

CAUSATION VERSUS EFFECTUATION IN ENTREPRENEURIAL DECISION- MAKING: A COMPREHENSIVE LITERATURE REVIEW

Neha Monga^{1*} & Ashish Arora²

Department of Management, Guru Nanak Dev University College, Jalandhar

Department of Management, Guru Nanak Dev University College, Jalandhar

Received date 15 October 2025 Revised 2 November 2025

Abstract

India's aspiration of Viksit Bharat 2047 envisions a developed, self-reliant, and employment-rich economy. The goal of zero unemployment can be realized through the use of the vibrant startup ecosystem as an engine of inclusive growth. But large-scale job creation requires an entrepreneurial mindset that carefully balances innovation with structure and flexibility with foresight. This paper argues that a blended approach of effectuation and causation provides the most effective framework for Indian startups to achieve this national vision. This review covers the extensive literature that articulates the dichotomy and interplay between causation and effectuation in entrepreneurial decision-making, specifically within the dynamic startup ecosystem in India. If causation, harmonious with traditional strategic planning, specifies a goal or an effect and subsequently examines the means; effectuation is the process through which the available means are employed in the exploration of emergent effects. This paper synthesizes research to critically assess the theoretical bases and empirical applications of these logics regarding cognitive antecedents, contextual factors, and their joint effects on venture performance. A consensus in the review points out that a synergistic combination of the two logics normally yields superior outcomes, which enables entrepreneurs to switch strategically between structured planning and flexible experimentation to optimize efficiency and adaptability, especially under volatile situations. The study provides a sound basis for how entrepreneurs navigate uncertainty and clearly underlines the development of cognitive agility in integrating both causal and effectual reasoning for enhanced opportunity generation, business model innovation, and long-term sustainability.

Keywords: Entrepreneurship, Decision-making, Causation, Effectuation, Cognitive Antecedents, Uncertainty

1. Introduction

India's vision of Viksit Bharat 2047 aims to transform the country into a developed economy by its 100th year of independence. A critical pillar of this transformation is entrepreneurship, particularly through startups, which have the potential to generate large-scale employment and innovation-driven growth. However, in a volatile, uncertain, complex, and ambiguous (VUCA) environment like India's—marked by resource constraints, policy flux, and uneven infrastructure — traditional causation-based entrepreneurship (goal-driven, predictive planning) often fails to sustain growth. Here, the effectuation approach, as developed by Saras Sarasvathy (2001), offers a more contextually suitable model. It emphasizes starting with available means, leveraging contingencies, and co-creating opportunities through partnerships — aligning perfectly with India's entrepreneurial ecosystem. While effectuation enables adaptability and innovation in uncertain environments, causation provides the strategic discipline needed for

scalability and long-term impact. A hybrid approach — blending both — can empower Indian startups to thrive amid uncertainty while systematically contributing to employment generation and national development.

The growing A startup ecosystem in India renders a stimulating environment to illustrate the application of entrepreneurial decision-making frameworks, specifically causation and effectuation (Delladio et al., 2023) (Pfeffer & Khan, 2018). Causation captures a goal-driven logic wherein entrepreneurs envision a certain effect, and then select among various means to achieve it (akin to traditional strategic planning). On contrary, effectuation works with a certain set of constraints, agents explore probable effects, often conditional to emergent contingencies (Chen & Xu, 2022) (Johnson & Hörisch, 2021). This theoretical dichotomy, developed by Sarasvathy, illustrates the contrast in strategic thinking process where causation is allied with prescriptive methods and recognition of opportunities or problems, however effectuation is

associated with emergent strategies consisting of adaptation and experimentation (Chandler, DeTienne & Mumford, 2009). This distinction is even more apparent in rapidly changing environments, in a way that Indian start-ups must come to terms with uncertainty, prevent detailed long term planning and therefore iterative process (Yuniarty et al., 2020) (Chandler et al., 2009).

Thus, the prevalence and interaction of such approaches within Indian startups can provide insights into how ventures overcome inherent ambiguities and scarcity of resources (Ferreira et al., 2022) (Harms & Schiele, 2012). This paper seeks to examine how entrepreneurs in India integrate causation and effectuation logics to improve performance of the firms, acknowledging that overspecialization with respect to one logic is likely suboptimal in dynamic and multifaceted markets (Yu et al., 2024). In this review, we have integrated findings on causation and effectuation, critically analyzed their theoretical rationale and practical applications in entrepreneurship. It investigates the cognitive antecedents that explain why entrepreneurs follow a causal or effectual logic and analyses their underlying psychological mechanisms (Racat et al., 2023).

