



Effectuation logic:

A systematized literature review on entrepreneurs decision making process from 2001-2016

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Abstract

Sarasvathy's theory of effectuation identifies a logic of thinking used by expert entrepreneurs to build a successful venture. The purpose of this paper is to see how research about the effectuation logic (=EL) on the entrepreneurs decision-making process has evolved since Sarasvathy's paper in 2001 and help move effectuation research forward. Through a systematized literature review based on the research papers compiled by The Society for Effectual Action at the University of Virginia, we analyze 100 papers published by the Journal of Business Venturing. This study helps clarify such logic within the academic area, contributes to the Entrepreneurship Education, besides being important to individuals who are thinking on starting a new venture. Considering its limitations, since this research only considers articles published on the JBV, we cannot generalize its findings. Besides, this paper contributes with an innovative integrated view of the EL where the micro, meso and macro dimensions are shown in relation to the time perspective, since researches made until now have been considered too much fragmented. Based on this review, we identify gaps in literature and suggest topics for future studies.

Keywords: entrepreneurship; entrepreneurs; effectuation; effectual logic; review; decision making.

L gica effectuation: uma revis o sistem tica da literatura sobre processo decis rio de empreendedores entre 2001 e 2016

RESUMO

A teoria da effectuation de Sarasvathy identifica uma l gica de pensamento usada por empreendedores especialistas para construir um empreendimento de sucesso. O objetivo deste artigo   ver como a pesquisa sobre a l gica de effectuation (= LE) no processo de tomada de decis es dos empreendedores evoluiu desde o artigo de Sarasvathy em 2001 e ajudou a levar adiante a pesquisa de effectuation. Atrav s de uma revis o de literatura sistematizada com base nos documentos de pesquisa compilados pela The Society for Effectual Action na Universidade da Vir nia, analisamos 100 artigos publicados pelo Journal of Business Venturing. Este estudo ajuda a esclarecer essa l gica dentro da  rea acad mica, contribui para a Educa  o Empreendedora, al m de ser importante para os indiv duos que est o pensando em iniciar um novo empreendimento. Considerando suas limita  es, uma vez que esta pesquisa considera apenas artigos publicados no JBV, n o podemos generalizar seus achados. Al m disso, este artigo contribui com uma vis o integrada e inovadora da LE, onde as dimens es micro, meso e macro s o mostradas em rela  o   perspectiva temporal, uma vez que as pesquisas feitas at  agora t m

sido consideradas fragmentadas demais. Com base nessa revisão, identificamos lacunas na literatura e sugerimos tópicos para estudos futuros.

Palavras-chave: empreendedorismo, empreendedores, lógica effectuation, effectuation, revisão, tomada de decisão.

INTRODUCTION

It is relevant to understand the way entrepreneurs think and act. Sarasvathy (2001; 2008) could increase our knowledge on the entrepreneurial process by describing two different logics applied by entrepreneurs for taking key decisions: causation and effectuation. Causation refers to a planned strategy approach; and effectuation, on the other hand, refers to emergency strategies and options based on loss affordability, flexibility, and experimentation.

In the causation logic, the entrepreneur's behavior is to take an existing market opportunity and, through the use of resources, create a sustainable competitive advantage. On the other hand, in the effectuation logic the entrepreneur's behavior is to take the opportunity by experimenting and changing direction as new information becomes available (SARASVATHY, 2008).

In this article, we focus on the effectuation logic literature issued by the Journal of Business Venturing since 2001 until 2016. We separated all articles in groups considering their objectives. We started with a group of 100 articles until we could categorize them by their focus. As a consequence, we could select the articles relative to the entrepreneur's effectuation logic on the decision-making process and made an analyses summarizing important features, such as gaps in literature that could be recommended for future studies, relevance of effectuation aspects along the time.

Beyond the contributions to scholars, this research gives a clear picture of which elements from the effectuation logic have been relevant along the time. Concerning the logic for the decision-making process we could propose a more integrated and innovative framework which might make it easier for those interested in the subject to understand the logic in a more global model.

Literature on entrepreneurship goes back to the work of scholars who studied the internationalization of the firms within two streams of research according to Andersson (2000): those with an economic approach and those with a process approach. The first group of researchers understood men had access to perfect information and made a rational decision. In this group we had authors like (e.g. HYMER, 1960; VERNON, 1966; BUCKLEY; CASSON, 1976; DUNNING, 1977). The second group had its basis on the organizational theory and replaces the economical man by the behavioral man. In this last group we had Johanson and Vahlne (1977) and Andersson (2000).

However, our modern context reflects instability, uncertainty, complexity and high competition. As a consequence, it became important to understand the entrepreneurs' decision-making process within a context where one cannot predict the near future. If traditionally studies on entrepreneurship mentioned the rational decision-making model, nowadays the effectuation logic

changes that line of thinking and presents an alternative way to the traditional process called causal logic or causation.

Despite the fact that advances in research on entrepreneurs' decision-making process have happened, according to Shepherd, Williams and Patzelt(2014), such decision-making process is still not clear enough because it has become highly fragmented. It is not clear when, why, where, and how individuals make important decisions in the entrepreneurial process, entrepreneurial entry decisions, decisions about exploiting opportunities, entrepreneurial exit decisions, heuristics and biases in the decision-making context, characteristics of the entrepreneurial decision maker and the environment as decision context. That gap in literature has motivated us to make this systematic review on the subject and to create an integrated framework which might make effectuation logic easier to understand, making this paper relevant to entrepreneurship literature and to practitioners.

