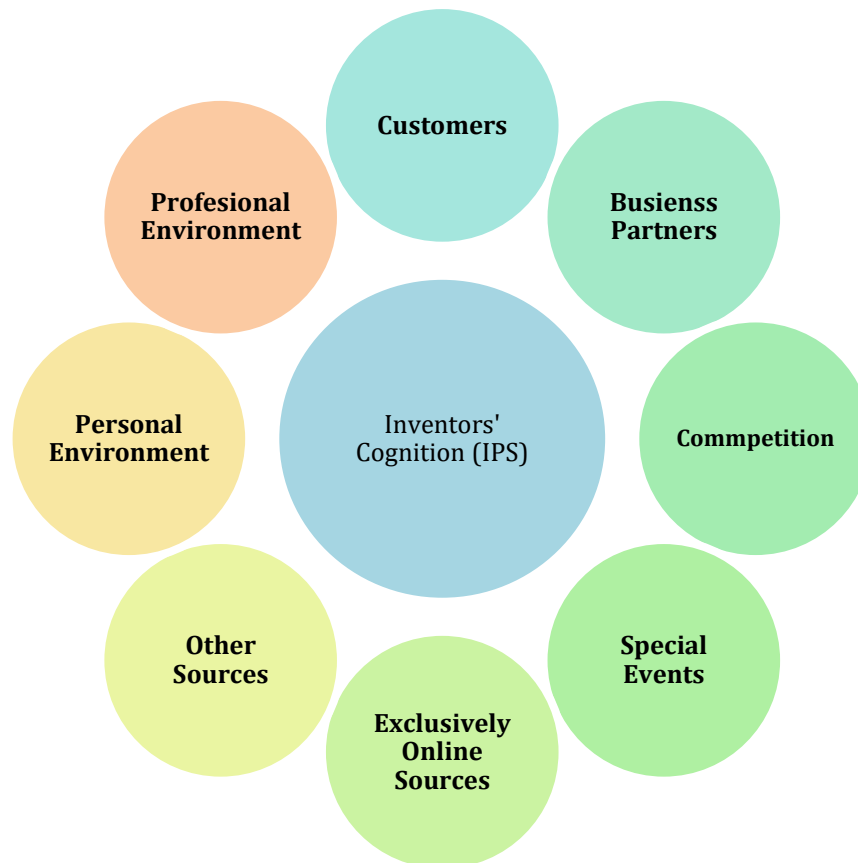


Figure 1. Sources of business ideas
(Source: Authors' observations)

Since the paper is structured to furthermore elaborate online methods and tools, we will discuss specifically online sources in more detail later in this paper. It is also important to note that in some cases, it is hard to distinguish between the source of ideas and the method to gather them. Take for example workshops, books, online platforms, or search engine tools. Therefore, we will elaborate on the online idea sources and online ideation methods in parallel.

Traditional methods for generating business ideas

The traditional methods for generating business ideas, elaborated and formally structured, are used for decades in the business even before the internet era. Under traditional methods, we observe methods and techniques that can be used without the help of the internet and other ICT. The established traditional methods are also important for generating business ideas online too since they can be the starting and also the ending point of the idea generation process even in the online environment. The traditional ideation methods could be furthermore enhanced using the technology in at least two ways; 1) for accessing the available sources of ideas and 2) for digitalizing the existing proven methods. Additionally, the new web technologies enable new methods and tools accessible only online that we elaborate separately.

Since the original introduction of the Brainstorming technique by Alex Osborn in 1953 (Besant, 2016) many other methods for inducing creativity and idea-generating emerged. Among the most prominent are: Synectics, TIRZ methodology, Mindmapping, Lateral thinking, Six thinking hats, Brainwriting, Systematic Inventive Thinking, SCAMPER, etc. Asanuma et al. (2011) identified 36 idea generation methods suitable for practical design. Burns in his book "*New Venture Creation: A Framework for Entrepreneurial Start-Ups*" (2017) groups dozens of methods for generating business ideas in 6 areas: creating opportunity, spotting an opportunity, nurturing creativity and innovation, active discovery, exploring change, and exploring product inadequacies. The Creative Education Foundation¹, in their "*Creative problem-solving tools and techniques resource guide*" (2015) describes 39 tools (29 divergent and 10 convergent) that can be also used for idea generation. Hanington and Martin (2019) alphabetically elaborate 125 methods to "research complex problems, developing innovative ideas and design effective solutions". In our research, besides the above-mentioned, we also came across many other methods or techniques for generating business ideas, but we will elaborate only on those who we find appropriate, relevant, popular, and/or backed with academic research.

Since there are many proposed methods for generating business ideas that use different reasoning, sources, forms, approaches, settings, etc., we would make an effort to suggest several classifications based on some prominent properties/features (Figure 2) of the techniques used. With no intention to elaborate every possible method for generating ideas we will present some of the common methods through these classifications.

Individual vs group methods

It is very common that entrepreneurs try to come up with business ideas by themselves utilizing their own cognitive capacity (IPS), with or without approaching other sources of ideas. Every method that involves no other person actively involved (except the entrepreneur) can be considered as an individual method. On the other hand, when more people work together to generate ideas - group methods take place.