More over, this article explores when and under what conditions a hybrid approach to both decision logics will be more effective in opportunity generation, business model innovation and venture performance than only using one (Chen & Xu, 2022). Additionally, we will explore the contingencies (e.g., market dynamism and institutional environments) under which each logic -and their combination- are more effective or not at all, thus, addressing Sarasvathy's (Kogut et al., 2023; Shirokova et al., 2021) recent plea for further research on the context favoring each approach. Second, it will seek to reveal how institutional features of developing economies (in this case India) may impact on the adoption and effectiveness of these entrepreneurial approaches, considering institutional logics can have a strong moderating effect on the business logic- performance relationship (Shirokova et al., 2021).

2. Literature Review

Fundamental Theories of Causation and Effectuation

According to Sarasvathy (2001), the causational process is based upon predictive control, where entrepreneurs seek to predict and control an uncertain future through first establishing goals and next bruising for these resources needed to achieve the set goals (Ghorbel et al., 2017). This method of making games involves disproportionately heavy levels of up front planning, market research, competition analysis to minimize risk and maximise profits - very much in line with pre-internet mainstream industry based on forecasting and efficiency. In contrast, effectuation

ascribes to non-predictive control that entrepreneurs use their current means to establish new goals and opportunities, embracing rather than trying to predict or attenuate uncertainty (Fresé & Gielnik, 2022). Such relationships are often characterised by learning, co-learning and adaptation as they evolve, requiring developing partnerships and responding to emergent change in an iterative and adaptive manner – that is, co-creating markets/ opportunities (Martín-Navarro et al., 2021).

This form of adaptability contrast with causal logic wherein a specific opportunity is sought; a plan developed to exploit it and the resources are gathered in service to its implementation (Wei et al., 2024). This basic difference also tells us that successful entrepreneurs do not start with already established market or opportunities but determinates through affordable loss, building strategic alliance and influencing the contingencies to form new outcomes which will satisfy their need better (Yuniarty et al., 2020). Furthermore, even if causation tries to capitalize on known opportunities in markets already present, effectuation aims at the invention of new markets and their opportunities through a series of iterative trials and learning from stakeholders (Delladio et al., 2023). Elements that differentiate this process also include a focus on affordable loss rather than expected return, and the building of strategic alliances with stakeholders meaning venture creation is flexible and adaptive (Jørgensen, 2014).

However, the utility of approaches to carrying out HRM practices is not without variability and may substantially depend on other exogenous conditions such as institutional context or predominant economic situation, which were continuously tested all over their path (Shirokova et al., 2020) (Shirokova et al., 2021). For example, in stimulating postnormal times that may be characterized by significant uncertainty and rapid change, logic of the effective can often prove superior because it is flexible whilst pointing towards “new things” (rather than fixated on direct targets), not bound to predetermined plans (Gudiksen & Brandt, 2014). This open attitude of mind gives to effectual entrepreneurs the ability to handle more difficult and complicated situations throughout, by simply resetting again and again their ends and means at each step instead of sticking with initial determinations (Martín-Navarro et al., 2021) (Fresé & Gielnik, 2022). Effectuation recognizes that in conditions of non-predictability, the answer is to co-create viable solutions with stakeholders and manage risks by only investing resources commensurate with an affordable loss (Hjortsø et al., 2017) (Nguyen et al., 2018).

3. Cognitive Antecedents and Psychological Mechanisms

The transition between causal and effectual logics is shaped by cognitive biases, and heuristics most of the time, where the weight that entrepreneurs attach to risk perception and tolerance has a major influence on their decision-making logic preference (Fresé & Gielnik, 2022). This preference is a reflection of their cognitive frames, determining whether they use predictive planning or iterative adaptation when confronted with uncertainty (Fresé & Gielnik, 2022). Rational entrepreneurs do not play the prediction game; they emphasize instead on what can be done in and with the existing resources to generate new artifacts in a dynamic world (Gudiksen & Brandt, 2014). This step-by-step act of exploiting possibilities is frequently based on a trial-and-error process whereby ventures try out diverse business models and product innovations (Johnson & Hörisch, 2021). It is precisely this outlook that gains significance in the digital start-up and high-tech environments, characterized by continuous innovation and labs learning (Ghezzi, 2018). Effectuation, thus, is an entrepreneurship attitude which is exceedingly dependent on entrepreneurial mind set, breaking away from the business plan based and highlighting the flexibility and the responsiveness (Ghorbel et al., 2017).