As a consequence, the objective of this article was to make a systematic literature review on the effectuation logic used by entrepreneurs on their decision-making process and to analyze its evolution since Sarasvathy's first paper in 2001 at Journal of Business Venturing. Besides, we suggest an innovative integrated framework about the entrepreneurs decision-making process, as a means to extend knowledge on the theme.

THEORETICAL CONSIDERATIONS

Causation and effectuation

During the past decade, the entrepreneurship theory provided logic of reasoning to predictive rationality. However, Sarasvathy (2001) came up with two different approaches for entrepreneurs to develop their venture: causation and effectuation. The causation logic would be the process that would go back to the logic of causal rationality, which would happen when entrepreneurs started with a clear goal and selected a group of resources to achieve these goals. This process is consistent with planned strategy approaches from Ansoff (1988), Brews and Hunt (1999) and Minzeberg (1978) and underlays conditions of predictable outcomes through calculation made based on a perfect and stable market. Here entrepreneurs first define their aims and then look for opportunities, always thinking on maximizing their returns.

On the other side, Sarasvathy (2001) brings the concept of the effectuation logic, when entrepreneurs started with a given set of resources to start a venture within an unknown and unpredictable context. According to Kalinic, Sarasvathy and Forza (2014), entrepreneurs use the affordable loss principle which in fact is an estimation of what they can put at risk and what they are willing to lose at the moment of the decision. Besides, considering that the future is unpredictable, they remain flexible and open, considering alliances with their stakeholders and even changing their objectives.

Elements of effectuation logic:

Researches have traditionally studied entrepreneurship as either a set of personality traits that explained success or failure or a set of attributes which contained the seeds of a firm's success or failure. In case entrepreneurs did not have the proper traits, they would have to develop them. Also, potential entrepreneurs were called on to develop strategies and skills to be able to identify and exploit good opportunities.

However, taking Sarasvathy's effectuation approach and all studies that have been happening since 2001 have begun to identify elements of effectual logic entrepreneurs use in the beginning of a new venture: (1) they start with who they are, what they know, and whom they know; (2) they focus on what they can do without worrying so much with what they ought to do; (3) they make commitments to the venture with some people they interact; (4) these commitments mean new objectives for the venture; (5) with the increased resources due to their network some constraints start to happen and they delimit who can take part in the network; (6) and by the end, objectives and networks converge into a new market and a new firm. As we follow the articles since 2001 we observe that these elements are present as focus of the analyzed researches in a higher or lower percentage. Please see Table 1 and Figure 1 in order to identify these works and their focus throughout time.

Principles of effectuation logic:

It is important to mention that at each step of the process, entrepreneurs use few principles that do not rely on prediction, but instead, assume the impact of individual creation. Table 1 summarizes these principles.

Table 1 – Basic principles of effectual thought

| Issue | Effectual principle |
|-------------------------------------|--|
| View of the future | <i>Design.</i> The future is contingent on actions by willful agents. |
| Givens | <i>Means</i> provide the basis for decisions and new opportunities. 3 subconstructs: – <i>What I know</i> – <i>Who I am</i> – <i>Whom I know</i> . |
| Attitude toward others | <i>Partnership.</i> Build your market together with customers, suppliers and even prospective competitors. |
| Predisposition toward risk | <i>Affordable Loss.</i> Calculate downside potential and risk no more than you can afford to lose. |
| Predisposition toward contingencies | <i>Leverage Contingency.</i> Surprises can be positive. Leverage them into new opportunities. |
| Underlying logic | To the extent that we can control the future, we don't need to predict it. |

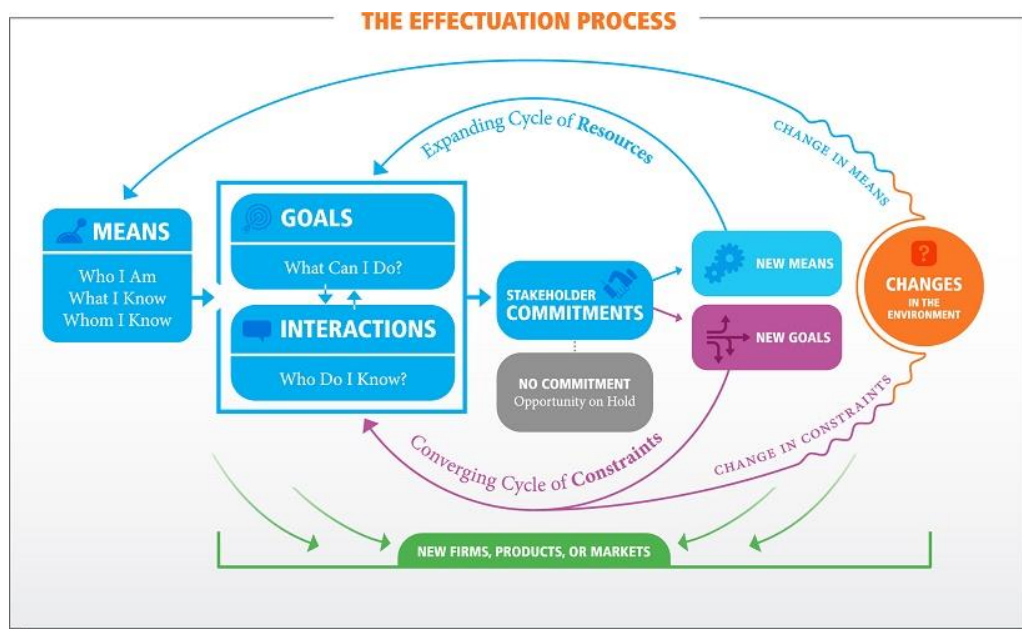
Source: Read et al. (2009).