The *Skill Assessment* technique is a basic (individual) idea-generating method for solopreneurs who want to start a business (Zwilling, 2018; Riani, 2019; Maplesden, 2016). According to this approach, potential entrepreneurs should generate business ideas based on their skills and expertise to have higher chances for success. Such generated ideas could be further diverged and converged using other methods and finally, should be validated before they enter the implementation phase. The Skill Assessment analyses could be done through a specific tool like *the Personal SWOT Analysis* (Clayton, 2019; Griffin, 2010).

While there are a variety of individual methods (*Mindmapping, Problem/Solution analysis, Systematic inventive thinking*) they can also be used in a group setting. The most popular

¹ The Creative Education Foundation was founded by Alex Osborn and Dr. Sidney J. Parnes in 1954. Alex Osborn introduced the term Brainstorming for the first time in 1953 in his book "Applied Imagination: Principles and Procedures of Creative Thinking".

group method (that can be also used by individuals) is the *Brainstorming* technique that got many variations and improvements since its introduction in 1953. The main reasoning behind the Brainstorming method is to develop as many ideas as possible no matter how impossible or silly they seem at first glance. These ideas are further evaluated and rated according to their plausibility and usefulness.

A *Hybrid Method* is also known where individuals first work independently and then work in a group. According to Girotra, Terwiesch, and Ulrich (2010), the hybrid methods bring better results in terms of quantity and quality of ideas compared to classic group methods.

Form of communication (cognitive, written, verbal or visual methods)

Ideas in cognitive form (thought of) can be easily altered, neglected, or even forgotten. The same applies to verbally exchanged ideas that are not written down. Writing down ideas has many advantages and regardless of the method used, ideas should be written for further reference. Properly communicated ideas, besides documenting them, can additionally improve communication, exchange of ideas, and induce creativity of the participants in the process. Visual methods, besides writing, tend to improve the process by using blackboards, pinboards, flipcharts, smartboards, images, tables, graphs, and/or videos, etc.

The *Free Associations* method is typically a verbal technique but uses writing to record the flow of ideas generated by the trigger words (Mycoted, 2020). The *Mindmapping* technique, on the other hand, is “visual, non-linear representations of ideas and their relationships” (Biktimirov & Nilson, 2006, as cited at Davies, 2010), has a structure that radiates from the center (central idea or a trigger) and uses lines, symbols, words, colors and/or images to depict related thoughts and ideas as branches.

Inductive, deductive, and abductive reasoning

Induction as logical reasoning means turning insights and facts into general assumptions that are probable but not certain. Deduction involves the formation of a (certain) conclusion based on generally accepted statements or facts. Abduction is where the major premise is evident but the conclusion only plausible. Basically, it involves forming the best possible conclusion from the information that is known (Merriam-Webster, 2020). Inductive reasoning tends to develop ideas based on examination of the specifics (surveys, interviews, need analyses). Abductive reasoning challenges the known facts and proposes ideas/solutions as a best-educated guess that might or might not be true (or viable). Deductive reasoning tends to narrow the existing choices by testing their viability (prototypes, market tests, A/B testing).

The *Problem-Solving methods* tend to offer solutions to evident customers' needs or problems. In this approach, the analytic processes (deduction) lead to incremental innovation that solves narrowly defined problems (reducing defects, lowering cost, satisfying customers), while synthetic processes (inductive (and possibly abductive) reasoning) are used to define novel problems in a wider range what can lead to entrepreneurial opportunities or radical innovation (Nickerson et al., 2007). The *4 Step Problem-solving model* (ASQ.org, 2020) goes through: (1) defining the problem, (2) generate alternative solutions, (3) evaluate and select alternatives, (4) implementation and follow up. This model uses induction, abduction, and deduction as needed in the steps. *Design thinking*, as a solution-focused method, also uses all three types of reasoning but should be mostly based on abduction to deliver a solution that matches the problem (Martin and Martin 2009). Design thinking is an iterative process involving five phases; empathize, define, ideate, prototype, and test and it tends to understand users, challenge assumptions, redefine problems and create innovative solutions (Dam & Siang, 2018).

Divergent vs convergent thinking

While divergent thinking methods tend to generate lots of ideas, convergent methods focus on evaluating ideas and making decisions (Creative Education Foundation, 2015). Convergent methods for generating ideas come in the later phases of the process of idea generation and actually start the validation process of the produced business ideas before they enter the implementation phase.

Typical methods of divergent thinking include Free Associations, Brainstorming and Mindmapping, while SWOT analyses, Design Thinking, and the Delphi Technique could be considered as convergent methods.

The *Delphi Technique* (Hsu & Sandford, 2007) is a method used to estimate the likelihood and outcome of future events based on a consensus of several experts. This method is not typically used for generating ideas but could be used for evaluating ideas and could also result in reframing and refining the previously developed ideas.

Unconventional thinking

Different terms like unconventional reasoning, out-of-the-box thinking, assumption reversal, lateral thinking, etc., are used to describe methods that try to observe the challenge from a different angle besides the most obvious, straightforward way - otherwise known as critical thinking.