Sarasvathy's believed and evidenced that effectual entrepreneurs are not so keen on forecasting future outcomes and more likely to change their initial goals or visions for the new venture (Dew et al., 2008). This control logic enables entrepreneurs to influence the results through available resources and having contact with various actors, instead of being totally subject to an unpredictable environment (Moberg, 2014) (Xu & Koivumaki, 2018). This aids to underscore that effective entrepreneur reasoning permits entrepreneurs to proactively mold their futures via dynamic endowment of resources and orchestration therefrom, as a replacement of a static form session (Johnson & Horisch, 2021). This is specifically pronounced in extremely uncertain situations, where traditional causal-based arrangement may not be useful (Linton & Klinton, 2019). Thus, an appreciation of the cognitive processes that foster effective decision-making is essential for understanding how entrepreneurs are able to handle and flourish in uncertain situations (Jørgensen, 2014).

4. Impact on Entrepreneurial Endeavors

The inclination for causation vs. effectuation orientation also affects the performance of ventures, particularly in terms of innovation, market entry, and long-term success (Nguyen et al., 2018). Specifically, if causal mechanisms empower the exploration and exploitation of existing markets, effectual logic is favorable to radical innovations and possibly will lead to new market emergence owing to adaptive learning and involvement of stakeholders (Gudiksen & Brandt, 2014). This provision is crucial for new ventures

functioning in contexts classified by high dynamism, less established or rapidly growing market structures and that this feature demands a more flexible and reactive attitude toward creating opportunities (Martín-Navarro et al., 2021) (Ghorbel et al., 2017). On the basis of empirical research, it has been demonstrated that effectuation is positively related to success in highly innovative sectors and can be significantly helpful for firms in a growth phase by facilitating the use of means to create opportunities (Bocken & Coffay, 2022). In contrast, exactly cause and effectuation not only produce marginal increases in performance under hostile conditions; the former also generates the instabilities, while in the latter case we do observe better performances together with more stability (Shirokova et al., 2020).

5. Moderating Role of Contextual Factors

The efficacy of causation or effectuation is not universal, but it diverges in context of contextual contingencies such as industry context, resource availability and venture stage. This proposes that entrepreneurs may perhaps strategically interchange between these logics in response to changing requirements and opportunities arising in their operational context (Fresé & Gielnik, 2022). This interchange of cognitive models for decision making emphasizes that entrepreneurs have fallen into cognitive agility to swap between causal and effectual mode in response to environmental changes as well as organizational maturation (Jørgensen, 2014). As ventures mature, a hybridized approach to strategy (Yu et al., 2024) that blends elements from both causal and effectual logics can be an effective way to cope with the duality of needing both emergent strategy and preplanned action for performance enhancement. Such flexibility permits entrepreneurial decisions to be kept in line with the levels of uncertainty and resources that are available, improving strategic alignment over the lifecycle of a venture. Despite the in-depth analysis contained in prior literature about specific uses of these logics, a more subtle approach requires us to address whether entrepreneurs tend to undertake either a causal or an effectual orientation from the beginning, before starting up their ventures (Martín-Navarro et al., 2021).

6. Methodology

The academic databases used to search the literature are Web of Science, Scopus and Google Scholar as they have large coverage of management, entrepreneurship and social science literature. The keywords and search terms used in the search strategy were carefully chosen to reflect both the foundational theoretical concepts and the practical applications of these aspects relevant for entrepreneurship research. More precisely, the terms "Causation" and "Effectuation" were selected as input words denoting the studies that directly refer to these separate logics of making a decision. "Entrepreneurial Decision-Making" provided a more general conceptual

category, allowing us to accommodate research which might not explicitly speak about “causation” or “effectuation”, but still relate to cognitive processes implicated in entrepreneurial doings. “Uncertainty” was added because the logics are not used in a vacuum, but rather within an environment that constrains and/or influences strategic decision making.

Finally, the keyword "New Venture Creation" was added to limit the search to lifecycle stage deepening on which entrepreneurial decisions are most pronounced. These keywords were applied along with "AND" and "OR" as Boolean operators to generate an extensive set of literature. This systematic way of working has guaranteed that a broad but focused set of literature on the interplays of causal and effectual approaches in entrepreneurial contexts was included in the review. Peer-reviewed papers, book chapters and conference presentations were selected using strict inclusion and exclusion criteria, with prominence on causation and /or effectuation – or their combined effects – on entrepreneurship decision-making (Chang et al., 2024; Silva et al., 2022).

7. Results and Discussions

Key Theoretical Perspectives on Causation and Effectuation

The lenses permit a structured exploration of the extent to which entrepreneurial experience, investor influence and perceived uncertainty influence the embracing of logics (Frese et al., 2019). Accordingly, the dynamic interface of these antecedents frequently sets the pendular shift or equilibrium between causal and effectual logic in motion, particularly where network composition is continuously changing or there is a need for a 'guided' strategic approach (Zhang et al., 2022) (Frese et al., 2019). This "reasoned logic" typically manifests as long-term, strategic horizon combined with short-term, experimental moves (which enable them to take advantage of unfamiliar new opportunities) while remaining on course towards those overarching goals (Zhang et al., 2022). Moreover, the differentiating of discovery theory, which is in line with causal behaviour and predictable markets, and creation theory, which focuses on iterative decision-making is a reflection of the conditional validity of these logics (Johnson & Hörisch 2021). In this vein, cognitive offloading also draws attention to complexity-driven entrepreneurial decision making – where entrepreneurs externalize selected cognitive tasks as a way of dealing with the complexity at hand – thereby influencing whether effectuation or causation-based strategies prevail (Racat et al., 2023).