Effectuation is an approach used in the new venture setting to solve problems in a functional way despite uncertainty. Traditional strategies require the decision maker to have access to information, that the future would be equivalent to past so that predictions would be based on historical data, the effectual principle of DESIGN guides the entrepreneur to incorporate the impact of his actions on the outcome of the context. MEANS give the decision-maker a basis for direction, suggesting that opportunities as from knowledge or network. PARTNERSHIP means that new opportunities may be created as a consequence of the additional means provided by network. AFFORDABLE LOSS reinforces that entrepreneurs should incorporate the possible downside in evaluating alternatives in a way that a failure will not result in a greater venture or personal failure.

Also, when an unpredictable future exists, the entrepreneur should seek to **LEVERAGE CONTINGENCY**, looking for other alternatives from surprises.

According to Alvarez and Barney (2005) and Sarasvathy (2001b), effectuation provides heuristics intended for uncertainty, a context in which several entrepreneurs work. As an overview on the Effectuation Logic, we recall to Sarasvathy diagram as follows:

Figure 1- The Effectuation Process



Source: Society for Effectual Action – Materials (2017).

Entrepreneurial decision-making

Shepherd, Williams and Patzelt (2014) discussed about the entrepreneurial decision-making process. In order to conclude our summary and contribute to the extent of literature studies, it is important that we refer to that paper.

According to their research, individuals are heterogeneous in their perceptions of the context where they are situated, and these different perceptions influence how they assess environmental conditions and ultimately make entrepreneurial decisions. Thus, their perception of the environment (and not the environment itself) is one aspect that impacts their decision. Also, entrepreneurs as any individual have their personal characteristics (such as human capital, affect and emotional reactions), and based on that there will be differences in the assessments of the attractiveness of potential opportunities.

Besides, the decision to pursue a career, which could be to become self-employed, to work for a company or to create a new venture may also be influenced by an individual's aspirations and attitudes, abilities, and opportunity costs. However, the factors that influence the decision-making process change over time, as a consequence, the decision might also be different in different moments.

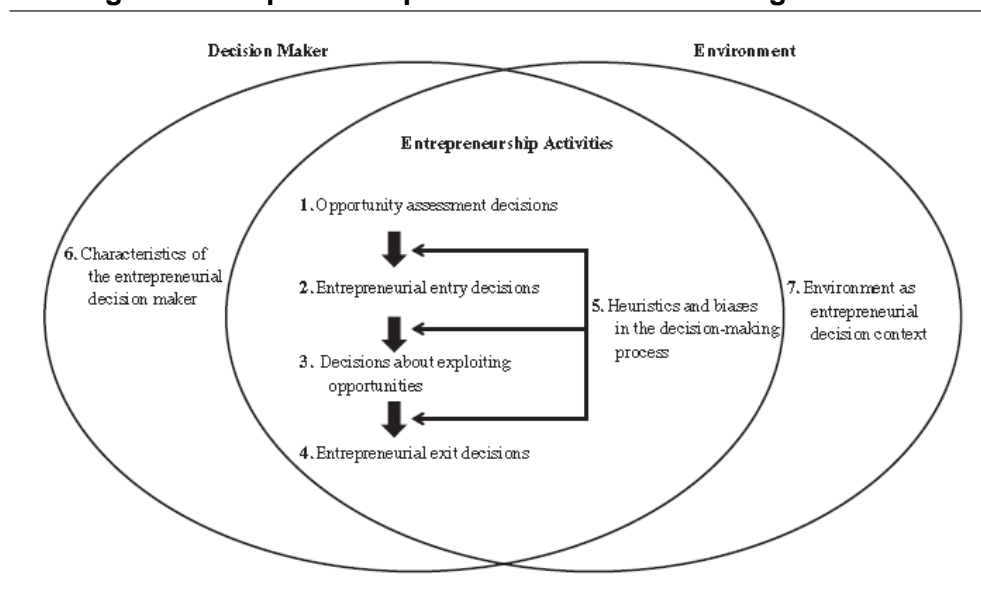
Another decision Shepherd discussed about is the exploitation of an opportunity, which in the case of an entrepreneur may involve the creation of a new venture. The exploitation decision can

be influenced by several features like the degree of planning, the organizational context the source(s) and availability of funding, among others. Entrepreneurs might decide to go on or to exit and this can occur because the performing is poor or when it is performing well.

Finally, the decision-making process is also nested in individual-specific differences, such as gender, self-efficacy, metacognition, assessments of risk, affect or emotions, and national and cultural heritage, regulations, culture or other forces.

In a world of increasing uncertainty, complexity, and change, it is essential to act entrepreneurially. However, decision making in such environments is a challenging task. Shepherd, Williams and Patzelt (2014) add that there have been many previous work with substantial contributions to our understanding of how entrepreneurs act, but most of them built a fragmented model which in fact did not show the overall picture of the decision-making process. Thus, he includes his model which were reproduce here.

Figure 2 – Map of Entrepreneurial Decision-Making Research



Source: Shepherd, Williams and Patzelt (2014).

