

The Eureka Moment in Entrepreneurial Opportunity as an Imaginative Construct

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Abstract

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The Eureka Moment in Entrepreneurial Opportunity as an Imaginative Construct

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ABSTRACT

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1 Introduction

As a theory, entrepreneurship has relied on the abstract (based on the creative view) and actual (based on the discovery view) instantiation of the opportunity to build and further develop it as a conceptual anchor for entrepreneurship research (Romme & Reymen, 2018; Sarason et al., 2006). However, as a practice, entrepreneurs rely on opportunity's intrinsic and extrinsic motivational role and interpret the information within it when performing a behaviour (Ryan & Deci, 2000).

Who is an entrepreneur? Does opportunity only stimulate entrepreneurs to action? Or to non-entrepreneurs as well? What it is, and what it is not? What differentiates entrepreneurs from non-entrepreneurs (Gartner, 1988; Ramoglou et al., 2020)? This paper argues that it is the imaginative frame of mind of the entrepreneurs and the fact they believe firmly in their imagined opportunity that distinguishes them from the non-entrepreneurs. Non-entrepreneurs lack the firm conviction and beliefs to move into actions under conditions of change and uncertainty.

Johnson's book, 'Who Moved My Cheese?' is a seminal bestseller work that describes motivations for action (Johnson, 1998). "The four characters in the book are looking for their cheese in a maze. Cheese represents whatever makes people happy. How each character adjusts to the loss of cheese parallels the process of adjusting to one or more of the many transitions in the lives of older adults. The character Hem fears change, so he resists and denies it while Haw learns to adapt when he is confronted with change. Sniff senses change early while Scurry gets right down to action in the light of impending changes" (Langer, 2012: 459). The four imaginary characters depicted behavioural responses to cheese (as a stimulant) and the individual's reflexivity to uncertainty and changing conditions. Sometimes entrepreneur acts like Sniff, who sniffs out change early. Or acts like Scurry, who scurries into action on seeing an opportunity, or Hem, who denies and resists action as he fears it will lead to something worse, or Haw, who learns to adapt in time when he sees changing conditions and his firm

belief that his action will lead him to something better (Johnson, 1998). “Entrepreneurial ventures need frequently to adapt. Yet, their adaptive capacity is often limited by the legacies of imprinted founding characteristics” (Bryant, 2014: 1081). Here, we argue that entrepreneurs’ solid beliefs and tendencies to believe their imagined opportunities are formed by incoming information and the imprinting (of past information, knowledge stock and experience) based on their memories. Bryant argues that entrepreneurs “naturally develop transactive autobiographical memory systems” (Bryant, 2014: 1081). We concur with this view and advance the notion that it ultimately interprets information embedded in the imagined opportunity artefact that stimulates actions.

Opportunity is formed at the interface between the entrepreneurs and their environments or Shane and Eckhardt’s individual-opportunity nexus (Eckhardt & Shane, 2010; Sarason et al., 2006). The nature of entrepreneurial opportunities and the critical role in stimulating entrepreneurial action under uncertainty is a matter of intense scholarly debate. Shane’s discovery view and Alvarez-Barney’s creation view are the predominant views central to entrepreneurship research. In this paper, we suggest that the informational value of the imagined opportunity artefact is the sole determinant instigating entrepreneurial action. The imagined opportunity artefact transforms as entrepreneurs acquire new knowledge and information. The entrepreneurs’ creative information processing manifests many possibilities at the individual nexus. Such manifestations are constantly altered with new insights. The causative information effect and the information value are the main drivers of action. This paper offers a conceptual framework on how information visualisation of the imagined opportunity artefact can build a more robust explanation of entrepreneurial action; on how causal inference of information can be integrated and be used in action theories. Finally, we discuss the Eureka moment where a flash of insight instantaneously connects this information, and everything eventually comes together to make sense.

The idea of stimulating autonomous entrepreneurial behaviours from opportunity discovery and creation has been broadly and deeply discussed, yet there is no conclusive definition of what opportunity means. “The notion of opportunity, as currently discussed in entrepreneurship research, is theoretically exciting but empirically elusive” (Dimov, 2011: 57). “Entrepreneurial success presupposes conditions of opportunity” (Dimov, 2011: 59), but “one is overwhelmed by irreducible doubt about whether one’s current endeavours constitute an opportunity. The ultimate judgment lies in the future and cannot be dissociated from what is yet to come and become known” (Dimov, 2011: 60). This is the clumsy part in the definition of opportunity concerning time. When is opportunity deemed as an opportunity?