8. Empirical Findings on Cognitive Drivers

This further supports the notion that entrepreneurial cognitions (like risk perception, self- efficacy and cognitive adaptability) moderate entrepreneurs' decisions to choose between cause versus effectual

action strategies (Jørgensen 2014 pp. Previous knowledge and experience of entrepreneurs also has a strong effect on these cognitive processes and determines their interpretations of uncertainty, as well as the likelihood that they will be predictive planners or adaptive actors (Johnson & Hörisch, 2021) (Jørgensen, 2014). This blend of cognitive factors and experiential learning in turn generates a critical feedback loop, continuously shaping an entrepreneur's behaviour concerning decision-making in different circumstances (Dutta & Thornhill, 2014).

Furthermore, the entrepreneur's psychological attributes related to his/her tolerance for ambiguity and disposition toward experimentation change along the entrepreneurial process in a way that shapes recurrent use of effectual vs. causal strategies (Fresé & Gielnik, 2022). In view of this, educational organizations are increasingly encouraged not only to detect a student's dominant logic but also to develop in them the non-dominant one so that they can become more adaptable when faced with different entrepreneurial situations (Martín-Navarro et al., 2021). It is also reported that entrepreneurs with intuitive cognitive style are more likely to use the causal logic, while those analytical ones would prefer effectual logic (Wei et al., 2024). But according to the others' study, firms with less successful foreign market entry are more likely to utilize improvisation behavior, which is an attribute of effectuation; and those successful firms may reduce its importance in opportunity selection (Xing et al., 2019).

9. Implications of Logics for Venture Performance and Innovation

The efficacy of either causation or effectuation for venture performance is also very much a function of environmental dynamism and market predictability, with effectuation frequently yielding superior outcomes in highly uncertain environments (Fresé & Gielnik, 2022). However, in mature industries, a causal approach characterized by systematic planning and resource allocation may perhaps render rather predictable and positive outcomes (Hjortsø et al., 2017). In addition, the use of effectuation has been found to lead to greater illusion of control and reduce overconfidence which in turn results in more moderate entrepreneurial decision making (Zhang et al., 2021). Novelty and opportunity creation are often mentioned as key advantages of effectual logic, because its very nature to promote novelty (Sarasvathy, 2001) and to be applied in an experimental loopback process enables entrepreneurs to adapt and prosper in a way that utilizes new opportunities that arise (Johnson & Hörisch, 2021).

This is particularly helpful when working in highly uncertain markets, as effectuation's dynamic, short-term trial-and-error actions allow firms to take

advantage of newly emerged opportunities and thus often result in better performance than causal approaches in an uncertain environment (Fresé & Gielnik, 2022; Yuniarty et al., 2020; Zhang et al., 2022).

10. Caveats: Developing Countries and Institutions

The effect of institutional factors and the specificities of emerging markets on the adoption and performance of causal vs. effectual logics deserve more attention. In such opportunities, the relationship between institutional voids and cultural norms can significantly influence entrepreneurial practice thus requiring a combination of adaptive and predictive approaches (Guili & Ferhane, 2018). For example, VCS in these markets may value the effectual logic as a resource for use in penetrating new and highly uncertain foreign markets (Sonne et al., 2013). This is especially appropriate as environmental uncertainty may positively moderate the nonlinear effectuation–new venture performance relationship in developing economies (Peng et al., 2020). Furthermore, researchers demonstrate that although causality leads to performance gains in (to an extent) predictable environments, effectuation becomes the more effective option as environmental uncertainty and crisis levels rises. (Fresé & Gielnik, 2022).

11. Evidence of Combined Use of Both Logics

Although they are related in a conceptual way, literature shows that entrepreneurs mix the causal and effectual modes of reasoning when deciding in particular context and at different stages of venture development (Zhang et al., 2022) (Jørgensen, 2014). Optimizing for both efficiency and adaptability, this simultaneous application permits entrepreneurs to creatively toggle between a goal-based planning and resource-based experimentation (Delladio et al., 2023). In fact, as effectuation theory acknowledges, some of both logics – causal and effectual – are used in all human cognition and can also run concurrently interacting and nesting with one another across different decision making contexts (Bloemen-Bekx et al., 2021). This flexibility is important for success in such dynamic competitive environments, especially during economic downturns where organizations should explore which logic offers good routes to performance (Laskovaia et al., 2018). For example, where a casual approach is concerned with choosing between means to achieve an already decided upon end result effectuation may consider the evident means available and decide what effects can be realized based on said means in reaction to disrupting factors such as pandemic (Simms et al., 2022) (Nguyen et al., 2018).