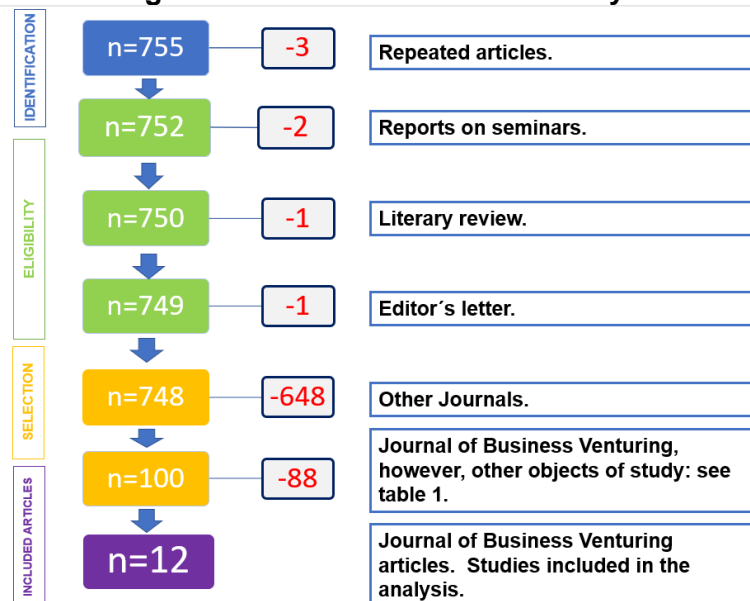
METHOD

We have chosen the systematic review study because it allows us to identify and summarize literature from specific themes on a systematic and trustworthy way. Our search started from data compiled from The Society for Effectual Action on entrepreneurship. This Society belongs to the University of Virginia Darden School of Business, where Sarasvathy presently works. From a compilation of 755 papers presented on the site we chose to work with all articles from the Journal of Business Venturing (Publisher-Elsevier) from 2001 until 2007 with the aim of analyzing the ones whose focus was specifically on the effectuation logic. The choice for that Journal happened because that is a dedicated journal focused on publishing articles on the entrepreneurship phenomenon with a multi-disciplinary approach, besides having a high H-index (131). Also, the

decision to dedicate our research mostly on the articles dedicated to the decision-making logic was because this was one of the most studied topic since 2001 according to our analysis.

At first, we deducted the repeated articles, few articles on seminars, letters from the editor and a literary review since this was a compilation of articles and not an empirical research. After that, we set aside other Journals with which we would not work on this research and, finally, we have got to 100 articles only from Journal of Business Venturing. Analysing more deeply we could identify each articles' main focus and, we could separate the ones that dealt excursively on the decision-making logic. The reader can follow the process in a clearer way by Figure 3 below and find the description of all articles from the journal on Table 2.

Figure 3 – Diagram of selected studies on the systematic review



Source: Based on PRISMA flow diagram (Moher et al., 2009).

Table 2 – List of researches on Entrepreneurship from 2001 – 2016 in the Journal of Business Venturing

| | TITLE | DATE | FOCUS |
|---|--|------|---------------------------|
| 1 | A conceptual framework for entrepreneurship education policy: Meeting government and economic purposes | 2013 | entrepreneurshipeducation |
| 2 | Beyond cultural values? Cultural leadership ideals and entrepreneurship | 2016 | context |
| 3 | Do market information processes improve new venture performance? | 2010 | context |
| 4 | Institutions, entrepreneurs, and communities: A special issue on entrepreneurship | 2013 | context |
| 5 | Market imperfections, opportunity and sustainable entrepreneurship | 2007 | context |
| 6 | Measuring the social identity of entrepreneurs: Scale development and international validation | 2016 | context |
| 7 | Nations of entrepreneurs: A social capital perspective | 2010 | context |
| 8 | Particularistic and system trust among small and medium enterprises: A comparative study in China's transition economy | 2009 | context |
| 9 | Persistence and heterogeneity in entrepreneurship: An evolutionary game | 2011 | context |

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|----|--|------|-----------------------------------|
| | theoretic analysis | | |
| 10 | Contingency as an entrepreneurial resource: How private obsession fulfills public need | 2011 | contingency |
| 12 | The questions we ask and the questions we care about: reformulating some problems in entrepreneurship research | 2004 | entrepreneurs x non-entrepreneurs |
| 11 | Behavioral disinhibition and nascent venturing: Relevance and initial effects on potential resource providers | 2016 | entrepreneurs' features |
| 13 | A situated metacognitive model of the entrepreneurial mindset | 2010 | entrepreneurs' features |
| 14 | Beyond hubris: How highly confident entrepreneurs rebound to venture again | 2010 | entrepreneurs' features |
| 15 | Can genetic factors influence the likelihood of engaging in entrepreneurial activity? | 2009 | entrepreneurs' features |
| 16 | Cognitive mechanisms in entrepreneurship: Why and when entrepreneurs think differently than other people | 1998 | entrepreneurs' features |
| 17 | Towards a schematic theory of entrepreneurial alertness | 2013 | entrepreneurs' features |
| 18 | Trapped by the entrepreneurial mindset: Opportunity seeking and escalation of commitment in the Mount Everest disaster | 2016 | entrepreneurs' features |
| 19 | The Questions We Ask and the Questions We Care About | 2003 | entrepreneurship |
| 20 | An investigation of hindsight bias in nascent venture activity. | 2009 | experience |
| 21 | Do serial entrepreneurs run successively better-performing businesses? | 2013 | experience |
| 22 | Practice makes perfect: Entrepreneurial-experience curves and venture performance | 2014 | experience |
| 23 | Should I stay or should I go? Career choice intentions of students with family business background | 2011 | experience |
| 24 | A little bit of knowledge is a dangerous thing: Entrepreneurial experience and new venture disengagement | 2016 | failure |
| 25 | A reconceptualization of fear of failure in entrepreneurship | 2016 | failure |
| 26 | Entrepreneurial exit as a critical component of the entrepreneurial process: Theoretical development | 2010 | failure |
| 27 | Entrepreneurial learning from failure: An interpretative phenomenological analysis | 2011 | failure |
| 28 | Individual responses to firm failure: Appraisals, grief, and the influence of prior failure experience | 2014 | failure |
| 29 | Making sense of entrepreneurial exit strategies: A typology and test | 2015 | failure |
| 30 | Does family employment enhance MSEs performance? Integrating socioemotional wealth and family embeddedness perspectives. | 2010 | family |
| 31 | The impact of family support on young entrepreneurs' start-up activities | 2016 | family |
| 32 | Failure or voluntary exit? Reassessing the female underperformance hypothesis | 2015 | femaleentrepreneurship |
| 33 | Women's self-employment: An act of institutional (dis)integration? A multilevel, cross-country study | 2013 | femaleentrepreneurship |
| 34 | Financing decisions as a source of conflict in venture boards | 2010 | financedecisions |