Lateral thinking as a structured method was developed by Edward de Bono (1971) and it is defined as a deliberate, systematic process resulting in innovative thinking. The Lateral thinking techniques that induce innovative, unconventional thinking, among the others include focus change, challenge the assumptions, random entry, provocation, etc.

SCAMPER (an acronym), is another method that utilizes unconventional thinking where different actions, S – Substitute, C – Combine, A – Adapt, M – Modify, P – Put to another use, E – Eliminate, R – Reverse could lead to modifications of existing products or novel ideas.

Imitation innovation (mimicking Ideas)

Mimicking business ideas can range from replicas and copycats (duplicate imitations) to creative imitators and cross-industry innovations. Frankenberger and Stam (2019) note that imitation strategies are often criticized by scholars, but a more positive view of imitation is starting to emerge since it can lead to successful entrepreneurship or it can improve a firm's performance. When implementing ideas generated by imitation it is imperative not to violate intellectual property or harm the entrepreneur's/firm's image.

Shanzhai, as a copycat method, is an approach where local (Chinese) companies produce knockoffs of successful foreign products or business models incorporating features specifically for the local market. (Orr & Roth 2012)

In *Cross-Industry Innovation* (Enkel & Gassmann, 2010), already existing solutions from other industries are creatively imitated and retranslated to meet the needs of the company's current market or products. Such solutions can be technologies, patents, specific knowledge, capabilities, business processes, general principles, or whole business models.

Other methods exploited to imitate innovations could be *Case studies*, *Competition analyses*, *Benchmarking*, and *Reverse engineering*.

Innovation climate and behavior

The ideation and the innovation are not events but long-lasting processes. The Discovery of opportunities should not depend only on idea workshops and/or idea-generating methods. Great ideas rarely come by circumstance or during one or few brainstorming sessions. Sustained innovation depends on proven conditions that nurture the process (Birkinshaw et al., 2011). These conditions include innovation culture and values, training and tools, diversity of sources and participants, internal and external interactions, and finally - flexibility (slack).

Since generating new business ideas is a creative process, techniques for unleashing the human brain creativity can be very useful and productive in the process of generating new business ideas regardless of the methods used. Some of the above-mentioned methods may enhance the creativity of the participant but other methods are particularly designed to create a new, motivating, or challenging environment to induce the creativity. These methods may include icebreakers, role-playing, game playing, rest, meditation, change of location/space, change of teams, painting, using left (opposite) hand, listening to music, walking in nature, daydreaming, lucid dreaming, etc.

Besides the favorable conditions (innovation climate) entrepreneurs should also adopt proactive behavior (active discovery) that could lead them to the discovery of new business ideas and opportunities in a long run. A typical structured represent of this approach is *The Innovator's DNA* (Dyer et al., 2009) where entrepreneurs should actively practice networking, observing, questioning, experimenting, and associating.

Table 1. Traditional methods/approaches for generating business ideas and their main features/properties

Traditional Method / Approach	Description	Main Features
Brainstorming	Groups develop as many ideas as possible. These ideas are further evaluated and rated.	- Used by groups - Diverging + converging - Verbal + written
Skill assessment technique + Personal SWOT Analysis	Entrepreneurs generate business ideas based on their skills	- Used by individuals - Cognitive + written
The Mindmapping technique	Visual representations of ideas and their relationships are drawn like branches radiating from the central idea.	- Visual + written - Mainly used by individuals - Divergent
Problem-Solving methods (4 Step Problem-solving model + Design Thinking)	Tend to offer solutions to evident customers' needs or problems where abductive reasoning may lead to radical innovation	- Uses Inductive, deductive, and abductive reasoning - Leads to original and/or innovative ideas
The Delphi Technique	The method used to estimate the likelihood and outcome of future events is based on a consensus of several experts. Could be also used for evaluating or reframing ideas	- Converging ideas - Group method - Deductive reasoning
Unconventional thinking methods (Lateral thinking + SCAMPER)	Methods that try to observe the challenge from a different angle besides the most obvious, straightforward way - otherwise known as critical thinking.	- Unconventional thinking - Leads to modifications or novel ideas

Shanzhai, (copycat method)	Approach where local companies produce knockoffs of successful foreign products or business models incorporating features specifically for the local market.	- Mimicking ideas - Uses competitors as a source for ideas
Cross-industry innovation	Already existing solutions from other industries are creatively imitated and retranslated to another industry.	- Creative imitations - Uses other industries as a source for ideas
Methods for inducing creativity (icebreakers, role-playing, game playing, rest, change of location or teams)	Methods particularly designed to create a new, motivating, or challenging environment to induce creativity and idea generation.	- Creating an innovative climate - Tend to stimulate the innovator's IPS for new ideas
The Innovator's DNA approach	Entrepreneurs should adopt proactive behavior that could lead them to the discovery of new business ideas in a long run.	- Proactive behavior (active discovery) - Uses all possible sources for ideas
Idea management	An approach that systematically deals with the ideation stakeholders, idea generation, and idea evaluation.	- Nurturing innovation climate and behavior - Tend to use as many idea sources as possible

Source: Authors' observations

Having in mind the need for a systematic and organized approach to the process of ideation, concepts for idea management emerged. *Idea Management* is explained as a process that systematically deals with the ideation stakeholders, idea generation, and idea evaluation (Vandenbosch et al., 2006) while nurturing appropriate climate and behavior.