Table 1. Synthesis of Literature on Causation and Effectuation in Entrepreneurial Decision-Making

Theme / Focus Area	Key Insights	Dominant Logic	Outcomes / Implications	Representative Studies
Foundational Theories	Causation is based on predictive control—goal-oriented, planning-driven, and resource-acquisition-focused. Effectuation operates on non-predictive control—leveraging available means, forming alliances, and embracing uncertainty.	Causation vs. Effectuation	Causation: Efficient goal achievement in predictable contexts; Effectuation: Opportunity creation under uncertainty.	Sarasvathy (2001); Ghorbel et al. (2017); Martín-Navarro et al. (2021); Wei et al. (2024)
Decision Logic Orientation	Causal logic: “If-then” predictive reasoning; Effectual logic: “What-can-I-do-with-what-I-have” emergent reasoning.	Both (contrasting logics)	Causation promotes linear progress; Effectuation fosters iterative experimentation and adaptability.	Fresé & Gielnik (2022); Gudiksen & Brandt (2014); Delladio et al. (2023)
Cognitive Antecedents	Cognitive style, risk tolerance, and ambiguity perception determine logic preference. Analytical thinkers favor causation; intuitive or flexible thinkers lean toward effectuation.	Context-dependent	Cognitive adaptability enables switching between logics depending on environmental cues.	Jørgensen (2014); Dew et al. (2008); Johnson & Hörisch (2021)
Psychological Mechanisms	Effectual thinking emphasizes control over prediction, trial-and-error learning, and stakeholder co-creation.	Effectuation	Enhances adaptability and innovation in uncertain environments.	Moberg (2014); Xu & Koivumäki (2018); Ghezzi (2018)
Environmental Uncertainty	High uncertainty favors effectual logic; low uncertainty and structured markets favor causal logic.	Effectuation (high uncertainty); Causation (low uncertainty)	Entrepreneurs dynamically adjust decision logics as uncertainty fluctuates.	Shirokova et al. (2020); Gudiksen & Brandt (2014); Hjortso et al. (2017)
Venture Stage Influence	Startups rely on effectuation (means-driven experimentation); mature firms shift to causation (goal-driven planning).	Hybrid (dynamic)	Lifecycle-based adaptation maximizes survival and growth.	Yu et al. (2024); Ghorbel et al. (2017); Martín-Navarro et al. (2021)
Innovation and Market Creation	Effectuation fosters radical innovation through emergent opportunity creation; causation optimizes existing opportunities.	Effectuation	Leads to new market spaces and disruptive innovations.	Gudiksen & Brandt (2014); Bocken & Coffay (2022)

Resource Constraints	Limited resources drive entrepreneurs to use effectual logic—leveraging partnerships, affordable loss, and improvisation.	Effectuation	Encourages frugal innovation and resilience.	Nguyen et al. (2018); Yuniarty et al. (2020)
Institutional and Cultural Contexts	Institutional voids and informal networks in emerging economies favor effectuation; structured markets favor causation.	Context-dependent	Entrepreneurs adapt to local institutions and norms to mitigate uncertainty.	Guili & Ferhane (2018); Peng et al. (2020); Sonne et al. (2013)
Cognitive Offloading and Experience	Entrepreneurs externalize cognitive load by relying on partnerships, prior experience, and heuristics.	Effectuation dominant	Enhances responsiveness and decision speed in complex contexts.	Racat et al. (2023); Dutta & Thornhill (2014)
Educational Implications	Training should develop both logics to improve entrepreneurial adaptability and judgment under uncertainty.	Hybrid	Balanced cognitive development enables switching between predictive and adaptive reasoning.	Martín-Navarro et al. (2021); Fresé & Gielnik (2022)
Performance Outcomes	Effectuation correlates with higher innovation and resilience in turbulent environments; causation ensures efficiency in stable ones.	Context-contingent	A hybrid model optimizes both adaptability and strategic focus.	Hjortsø et al. (2017); Fresé & Gielnik (2022); Engel et al. (2013)
Emergent Hybrid Models	Entrepreneurs often integrate both logics—structured long-term vision with flexible, short-term experimentation (“guided logic”).	Hybrid	Enhances strategic balance, innovation, and responsiveness.	Zhang et al. (2022); Bloemen-Bekx et al. (2021); Delladio et al. (2023)
Crisis and Renewal Contexts	Under crises (e.g., economic downturns, pandemics), effectual logic dominates due to adaptability and iterative learning.	Effectuation	Enables rapid reconfiguration of goals and means; improves post-crisis recovery.	Simms et al. (2022); Laskovaia et al. (2018); Nguyen et al. (2020)