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|----|--|------|--------------------------------|
| 35 | Firm growth and the illusion of randomness | 2014 | growth |
| 36 | Entrepreneurship and psychological disorders: How ADHD can be productively harnessed | 2016 | health |
| 37 | The “heart” of entrepreneurship: The impact of entrepreneurial action on health and health on entrepreneurial action | 2015 | health |
| 38 | The contrasting interaction effects of improvisational behavior with entrepreneurial self-efficacy on new venture performance and entrepreneur work satisfaction | 2008 | improvisation |
| 39 | Perceived progress variability and entrepreneurial effort intensity: The moderating role of venture goal commitment | 2015 | incubators |
| 40 | Industry changes in technology and complementary assets and the creation of high-growth firms | 2011 | innovation |
| 41 | Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs | 2011 | innovation |
| 42 | The power of arguments: How entrepreneurs convince stakeholders of the legitimate distinctiveness of their ventures | 2015 | innovation |
| 43 | International Entrepreneurship research (1989–2009): A domain ontology and thematic analysis | 2011 | international entrepreneurship |
| 44 | Attributions to intuition in the venture founding process: Do entrepreneurs actually use intuition or just say that they do? | 2011 | intuition |
| 45 | Angel group members’ decision process and rejection criteria: A longitudinal analysis | 2015 | investor |
| 46 | Drawn to the fire: The role of passion, tenacity and inspirational leadership in angel investing | 2016 | investor |
| 47 | Social trust and angel investors’ decisions: A multilevel analysis across nations | 2015 | investor |
| 48 | When do investors forgive entrepreneurs for lying? | 2014 | investor |
| 49 | Dispersed knowledge and an entrepreneurial theory of the firm | 2004 | knowledge |
| 50 | Entrepreneurial expertise and the use of control | 2015 | knowledge |
| 51 | Knowledge as the source of opportunity | 2016 | knowledge |
| 52 | Learning asymmetries and the discovery of entrepreneurial opportunities | 2007 | knowledge |
| 53 | Causation and effectuation processes: A validation study. | 2011 | logic |
| 54 | Corporate effectuation: Entrepreneurial action and its impact on R&D project performance. | 2012 | logic |
| 55 | Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices | 2009 | logic |
| 56 | Event- and outcome-driven explanations of entrepreneurship | 2004 | logic |
| 57 | Judging a business by its cover: An institutional perspective on new ventures and the business plan | 2009 | logic |
| 58 | Measuring emergence in the dynamics of new venture creation | 2006 | logic |
| 59 | Monetising blogs: Enterprising behaviour, co-creation of opportunities and social media entrepreneurship | 2017 | logic |
| 60 | Properties of emerging organizations: An empirical test. | 2008 | logic |