Online sources, methods, and tools for generating business ideas

While academic literature treats the traditional idea-generating methods extensively, we sporadically came across studies that deal with online sources, methods, and techniques for generating business ideas. These studies mostly explore electronic brainstorming, crowdsourcing of ideas, and idea mining, without trying to classify them or generally observing the online ideation methods or the web environment as a source for business ideas. Several studies research the use of available search engine data for business purposes but not for idea generation. The studies about idea management systems focus mostly on the concept, leaving out their facet for generating business ideas.

Having this in mind our study was directed to discover and elaborate as many as possible, online sources, methods, and tools. Some of these methods are studied in scholarly sources but mostly are described on popular web articles and are available as web services.

General web sources

Essentially, the ideation process requires an active discovery approach and alertness to new business opportunities. The internet and the web gave entrepreneurs access to information like never before. Without exiting the home (or the office) one can examine numerous websites and sources that can lead to business idea generation. (Peterson, Jaret, & Schenck, 2020; Artemova, 2018; Weinstein, 2004; Macdonald, 2020) The abundance of online sources of business ideas (not otherwise specified) includes, but are not limited to case studies, lists of business ideas, industry reports, entrepreneurship awards, product reviews, consumer news, business news, online marketplaces, academic journals, popular web articles, emerging business trends and so on.

Search Engines could be a solid starting point for discovering sources of business ideas and even specific business ideas. The quest for the above-mentioned sources could start on *search engines* by using queries as “startup case study in ...”, “industry report about ...”, “business opportunities for ...”, “academic research on ...” and by adding keywords to address specific field of interest, for example, “marketing services”. Search engines, typically, are not the direct source of the information, but *Google’s Predictive Search* feature (suggestions as one types the search query) (Think with Google, 2020) can lead to (more) ideas discovery.

Online marketplaces are web platforms that embrace more sellers in one place. Online marketplaces as Amazon (goods), eBay (goods), Etsy (arts and crafts), Google Play (android apps), ClickBank (digital products), Steam (video games and software), Alibaba (B2B) Freelancer (services), etc., can be monitored for spotting business opportunities, new product ideas and trends (Macdonald, 2020). Several websites like Trend Hunter, Trend Watching, and Yanko Design, specifically *report on trends* in the business environment (Alexa.com, 2020) enabling the entrepreneurs to spot new business opportunities.

Genuine *product review sites* as Consumer Reports, Tom’s Guide, Wirecutter, Slant, and Consumer Search (Penny, 2020) could be used for detecting weaknesses in the current solutions on which one can envision new, better products or services.

Some websites specifically curate *lists/pages of business ideas* for inspiring entrepreneurs to start a business (Biizly.com, 2020). Having in mind that the business opportunities constantly change search engines can be used for finding recent posts for business ideas (Google Search, 2020b). Since these ideas are raw, publicly available, not well researched, and usually not elaborated in detail, they can be used as a starting point for brainstorming sessions and/or in combination with other ideation methods, for example, the *Skill Assessment* technique and *Google trends*.

Random idea generators

Random idea generators are web-based tools that use aleatory technic to offer words, images, phrases, or sentences that can serve as ideas. Since these suggestions are random, they could be senseless or have no real commercial value. Some idea generators, instead of random words, retrieve business ideas from a pre-defined idea database. Anyhow, these tools could be used to break creative blocks, induce creativity, or start brainstorming sessions (Writtenhouse, 2020).

Electronic brainstorming

Electronic brainstorming can be defined as a type of brainstorming which uses ICT-based methods to generate new ideas and solutions by individuals or teams. Compared to traditional brainstorming, electronic brainstorming has several advantages that include but are not limited to eliminating travel, saving time for meetings, overcoming the

blocking effect, rising idea production, electronic processing, voting and archiving of ideas, enabling anonymity and/or authorship as needed, work in larger groups, asynchronous or synchronous sessions, visual enhancements, etc. Negative aspects of electronic brainstorming are also noted. (Gallupe et al., 1992; Gallupe et al., 1994; Michinov, 2012; Paulus & Kenworthy, 2019)

First types of electronic brainstorming systems were offered as on-premises software (run on a local computer) as IdeaFisher (Cannon et al., 1993), Paramind (Sanket, 2012), or the present MindManager. Most of the currently available software solutions are cloud-based (online) and offer brainstorming as a feature (use case) of other software types like mindmapping (Google Search, 2020a), idea management (see below), or diagramming software like Visio is (Microsoft, 2020). Among the most prominent software solutions for brainstorming are Mural, Lucidchart, Stormboard, Hipe, Ideadrop, etc.

Web 2.0 sources, tools, and methods

The customers, current and potential, could be great sources of business ideas (Hossain & Kauranen, 2015). The advanced internet technologies, known as Web 2.0, enable high levels of interaction where users curate their content (text, images, and videos), communicate, act spontaneously, and openly express their views and opinions including those, from customer's perspective, about brands, products, services, websites, content and so on.