Conclusion

The interrelation between casualization and effectuation can act as a protection mechanism in terms of playing an entrepreneur against requirements on his or her response in shock-based environments (Delladio et al., 2023). Studies show that effectual dominance in high uncertainty early stages is reversed towards causation as goals become more specific (Delladio et al., 2023). Yet, recent contributions provide evidence that these two logics may be simultaneously present and activated by entrepreneurs, depending on the specific problem- situation and business context (Delladio et al., 2023). This litter grasp of causation and effectuation is also applicable in practice. Entrepreneur education and training programs may take advantage of combining these two approaches (Johnson & Horisch, 2021). For example, educators can show aspiring entrepreneurs how to exploit scarce resources and cultivate an embryonic opportunity properly given the uncertain nature of new ventures (Xu et al., 2022). Conversely, for more mature projects or in growth modes the training in causal planning and optimization can focus the team and space resources toward a clearer set of objectives. Therefore, a blended entrepreneurial logic, fluidly shifting between both enables startups to innovate, adapt, and scale sustainably.

However, this review is based on a large body of evidence; however, the majority of studies are qualitative and therefore subject to bias in terms of researcher interpretation and generalizability. And finally, reliance on self-reported data in much of the research can result in hindsight bias, where entrepreneurs make sense of their past actions based on established theory rather than accurately recollecting how they formulated their thoughts originally. Beyond these restrictions, the theoretical underpinnings put forward provide a solid basis for comprehending the multi dimensionality of entrepreneurial decision-making and the dynamic interplay between predictive and adaptive logics. Further research should be dedicated to formulating more robust quantitative methods, such as longitudinal or experimental methodologies designed at refining the use and effects of each logic in different entrepreneurial situations (Delladio et al., 2023). Further investigation into the psychological and the socio-scientific antecedents of these decisions could additionally offer a comprehensive picture of entrepreneurial decision making (Coudounaris, 2020).