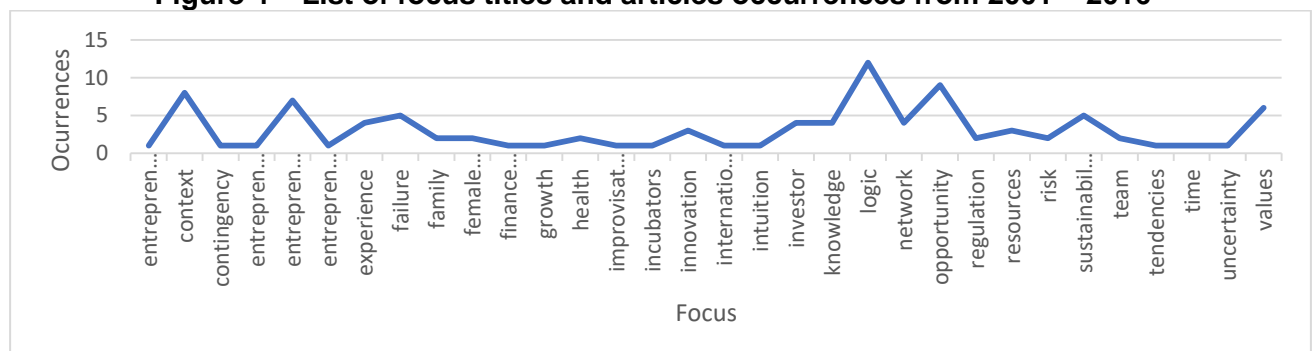
| | | | |
|----|--|------|-------------|
| 61 | Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning-performance relationship in small firms | 2010 | logic |
| 62 | Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior? | 2011 | logic |
| 63 | The entrepreneurial journey as an emergent hierarchical system of artifact-creating processes | 2015 | logic |
| 64 | Uncertain but able: Entrepreneurial self-efficacy and novices? use of expert decision-logic under uncertainty | 2014 | logic |
| 65 | Academic networks in a trichotomous categorisation of university spinouts. | 2003 | network |
| 66 | The evolution of interorganizational relationships in emerging ventures: An ethnographic study within the new product development process | 2015 | network |
| 67 | The use of networks in human resource acquisition for entrepreneurial firms: Multiple "fit" considerations | 2006 | network |
| 68 | Toward a dynamic process model of entrepreneurial networking under uncertainty | 2017 | network |
| 69 | Are opportunities recognized or constructed?: An information perspective on entrepreneurial opportunity identification | 2010 | opportunity |
| 70 | Entrepreneurial alertness in the pursuit of new opportunities | 2012 | opportunity |
| 71 | Entrepreneurial opportunities and the entrepreneurship nexus: A re-conceptualization | 2015 | opportunity |
| 72 | Entrepreneurial opportunities as propensities: Do Ramoglou & Tsang move the field forward? | 2016 | opportunity |
| 73 | Focus on opportunities as a mediator of the relationship between business owners' age and venture growth. | 2010 | opportunity |
| 74 | How can we know the dancer from the dance?: Reply to "Entrepreneurship as the structuration of individual and opportunity: A response using a critical realist perspective". | 2010 | opportunity |
| 75 | Making it personal: Opportunity individuation and the shaping of opportunity beliefs | 2014 | opportunity |
| 76 | Misgivings about dismantling the opportunity construct | 2017 | opportunity |
| 77 | Reconciling diverse approaches to opportunity research using the structuration theory | 2005 | opportunity |
| 78 | In the eye of the beholder: How regulatory focus and self-efficacy interact in influencing opportunity recognition | 2012 | regulation |
| 79 | Macro-level determinants of formal entrepreneurship versus informal entrepreneurship | 2014 | regulation |
| 80 | Beyond environmental scarcity: Human and social capital as driving forces of bootstrapping activities | 2014 | resources |
| 81 | Do entrepreneurial goals matter? Resource allocation in new owner-managed firms | 2013 | resources |
| 82 | Swinging a double-edged sword: The effect of slack on entrepreneurial management and growth | 2011 | resources |

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|-----|---|------|----------------|
| 83 | Missing the boat or sinking the boat: a study of new venture decision making | 2005 | risk |
| 84 | Variable risk preferences in new firm growth and survival | 2016 | risk |
| 85 | Escaping the green prison: Entrepreneurship and the creation of opportunities for sustainable development | 2010 | sustainability |
| 86 | Sustainable development and entrepreneurship: Past contributions and future directions. | 2010 | sustainability |
| 87 | The entrepreneur–environment nexus: Uncertainty, innovation, and allocation | 2010 | sustainability |
| 88 | The influence of sustainability orientation on entrepreneurial intentions – Investigating the role of business experience. | 2010 | sustainability |
| 89 | Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action | 2007 | sustainability |
| 90 | Antecedents, moderators, and performance consequences of membership change in new venture teams. | 2005 | team |
| 91 | Human capital theory and venture capital firms: exploring “home runs” and “strike outs” | 2005 | team |
| 92 | Entrepreneurship theory: possibilities and future directions | 2004 | tendencies |
| 93 | The age-effect of financial indicators as buffers against the liability of newness | 2010 | time |
| 94 | Unpacking the uncertainty construct: Implications for entrepreneurial action | 2011 | uncertainty |
| 95 | A field study of entrepreneurial decision-making and moral imagination | 2009 | values |
| 96 | Balancing “what matters to me” with “what matters to them”: Exploring the legitimization process of environmental entrepreneurs | 2016 | values |
| 97 | Ethics and entrepreneurs: An international comparative study | 2003 | values |
| 98 | Ethics and entrepreneurship | 2009 | values |
| 99 | Related Debates in Ethics and Entrepreneurship: Values, Opportunities and Contingency | 2009 | values |
| 100 | Self-regulation and moral awareness among entrepreneurs. | 2009 | values |

Source: Elaborated by the authors (2017).

From the information in figure 4, the reader can depict that Entrepreneurs’ Logic was one of the most studied subject since 2001.

Figure 4 – List of focus titles and articles occurrences from 2001 – 2016



Source: Elaborated by the authors (2017).

Since we understood that there is still a need for clarification on the entrepreneurs' decision-making process because there have been many researches but most of them brought up fragmented pictures of such process, we considered this an important literature gap to be studied (SHEPHERD; WILLIAMS; PATZELT, 2014).

RESULTS AND FUTURE RESEARCHES

Our analysis from the articles related to the Effectuation Logic started with a list of all keywords used to assess those 12 articles on the Effectuation Logic. The list is summarized on Table 3 and we have just deducted the repeated titles and those related to measurement. This compilation is important since it can be used to find out articles on other journals.