Social media as Facebook, Twitter, Pinterest, and Instagram gather large numbers of users who post their content and interact (share, like, comment) with other users and companies. Forums like Quora and Reddit enable their userbase to post opinions, ask questions, give answers, vote, or simply read the discussions. It happens that these discussing target problems, products, services, use cases, user's experiences, and even business ideas and opportunities. The online marketplaces (mentioned above) let their customers rate and review the providers and the products (or services) they buy. All these types of content, behavior, and interactions are of high value not only for the existing companies but for the potential entrepreneurs too and can help them generate business ideas based on the observations. These online communities also empower the entrepreneurs to take a more active approach in discovering opportunities by asking for; advice, feedback, existing problems, possible solutions, interviewing, and even business ideas from other users. Additional web tools as simple pool questions (as in Twitter and Facebook), messengers, video calls, or survey questionnaires (as Google Forms) can enhance and formalize the process of collecting feedback and ideas from different internet users.

The traditional *surveys, focus groups, and consumer panels* as methods are significantly enhanced by the use of ICT and can be also used for collecting business ideas from potential customers or the general public. Besides the general approach to respondents, (through social websites as described above) there are also professional services that, besides surveying tools, provide access to targeted audiences (Wanless, 2017) for more representative outcomes. Paid advertisements can also be used to reach target audiences for surveying.

The formal method that aims to gather business ideas from a large audience via the internet is known as *Idea Crowdsourcing* (Howe, 2006). Important factors to assure successful crowdsourcing include motivation for the participants (extrinsic and intrinsic), an effective system for collecting, analyzing, and selecting ideas, and a mechanism to ensure implementation.

The A/B testing method (Siroker & Koomen, 2013) is another technique enabled by web technologies, and it's specifically designed for testing responses on variations of a web page. Besides the appearance of the page and the content, (hypothetical) features of products and services can also be put on a test to measure clients' reactions. In line with

this method is the *Landing Page Testing* of future products (asking for subscriptions, preorders, and presales), testing MVPs (Minimal viable products), or hypothetically selling products (mimicking sales page) (Biizly.com, 2020b).

Entrepreneurial (Startup) communities

One of the most effective ways to learn entrepreneurship is from other entrepreneurs, through networking. It is noted that social capital, defined as a network of ties and relationships that bring access to information and resources, also has a positive influence on the generation of good business ideas (Han, Han, & Brass, 2014)

The internet and the web enable new forms of networking among entrepreneurs. While LinkedIn is a general network for professionals there are other communities with a narrow focus on entrepreneurship, startups, and ideation.

Indie Hackers is a forum-based social community of entrepreneurs who share their experiences, give, and receive feedback, and help each other. When new entrepreneurs join, they present their stories, motivation, goals, ideas, search for partners and share failures and success (backed by proof). As they grow, helped by others, they stay in the community and help new members to achieve their goals too, which may include developing new business ideas. *Product Hunt*, on the other hand, is a web community that lets entrepreneurs present their newly developed products to a wider audience to get feedback and possibly, customers. *Kickstarter*, the well-known crowdfunding platform, enables entrepreneurs to raise funds for their projects and at the same time to acquire the first customers. On all these, and other similar websites, entrepreneurs who are searching for ideas can observe what other entrepreneurs develop, what gets positive feedback and what features are preferred or missing.

Other online communities for entrepreneurs could be found as groups on social media like Facebook, Linked In, Quora, Reddit, and Slack (YEC, 2019).

Reviewing the competition

The process of defining, gathering, and analyzing intelligence about competitor's products, promotions, sales, etc. from external sources is known as competitive intelligence (Day et al, 2011). By investigating an industry and the companies within that industry, the entrepreneurs can get many insights and can come up with their own business ideas, whether mimicking successful models or products, offering improved products of the available, or providing different solutions to the existing problems. Besides the opportunity to access information on the competitors' websites, social media, within mailing lists, or other sources, the web environment empowers the entrepreneurs with specific tools to analyze the (potential) competitors.

The *traditional SWOT analyses* nurtured with web data could be used to develop ideas based on the own strengths and the weakness of the competition. The *tools that analyze website traffic* (such as SEMrush, Ahrefs, Alexa, or MOZbar) can help identify popular content, products, valuable traffic sources, and search engine optimization (SEO) efforts. *Paid Ads analyzers* (iSpionage, SpyFu, Whatrunswhere), can track competitors' ads spending to detect profitable products and monitor their ad copy to spot the features they highlight in their offers. A tool as *Wayback Machine* could be used to track the competitor's site changes in the past. All these insights could lead to the recognition of new business opportunities and ideas.

Search engine data and tools

Google Trends and Google Keyword Planner are separate tools provided by Google. The data behind these tools comes from real search queries done on Google's search engine, which makes them very valuable for business purposes (Jun, Yoo, & Choi, 2018), including

idea generation. Both tools can be considered as convergent and divergent since they can help evaluate ideas but also generate more, based on the suggestions they provide.