References

- Bloemen-Bekx, M., Lambrechts, F., & Gils, A. V. (2021). An exploration of the role of intuitive forms of planning in the succession process: the explanatory power of effectuation theory. *Journal of Family Business Management*, 13(2), 486. <https://doi.org/10.1108/jfbm-07-2021-0066>
- Bocken, N., & Coffay, M. (2022). The Circular Experimentation Workbench – a Lean and Effectual Process. *Circular Economy and Sustainability*, 3(3), 1361. <https://doi.org/10.1007/s43615-022-00239-w>
- Chandler, G. N., DeTienne, D. R., McKelvie, A., & Mumford, T. V. (2009). Causation and effectuation processes: A validation study. *Journal of Business Venturing*, 26(3), 375. <https://doi.org/10.1016/j.jbusvent.2009.10.006>
- Chang, F., Webster, C., Alam, M. A., & Chirico, F. (2024). Entrepreneurs' network bricolage: Reconfiguring social ties for resource creation. *Journal of Business Research*, 185, 114931. <https://doi.org/10.1016/j.jbusres.2024.114931>
- Chen, H., & Xu, Q. (2022). Synergy of Effectuation and Causation: An Emotional Complexity Perspective. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.732936>
- Coudounaris, D. N. (2020). 2nd Nordic International Business, Export Marketing and Tourism Conference 2020: Bi-annual Conference Proceedings – Book of Abstracts. In *Research Portal Denmark* (p.45). Technical University of Denmark.
- Delladio, S., Caputo, A., Magrini, A., & Pellegrini, M. M. (2023). Italian entrepreneurial decision-making under lockdown: the path to resilience. *Management Decision*, 61(13), 272. <https://doi.org/10.1108/md-12-2022-1746>
- Dew, N., Read, S., Sarasvathy, S. D., & Wiltbank, R. (2008). Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing*, 24(4), 287. <https://doi.org/10.1016/j.jbusvent.2008.02.002>
- Dutta, D. K., & Thornhill, S. (2014). Venture Cognitive Logics, Entrepreneurial Cognitive Style, and Growth Intentions: A Conceptual Model and an Exploratory Field Study. *Entrepreneurship Research Journal*, 4(2). <https://doi.org/10.1515/erj-2012-0004>
- Engel, Y., Kleijn, E., & Khapova, S. N. (2013). Career as Antecedent of Entrepreneurial Decision-making. *Academy of Management Proceedings*, 2013(1), 10169. <https://doi.org/10.5465/ambpp.2013.125>
- Ferreira, K. F. O., Guimarães, L. de O., Salume, P. K., & Doyle, M. L. de F. C. P. (2022). Analysis of the entrepreneurial process from effectuation and causation logic: a case study in two companies from Minas Gerais. *Revista de Administração Da UFSM*, 15(1), 83. <https://doi.org/10.5902/1983465964831>
- Fresé, M., & Gielnik, M. M. (2022). The Psychology of Entrepreneurship: Action and Process. *Annual Review of Organizational Psychology and Organizational Behavior*, 10(1), 137. <https://doi.org/10.1146/annurev-orgpsych-120920-055646>
- Frese, T., Geiger, I., & Dost, F. (2019). An empirical investigation of determinants of effectual and causal decision logics in online and high-tech start-up firms. *Small Business Economics*, 54(3), 641. <https://doi.org/10.1007/s11187-019-00147-8>
- Ghezzi, A. (2018). Digital startups and the adoption and implementation of Lean Startup Approaches: Effectuation, Bricolage and Opportunity Creation in practice. *Technological Forecasting and Social Change*, 146, 945. <https://doi.org/10.1016/j.techfore.2018.09.017>
- Ghorbel, F., Hachicha, W., & Boujelbène, Y. (2017). A mixed approach for studying effectual entrepreneurial opportunities: development and application to Tunisian context. *Management Science Letters*, 439. <https://doi.org/10.5267/j.msl.2017.6.002>
- Gudiksen, S., & Brandt, E. (2014). The service Ouroboros: Designing personas service cycles. *Research Portal Denmark*.
- Guili, H. E., & Ferhane, D. (2018). *Internationalization of SMEs and Effectuation: The Way Back and Forward*. 1422. <https://doi.org/10.3390/proceedings2241422>
- Harms, R., & Schiele, H. (2012). Antecedents and consequences of effectuation and causation in the international new venture creation process. *Journal of International Entrepreneurship*, 10(2), 95. <https://doi.org/10.1007/s10843-012-0089-2>
- Hjortso, C. N., Alexander, I. K., & Chea, R. R. H. (2017). Experiences and lessons learned from the UniBRAIN Agribusiness Incubation Programme. In *Research Portal Denmark* (Issue 266, p. 212). Technical University of Denmark.
- Johnson, M., & Hörisch, J. (2021). Reinforcing or counterproductive behaviors for sustainable