Table 3 – Keywords

| KEYWORDS |
|-------------------------------|
| Business plan |
| Business planning |
| Causation |
| Creation |
| Decision-making |
| Discovery |
| Effectuation |
| Entrepreneurial self efficacy |
| Experiment |
| Expertise |
| Loosecoupling |
| New firms |
| New ventures |
| Operationsplan |
| Opportunity |
| Performance |
| Service learning |
| Uncertainty |
| Venture performance |

Source: Elaborated by the authors (2017).

Deducting the articles with other focus, we came up with Table 3 that brings not only articles with the focus on the effectuation logic in chronological order from the most recent backward, but also their respective authors. All these articles reinforced either the elements but also the principles of the effectuation logic on the decision-making process of the entrepreneurs.

Going further with our analysis we could summarize all findings from each research and recommendations for future research, making it easier to have an overview of the gaps in literature as per authors from the Journal of Business Venturing.

On the table 4 we show researches' findings and their authors' recommendations for future researches. On our side, we would suggest one similar systematic review with other high-quality journals so that we could have an overview of the main publications on the Effectuation Logic.

Table 4 – List of authors on Effectuation Logic (2001- 2016-JBV)

| | TITLE | DATE | AUTHORS |
|----|---|------|---|
| 1 | Causation and effectuation processes: A validation study. | 2011 | Gaylen N. Chandler Dawn R. DeTienne Alexander McKelvie Troy V. Mumford |
| 2 | Corporate effectuation: Entrepreneurial action and its impact on R&D project performance. | 2012 | Malte Brettel René Mauer Andreas Engelen Daniel Küpper |
| 3 | Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices | 2009 | Nicholas Dew Stuart Read Saras D. Sarasvathy Robert Wiltbank |
| 4 | Event- and outcome-driven explanations of entrepreneurship | 2004 | Andrew H. Van de Ven Rhonda M. Engleman |
| 5 | Judging a business by its cover: An institutional perspective on new ventures and the business plan | 2009 | Tomas Karlsson Benson Honig |
| 6 | Measuring emergence in the dynamics of new venture creation | 2006 | Benyamin B. Lichtenstein Kevin J. Dooley G.T. Lumpkin |
| 7 | Monetising blogs: Enterprising behaviour, co-creation of opportunities and social media entrepreneurship | 2017 | Veronika Gustafsson Mohammad Saud Khan |
| 8 | Properties of emerging organizations: An empirical test. | 2008 | Candida G. Brush Tatiana S. Manolova Linda F. Edelman |
| 9 | Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning-performance relationship in small firms | 2010 | Jan Brinckmann Dietmar Grieschke Diana Kapsa |
| 10 | Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior? | 2011 | Eileen Fischer Becky Reuber |
| 11 | The entrepreneurial journey as an emergent hierarchical system of artifact-creating processes | 2015 | Paul D. Selden Denise E. Fletcher |
| 12 | Uncertain but able: Entrepreneurial self-efficacy and novices? use of expert decision-logic under uncertainty | 2014 | Y Engel N G Dimitrova S N Khapova Tom Elfring |

Source: Elaborated by the authors (2017).

Table 5 – Findings and recommendations for future researches

| TITLE | DATE | RESULTS | FUTURE STUDIES |
|--|------|---|---|
| Causation and effectuation processes: A validation study. | 2011 | It showed that participants with high self efficacy were more likely to apply effectual logic than participants with low self efficacy. | To extend the applicability of effectuation theory to the study of all entrepreneurs, novices and experts alike. |
| Corporate effectuation: Entrepreneurial action and its impact on R&D project performance. | 2012 | With the exception of the causal “goals-driven” orientation on R&D output, researchers found no significant influences for either effectuation or causation | To envision measuring effectuation and causation (e.g., as an average of all R&D projects pursued) on a company level and incorporate objective performance measures on this level. |
| Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices | 2009 | Experts and novices differed in several elements related to entrepreneurial expertise. | To collect a body of longitudinal data about the everyday behavior of entrepreneurs, which explicitly helps us answer the question: how do entrepreneurs acquire expertise? |
| Event- and outcome-driven explanations of entrepreneurship | 2004 | It extends Aldrich’s distinction by arguing that event-driven and outcome-driven explanations represent fundamentally different kinds of process and variance theories based upon fundamentally different ontological and epistemological assumptions. | To develop a process-based social science to complement the variance approach. |
| Judging a business by its cover: An institutional perspective on new ventures and the business plan | 2009 | Studied companies had a preference for only symbolically adopting the business plan too. | To falsify the researches’ conclusions. |
| Measuring emergence in the dynamics of new venture creation | 2006 | The authors found that the dynamics in the case were best organized into three different modes: strategic organizing, tactical organizing, and organizing the vision. Second, their analysis showed significant punctuated shifts within each of those modes, and that the shifts occurred at virtually the same time, leading to a dynamic process defined as emergence event. In addition, they explored the internal sequence of the emergence event, which led to a transformation in strategic organizing, which then generated the emergence of a new vision. | New methods for understanding entrepreneurship. |
| Monetising blogs: Enterprising behaviour, co-creation of opportunities and social media entrepreneurship | 2017 | Dpmmax sets prerequisites for successful monetisation. | Studies of enterprising individuals, supported in their endeavours. |