Google Trends presents historical data of specified search queries in a line chart, which enables spotting favorable (and unfavorable) trends. Google Keyword Planner, on the other hand, gives a monthly volume of searches accompanied by estimation for competition (high, medium, and low) and bid height (how much advertisers pay to rank in search results). Search queries with higher volume and lower competition (and bids) may represent potentially better ideas that need to be examined further. Both tools, especially the Keyword Planner, give suggestions for other related search terms that can lead to more idea discovery.

Idea mining

The use of interactive web 2.0 technologies resulted in an immense amount of user-generated content that, as described above, could carry valuable ideas and solutions. Observations, accompanied by manual collection, analyses, and interpretation of such big data could be challenging for the entrepreneurs and the companies. Therefore, more advanced methods, based on information technologies are needed to address this issue.

Idea mining is a novel method for discovering emerging business ideas based on big data and data mining that is still in development. Idea mining technics could be implemented on existing Idea management systems (Kruse et al., 2013) or could exploit publicly available sources as a project on Kickstarter (Lee & Sohn, 2019), or any other social network that may nurture business ideas. Current Idea mining frameworks based on data mining, text mining, knowledge management, dynamic topic modeling, machine learning, etc. still need human intervention regarding criteria such as technical viability, financial implications, customer perspectives, novelty, necessity, usability, etc. (Ayele, 2020).

Table 2. Online sources and methods for generating business ideas and their main features/properties

Online Method/ Source	Description	Main Features
Sources		
General web sources	Numerous websites and sources (not otherwise classified) can lead to business idea generation.	<ul style="list-style-type: none"> - Active discovery - Diverging ideas - Targeting audience for serving an idea crowdsourcing - Reviewing competitors - Data for idea mining
Web 2.0 sources	Highly interactive websites where potential clients and competitors gravitate. Users of these web 2.0 sources discuss problems, products, services, use cases, user's experiences, and even business ideas and opportunities.	<ul style="list-style-type: none"> - Active discovery - Diverging and converging ideas - Targeting audience for surveying and idea crowdsourcing - Tools and services for surveying - Reviewing competitors - Data for idea mining
Entrepreneurial (startup) communities	Websites and communities with a narrow focus on entrepreneurship, startups, new products, fundraising, and ideation.	<ul style="list-style-type: none"> - Active discovery - Diverging and converging ideas - Entrepreneurs as sources for ideas - Initial evaluation of ideas

Methods		
Random idea generators	Web-based tools that use aleatory technic to offer words, images, phrases, or sentences that can serve as ideas.	<ul style="list-style-type: none"> - Inducing creativity - The starting point for brainstorming - Diverging ideas
Electronic brainstorming	Type of brainstorming which uses ICT-based methods to generate new ideas and solutions by individuals or teams.	<ul style="list-style-type: none"> - Many improvements of the traditional brainstorming (automation, a repository of ideas, voting, anonymity and authorship, larger groups, asynchronous sessions, etc.)
Idea crowdsourcing	The formal method aims to gather business ideas from a large audience via the internet.	<ul style="list-style-type: none"> - Large number of participants (employees, customers, partners, general public) - Systematic collection and automation - Motivation for the participants (extrinsic and intrinsic)
A/B testing	The technique specifically designed for testing responses on variations of a web page. It could be used to measure clients' reactions to (hypothetical) new features of products and services.	<ul style="list-style-type: none"> - Converging ideas - Product improvements - Incremental innovation - Testing ideas
Online tools for competitive intelligence (website traffic, ads spending, past site changes)	Various proprietary online tools that follow and analyze the activity of the competitors online.	<ul style="list-style-type: none"> - Reviewing the competition - Diverging and converging ideas - Mimicking strategies and/or products
Search engine tools (Google Trends and Google Keyword Planer)	Tools enabled by the search engines that present search trends and search volume of specific search terms used by the internet users.	<ul style="list-style-type: none"> - Observing the customers' needs - Diverging and converging ideas - Validating and testing ideas
Idea mining	Novel method (still in development) for discovering emerging business ideas based on big data and data mining of web or other digital sources.	<ul style="list-style-type: none"> - Still in development - Automation - Analyses of large sets of data (web, IT systems, emails, etc.) - Ideas based on needs and predictions
Idea management systems	Use of IT (software applications) to enable participation, collaboration, collection, exchange, and development of new product ideas.	<ul style="list-style-type: none"> - Creating an innovative climate and active collaboration and discovery of ideas - Uses all possible sources for ideas + creates a repository of ideas

Source: Authors' observations

Idea Management Systems

The concepts of Idea management preceded the technological era, but IT actually enabled sophisticated idea management systems to take place. Gorski and Heinekamp in 2002 describe a highly interactive idea management system that primarily aims to promote collaborative exchange of new product ideas, to collect ideas in one single repository, and to facilitate the quick generation of new product ideas by increased participation in the ideation process (Sandstrom & Bjork, 2010).

The contemporary Idea Management Systems are mostly web-based, and there are at least 38 commercial solutions available, among which are Miro, Mindmeister, Aha, Brightidea, Viima, etc. (Software Advice, 2020). The prices range from free, for starter packages, up to \$2900 per month for enterprise solutions (Ideanote, 2020). A notable open-source solution for Idea management is OpenideaL which is based on the Drupal web platform and is highly customizable/modular (OpenideaL, 2020). Some of these systems can also be used for electronic brainstorming and/or crowdsourcing.