- entrepreneurship? The influence of causation and effectuation on sustainability orientation. *Business Strategy and the Environment*, 31(3), 908. <https://doi.org/10.1002/bse.2925>
- Jørgensen, S. B. (2014). Business Incubators and Incubatees: A study of the entrepreneurs inside the GrowthFactories. *Research Portal Denmark*, 258.
- Kogut, C. S., Mello, R. C. de, & Skorupski, R. (2023). Combining effectuation and causation approaches in entrepreneurship: A 20+ years review. *REGEPE Entrepreneurship and Small Business Journal*. <https://doi.org/10.14211/regepe.esbj.e2226>
- Laskovaia, A., Marino, L., Shirokova, G., & Wales, W. J. (2018). Expect the unexpected: examining the shaping role of entrepreneurial orientation on causal and effectual decision-making logic during economic crisis. *Entrepreneurship and Regional Development*, 31, 456. <https://doi.org/10.1080/08985626.2018.1541593>
- Linton, G., & Klinton, M. (2019). University entrepreneurship education: a design thinking approach to learning. *Journal of Innovation and Entrepreneurship*, 8(1). <https://doi.org/10.1186/s13731-018-0098-z>
- Martín-Navarro, A., Medina-Garrido, J. A., & Martín-Velicia, F. A. (2021). How effectual will you be? Development and validation of a scale in higher education. *The International Journal of Management Education*, 19(3), 100547. <https://doi.org/10.1016/j.ijme.2021.100547>
- Moberg, K. (2014). Assessing the Impact of Entrepreneurship Education : From ABC to PhD. *Research Portal Denmark*, 238.
- Nguyen, N. M., Killen, C. P., Kock, A., & Gemünden, H. G. (2018). The use of effectuation in projects: The influence of business case control, portfolio monitoring intensity and project innovativeness. *International Journal of Project Management*, 36(8), 1054. <https://doi.org/10.1016/j.ijproman.2018.08.005>
- Peng, X. B., Liu, Y. L., Jiao, Q. Q., Feng, X. B., & Zheng, B. (2020). The nonlinear effect of effectuation and causation on new venture performance: The moderating effect of environmental uncertainty. *Journal of Business Research*, 117, 112. <https://doi.org/10.1016/j.jbusres.2020.05.048>
- Pfeffer, L., & Khan, M. S. (2018). Causation and Effectuation: An Exploratory Study of New Zealand Entrepreneurs. *Journal of Technology Management & Innovation*, 13(1), 27. <https://doi.org/10.4067/s0718-27242018000100027>
- Racat, M., Ricard-Hibon, A., & Mauer, R. (2023). Effectuation and causation models: an integrative theoretical framework. *Small Business Economics*, 62(3), 879. <https://doi.org/10.1007/s11187-023-00787-x>
- Shirokova, G., Morris, M. H., Laskovaia, A., & Micelotta, E. (2021). Effectuation and causation, firm performance, and the impact of institutions: A multi-country moderation analysis. *Journal of Business Research*, 129, 169. <https://doi.org/10.1016/j.jbusres.2021.02.045>
- Shirokova, G., Osiyevskyy, O., Laskovaia, A., & MahdaviMazdeh, H. (2020). Navigating the emerging market context: Performance implications of effectuation and causation for small and medium enterprises during adverse economic conditions in Russia. *Strategic Entrepreneurship Journal*, 14(3), 470. <https://doi.org/10.1002/sej.1353>
- Silva, M. D., Al-Tabbaa, O., & Pinto, J. (2022). Academics engaging in knowledge transfer and co-creation: Push causation and pull effectuation? *Research Policy*, 52(2), 104668. <https://doi.org/10.1016/j.respol.2022.104668>
- Simms, C., McGowan, P., Pickernell, D., Vázquez-Brust, D., & Williams, A. (2022). Uncovering the effectual-causal resilience nexus in the era of Covid-19: A case of a food sector SME's resilience in the face of the global pandemic. *Industrial Marketing Management*, 106, 166. <https://doi.org/10.1016/j.indmarman.2022.08.012>
- Sonne, T. P., Søderberg, A., Tøth, T., McDougall-Covin, P., & Kiyak, T. (2013). Negotiating and Spanning Boundaries in Offshore Outsourcing : Indian and Danish Perceptions of Intercultural Collaborations. *Research Portal Denmark*, 286.
- Tabassam, A. (2024). Entrepreneurial Resilience and Innovation in Crisis: A Study of Effectuation, Causation, and Bricolage in Post-Pandemic Startups. *Journal of Social Sciences and Management Studies*, 113. <https://doi.org/10.56556/jssms.v3i4.1085>
- Wei, Y., Long, D., & Fu, L. (2024). The Influence of Intuitive-Analytical Cognitive Styles on Entrepreneurial Decision-Making Logic: Moderated by Environmental Uncertainty. *SAGE Open*, 14(3). <https://doi.org/10.1177/21582440241273297>
- Xing, Y., Liu, Y., Boojihawon, D. K., & Tarba, S. Y. (2019). Entrepreneurial team and strategic agility: A conceptual framework and research agenda. *Human*

Resource Management Review, 30(1), 100696.
<https://doi.org/10.1016/j.hrmr.2019.100696>
 Xu, Y., Baranchenko, Y., Lin, Z., Wu, Q., & Arakpogun, E. O. (2022). How Does the Combination of Factors Influence Entrepreneurs' Decision-Making Logic? A Qualitative Comparative analysis. *Entrepreneurship Research Journal*, 14(3), 1461.
<https://doi.org/10.1515/erj-2021-0249>
 Xu, Y., & Koivumäki, T. (2018). Digital business model effectuation: An agile approach. *Computers in Human Behavior*, 95, 307.
<https://doi.org/10.1016/j.chb.2018.10.021>
 Yu, X., Zhao, W., Wang, X., Ma, X., & Cao, G. (2024). Striking the balance: Configurations of causation and effectuation principles for SME performance. *PLoS ONE*, 19(6).
<https://doi.org/10.1371/journal.pone.0302700>

Yuniarty, Y., Prabowo, H., & Abdinagoro, S. B. (2020). The role of effectual reasoning in shaping the relationship between managerial-operational capability and innovation performance. *Management Science Letters*, 305.
<https://doi.org/10.5267/j.msl.2020.8.002>
 Zhang, J. J., Baden-Fuller, C., & Zhang, J. (2022). The dynamics of entrepreneurial networking logics: evidence from United Kingdom high-tech start-ups. *International Journal of Entrepreneurial Behaviour & Research*, 28(9), 405. <https://doi.org/10.1108/ijebr-12-2021-1040>
 Zhang, S. X., Foo, M., & Vassolo, R. S. (2021). The ramifications of effectuation on biases in entrepreneurship – Evidence from a mixed-method approach. *Journal of Business Venturing Insights*, 15.
<https://doi.org/10.1016/j.jbvi.2021.e00238>