“At what point is opportunity to be deemed as opportunity? Is it when its profits are actualised or a venture proves to be profitable? Or is it before? If the opportunity enacted leads to a business failure with wasted resources and effort, does it still constitute as an opportunity if the failure happens as a result of execution failure (i.e., is it a true positive)? Or, let’s say the initial opportunity belief turns out to be a false positive, is it still deemed as opportunity in spite of wasted resources and motion” (Leong, 2021: 2150021-6)

The second crucial question is what is being discovered? This conundrum persists since the pioneering research of Shane and Venkataraman, where they highlighted two pertinent queries: (a) why do entrepreneurial opportunities exist and (b) why do some discover them while others do not (Shane & Venkataraman, 2000)? “Opportunities are constellations of favourable, agent-independent, external circumstances” (Davidsson, 2021: 2), yet not observable and discoverable in the same way. Is it an issue of alertness or interpretation? Kirzner described opportunities as being discovered by alert entrepreneurs (Kirzner, 1979). We argue that it is the information encoded within the opportunities that are subjectively discovered, interpreted and understood by alert entrepreneurs. The central theme of the Shanian discovery view is the individual-opportunity nexus, where the opportunities are independently existing, agent-independent external circumstances (Shane, 2003). Implicit in that argument, the existence of opportunity precedes discovery/exploitation (Eckhardt & Shane, 2010). The information value of the opportunity depends on the interpretation by the different observers. Not all observers interpret the same information, in the same way, thus resulting in different responses. Savolainen explores the “motivators for information behaviours by examining the nature of information need as a trigger and driver of information seeking” (Savolainen, 2017: 2). The information need becomes the trigger providing the impetus to the information-seeking behaviour of the alert entrepreneurs. The same information need is also “a driver that keeps the information-seeking process in motion” (Savolainen, 2017: 2) for the alert entrepreneurs.

Alvarez and Barney view opportunities as “created, endogenously, by the actions, reactions, and enactment of entrepreneurs” (Alvarez & Barney, 2007: 15), so opportunities are not known ex-ante and are “in-the-making” in the process of social construction. This is the third part in the definitional clumsiness of opportunity- opportunity is not known until they are created at the end. From the creation view, the opportunity is the endpoint of the venture, to be known after the creation, and thus the opportunity is not a trigger to the venture. The opportunities cannot be understood from the beginning, and from the creation view, opportunities only exist after they are enacted in an iterative process of action and reaction. In this view, “with respect to the formation of new opportunities creation theory assumes that entrepreneur’s actions are the essential source of these opportunities... And in acting, they form opportunities that could not have been known without the

actions taken by these entrepreneurs” (Alvarez & Barney, 2007: 15). “When entrepreneurs act to exploit these socially constructed opportunities, they interact with an environment – the market – that tests the veracity of their perceptions. Of course, the market is, itself, a social construction, formed out of the perceptions and beliefs of numerous other individuals” (Alvarez & Barney, 2007: 15). Here, the perceptions and beliefs are formed not from the opportunities per se but from the information contained in the opportunity construct and from the environment that leads to the enactment process (Welter et al., 2016).