Discussion

The process of generating new business ideas is a very important step in the new venture creation. While traditional methods for generating business ideas are in use for a longer period in the business, the information and communication technologies (ITC) enabled new approaches in this process by enhancing the traditional ideation methods, assessing the idea sources more efficiently, and enabling new, never used before, methods for generating ideas. The initial intention of our study was to focus only on the online methods for generating business ideas by reviewing previous academic research, popular web articles, and available online services. We would briefly explain the traditional ideation process to make a comparison and a connection, but our research found out that there is a missing link in the literature between the traditional and the emerging online methods. Additionally, while the scholarly literature extensively elaborates methods for generating ideas there are only a few attempts to make classification of the methods that could serve as a starting point for our research. On the other hand, the academic articles about online ideation methods are scarce and they mainly focus on a single method for generating business ideas like electronic brainstorming, crowdsourcing, idea mining, and idea management systems without identifying their main features or trying to classify them.

In order to fill the gap and link the online and offline ideation methods, we first suggested clustering the sources of business ideas into 9 groups (Figure 1) since the methods could utilize different sources differently. The sources we suggest are the entrepreneur's knowledge and experience (IPS), personal environment, professional environment, customers, business partners, competitors, special events, exclusively online sources, and other sources. The information and communication technologies may access/harvest all these sources in a more efficient way.

Further, we examined the traditional methods (Table 1) through several suggested classifications based on the main properties/features of the methods in order to simplify the elaboration of many different but also many similar techniques, formally structured or generally explained. These features (Figure 2) suggest classifying the idea-generating methods by:

- Involved participants: individuals, groups, or web crowds.
- Form of communication: cognitive, written, verbal or visual
- Types of reasoning: inductive, deductive, abductive, or unconventional thinking
- Development (or reduction) of ideas: divergent or convergent
- The originality of the ideas: unique, innovative, mimicking.
- Utilized sources: own IPS, online, offline, combined.
- Methods for nurturing innovation climate

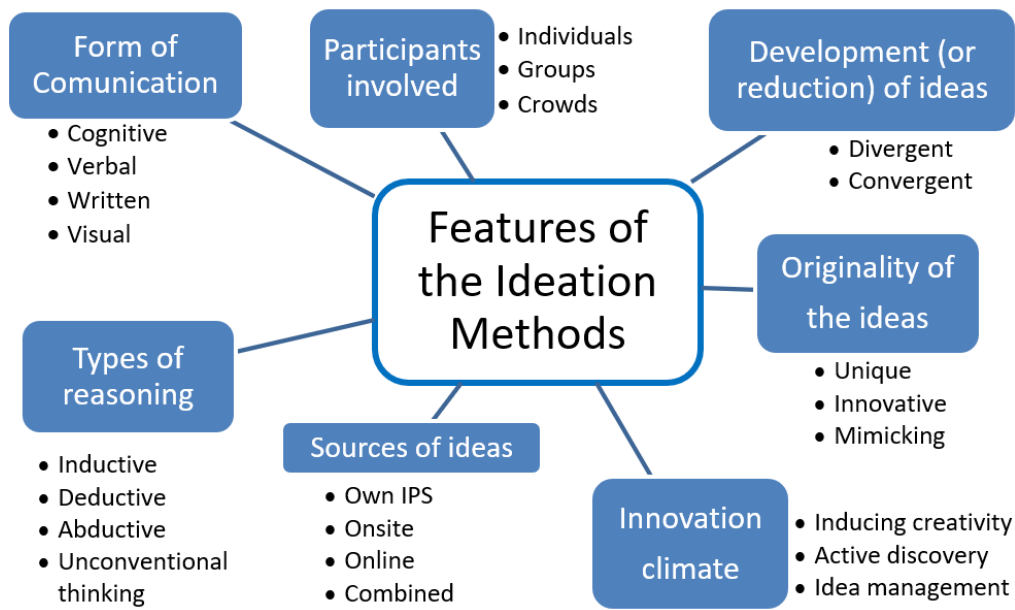


Figure 2. Important features/properties of the different methods for generating business ideas

(Source: Authors' observations)

The online sources and methods for generating business ideas could also be elaborated through these features/classifications, where at the end, we explored and elaborated different online sources and available methods (Table 2) in the online environment. These include; general web sources, random idea generators, electronic brainstorming, web 2.0 methods, entrepreneurial communities, reviewing the competition, search engine data tools, idea mining, and idea management systems.