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|---|------|---|---|
| Properties of emerging organizations: An empirical test. | 2008 | Boundary and exchange are necessary and sufficient for firm survival in the shortterm and that resources are necessary but not sufficient. | To augment the model by either adding additional properties or by expanding the properties already in the framework. |
| Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning-performance relationship in small firms | 2010 | Studies controlling for industry effects are found to report a weaker business planning performance relationship. This study showed the positive link between business planning and firm performance. | It could e.g. analyze how uncertainty, sensitivity to contradictory information, or strategic flexibility impacts the execution of business plans. |
| Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior? | 2011 | Evidence that such channels (like Twitter) can help entrepreneurs create and capitalize on opportunities. | To consider more broadly the effects of social media adoption by individuals who found ventures and who work in entrepreneurial firms. |
| The entrepreneurial journey as an emergent hierarchical system of artifact-creating processes | 2015 | It showed that the ability to conceptualize the entrepreneurial journey in terms of hierarchically organized patterns of artifact emergence contributes to our understanding of the endogenous, self-causing, context-creating, self-organizing and path-dependent dynamics of venture creation. | To study the issue of how to integrate the "heterogeneous aspects of contexts "and "delineat[e] the microfoundations of entrepreneurship " in multi-level explanations. |
| Uncertain but able: Entrepreneurial self-efficacy and novices? use of expert decision-logic under uncertainty | 2014 | .It showed the multidimensionality of the uncertainty construct, as changes in self-efficacy were independent from evaluations of state uncertainty. Also, it showed how efficacy beliefs influence situational framing and how these projections of the self ve entrepreneurial decisions and actions. | To extend the study to all entrepreneurs, novice and experts alike. |

Source: Elaborated by the authors (2017).

LIMITATIONS

Like any study, ours has limitations. We have conducted an issue-by-issue search of a leading journal in the field, Journal of Business Venturing, however, there certainly are additional relevant journals that we did not examine with the present study. Therefore, our review does not claim to be exhaustive but only to supplement the knowledge generated by part of the articles compiled by The Society for Effectual Action from the University of Virginia.

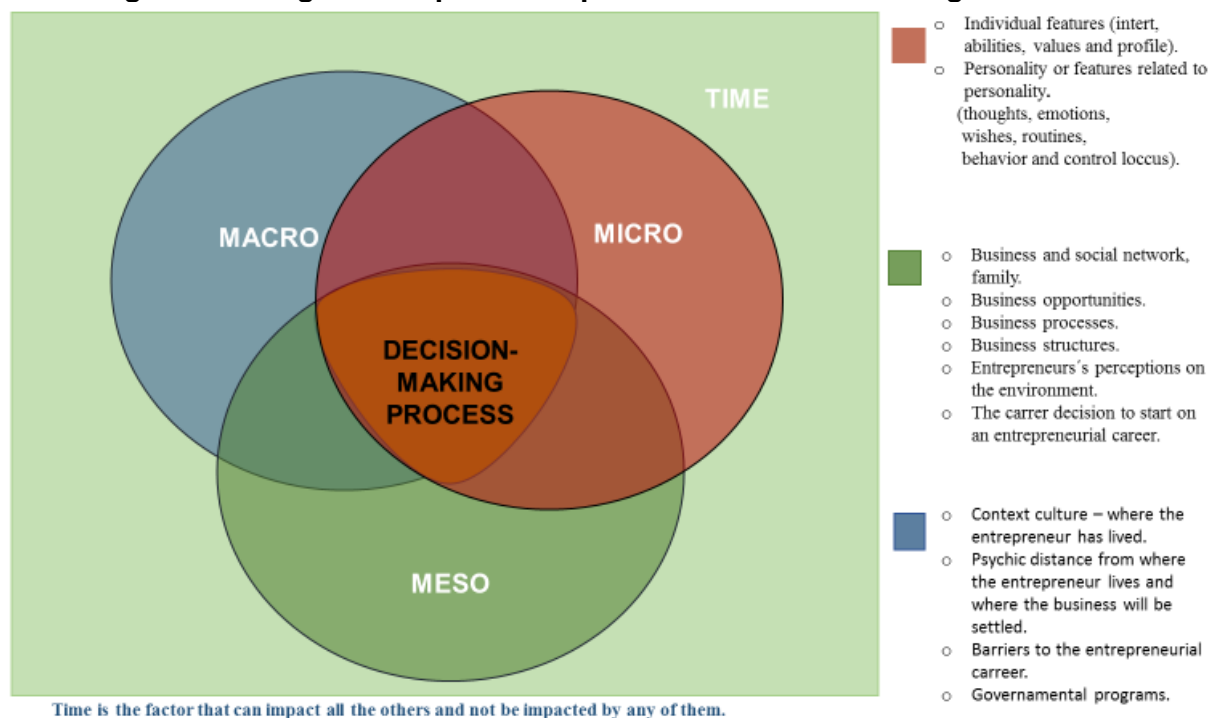
CONCLUSION

Our initial purpose was to see how research on the effectuation logic on the entrepreneurs decision-making process has evolved since SarasSarasvathy' first paper in 2001. We hope that

this synthesis can make it easier to understand how science has evolved since Sarasvathy discussed about the effectuation logic for the first time.

Also, as mentioned in the beginning of this study we would like to contribute to move forward with the research on the effectuation logic for the decision-making process of the entrepreneurs. Thus, inspired by the work of Shepherd, Williams and Patzelt (2014) we would like to present a small diagram where we can integrate elements from Sarasvathy's researches as well as other elements we have seen as focus on the researches summarized here, besides some aspects like culture and time mentioned by Shepherd, Williams and Patzelt (2014).

Figure 5 – Integrated Map on Entrepreneurial Decision-Making Process



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