If we observe the online ideation methods through their prominent features, we could draw the following conclusions:

- The online sources are the essence for active behavior and openness for ideas in the ideation process.
- The information technologies may access different sources of ideas in a more efficient way than the traditional methods.
- These methods could be used by individuals (solopreneurs), teams, or through the innovation management system of a company.
- The form of communication is dominantly written, possibly accompanied with visual enhancement, and therefore is appropriate for documenting (manually or systematically).
- The online methods ideally comprise divergent (producing) and convergent (assessing) techniques.
- The sources could be used for imitation innovation (mimicking Ideas) but also could induce creativity and unconventional thinking and could bring original ideas too.
- Inductive reasoning dominates these methods, but the technology enables tools to test deductive theses too. The abductive reasoning remains for the cognitive function of the entrepreneurs or the contributors, especially for the problem-solving approach, but then deductive tests, enabled by the technology, could be applied to assess the proposed solutions.
- The amount of information online is enormous and could be overwhelming for manual processing and therefore automation is needed.
- Collecting ideas from a large group of people (crowdsourcing) is actually enabled with the use of the internet and other information and communication technologies (ICT).

- The ICT can also help handle big data using data mining and artificial intelligence.
- The ICT is base for the contemporary Idea Management approach too.

We believe that the main contribution of our research in this field is the exploration and description of the newly emerging online sources and methods for generating business ideas in a systematic approach. Additionally, the proposed calcifications of the idea-generating methods based on their main features enable a better understanding of the process of generating business ideas for further academic research, educational purposes, and practical applications in the business environment. Regarding the implication from practitioners' perspective, our study systemizes and presents the accessible sources of business ideas accompanied with readily usable tools and methods for generating new business ideas. Besides the utilization of the mentioned sources, tools, and methods, it is evident that potential entrepreneurs and existing companies also need to adopt an active discovery approach and nurture an innovation climate. Based on the main findings in our research, mentioned above, we argue that the introduction of online sources, tools, and methods in the overall process of business idea generation can significantly improve the output of ideas in terms of quantity and quality in a long run. With our study, we also link the online and traditional ideation literature by defining the sources of ideas that include online sources too and by elaborating online methods that improve the traditional methods, whether by use of software tools or accessing the online sources of ideas.

On the other hand, limitations of this research may lay in the limited number of idea-generating methods explained, lack of empirical data to measure the relative importance of the different methods, and possibly, more features that are important for the ideation process but are not taken in consideration in this paper. Anyway, our paper had no intention to measure the effectiveness of the methods or to elaborate them in detail, but just to present a general concept about the online ideation sources and methods and their links with the traditional approach. In that light, it is evident that further research is needed to identify and elaborate more possible online sources, methods, and tools, do more extensive research on them, and most importantly, measure their popularity and their effectiveness. In that manner, our research may serve as a solid starting point as it gives a focused list of currently available online ideation methods elaborated through the sources they exploit and through the main features they possess. Especially interesting for more extensive research is the "Idea Management Systems" that tend to utilize as much as possible sources and methods in the process, "The Open Innovation" concept that emphasizes the need for open collaboration between the companies to stay innovative on a long run and the "Idea mining" as a novel concept that is still in development.

Conclusion

The opportunity recognition (including the idea generation) is the starting and one of the most important steps in the new venture creation process. Since "big" ideas don't always come by circumstance, an active approach in the ideation process is important for the entrepreneurial take-off. While experience and prior knowledge may play an important role in entrepreneurial success, the methods for generating ideas could, undoubtedly, improve the quantity and quality of developed business ideas and spotting opportunities.

Having in mind the importance of generating new business ideas, our research focused to identify, explore and elaborate a variety of sources, methods, and tools available to the current and potential entrepreneurs and new business starters, both online and traditional. Initially, our findings discovered that existing academic literature sporadically elaborates online ideation methods mainly focusing on a single technique without trying to systematically address this issue. Additionally, there was an evidently missing link in the literature that connects the traditional and online ideation methods through their main features of sources of ideas they approach. In order to address these gaps in the academic literature we first distinguished different sources of business ideas, then we

elaborated the most prominent traditional methods for generating business ideas through their main features, and at the end, we explored and described the online sources, tools, and methods for discovering and generating ideas.

The 9 groups of sources for new business ideas include entrepreneur's knowledge and experience, personal environment, professional environment, customers, business partners, competitors, special events, exclusively online sources, and other sources. The traditionally used methods for generating business ideas among others include brainstorming, mindmapping, personal SWOT analyses, problem-solving techniques, design thinking, unconventional thinking, ideation management, and many more. All these, and many other methods could be analyzed and classified according to their main features like individual and group methods; inductive, deductive, abductive reasoning; divergent, convergent, unconventional thinking; imitation innovation, innovation behavior, etc.

The usage of the ICT can support the traditional idea-generating methods by enabling more effective access to extensive sources of ideas, utilizing, and improving the existing methods, or by providing new, online tools that could foster and dramatically improve the process of ideation. Among the most prominent online sources, tools, and methods for generating business ideas are the entrepreneurial communities, online marketplaces, social networks (as bases of customers), random idea generators, surveying tools and services, tools based on search engine data, competition analyzing tools, idea crowdsourcing, idea mining techniques, idea management systems, etc. Generated ideas using a variety of methods and tools can be used for developing ideas for both, traditional or online business models, products, and services.

Further research is needed to address the following issues regarding the online ideation process; (1) to identify and extensively elaborate more emerging online idea-generating sources and methods, and to (2) measure their popularity and especially the effectiveness in order to direct the entrepreneurial effort towards the most promising techniques.

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