Similarly, other concepts like opportunity creation, effectuation and bricolage describe value creation and the role of entrepreneurial action in those processes. A core claim in effectuation is that the “actors can create a variety of effects when they attempt to exert influence over the things they can control, e.g., their current means (Welter et al., 2016: 7) and “focus on selecting between possible effects that can be created with that set of means” (Sarasvathy, 2001: 245). Effectuation’s endpoint is indeterminate and is focused on the current set of means and what can be done with those means to craft a yet-to-be-determined future endpoint (Welter et al., 2016: 7). Undergirding this is the capacity of the entrepreneurs to understand the flow of information in the environment (knowing the set of means) and be able to use this information to construct a plausible opportunity to capitalise on. Bricolage emerges as an entrepreneurial behaviour by making do with what’s on hand (Lévi-Strauss, 1966; Stinchfield et al., 2013), by creating something from nothing (Baker & Nelson, 2018) or by combining resources in the creation of economic value (Baker & Nelson, 2018). Baker and Nelson focus on the entrepreneurial process of resource construction on their path to survival and growth in the face of resource constraints (Baker & Nelson, 2018). Through the derivation of information, it is resource construction from the environment. Entrepreneurs engage in bricolage to create something from nothing, and such bricolage is an engine/mechanism driving the enactment of resource environments that make sense to the alert entrepreneurs. The effectual and creation logic or the causal reasoning in discovery is but engines/mechanisms that need the feed of information for any meaningful performance and exploitation.

Given the clumsiness and elusiveness in the definition of entrepreneurial opportunity, this paper re-contextualises and anchors opportunity as an artefact. Such portrayal of opportunity addresses the problem by reflecting on the usefulness of the notional artefact and by elaborating on how to make the construct of the artefact empirically accessible.

“In the same vein, we argue that opportunity-as-artefact contains active information that signals potentialities ...The signal has a positive specific effect on the receiver and influences behaviours by changing their “information state” and subsequent strategies” (Leong, 2021: 2150021-7).

This paper seeks to initiate a dialogue about entrepreneurial opportunities by situating information within the construct of opportunities. As more information is encoded within the opportunity construct, it influences entrepreneurial behaviours and actions by changing their information state. Opportunity-construct, therefore, evolves with changing information state. These premises stimulate further discussion on entrepreneurial opportunities based on the information and the expected future reward/payoff in the entrepreneurial action and behavioural sequence towards a goal. Finally, we explore the field of information visualisation that leads to the Eureka moment. A flash of insight instantaneously connects this information, and everything finally comes together to make sense.

We articulate that the different conjectures formed in the imagination phase in dynamically creative ways (at multiple levels), such as compartmentalising, bracketing and self-organising, are constantly developing and dissolving, keep entrepreneurs perpetually motivated. These subjectively imagined novel ideas in entrepreneurs’ minds take many forms until one eventually actualises them through action. This process of identifying and bracketing heterogeneous artefacts and agents (material resources/artefacts and agents involved in the disequilibrium markets and environments) allows entrepreneurs to freely draw the connections between artefacts and agents until a point where they see a form/shape of their potential future. This is the Eureka moment discussed in this paper. We further argue that entrepreneurs, by imagining a broad diversity of futures through the combination, (re)combination and syndication of heterogeneous resources to create novel products, are driving in far-from-equilibrium market processes to create order by their invention of novel products and services. Such a creatively dynamic process in the imagination of opportunity relieves the onus to prove whether an opportunity is discovered, created or actualised. Therefore, the utilitarian value of the concept of opportunity is vital in practice.

1.1 Information Visualisation, Imagination and Insight

Entrepreneurs typically cannot explain the exact path that leads them from survival to success, but they can tell how they are guided by specific cues that shape their trajectories. “Within such a perspective, the past intrudes into the present as a constraining force, contingencies that arise are experienced as unanticipated unprepared moments, and the future presents

itself as a fundamentally uncertain terrain” (Garud et al., 2010: 768). These cues or signals come from the resource environment and uncertain terrain. Entrepreneurs must make sense of these signals while situated in a spontaneous and unprepared present moment to move ahead into the future. “Sensemaking involves turning circumstances into a situation that is comprehended explicitly in words and that serves as a springboard into action” (Weick et al., 2005: 409). Sensemaking fills critical gaps in information visualisation. The information needs interpretation; the meanings are materialised to inform and constrain entrepreneurial action in response to emergence. Garud and Karnøe offer a perspective on emergence that “considers agency to be distributed across actors, artefacts, rules and routines. Such a perspective on agency implies that it would be difficult to attribute the outcomes of strategic actions to any single person. Rather, dynamic interactions between actors, artefacts, rules and routines generate an “action net” within which strategic processes unfold” (Garud & Karnøe, 2005: 88). A multiplicity of actors and artefacts are implicated in an action net. Each of these actions has different role and level of involvement that vary over time” (Garud & Karnøe, 2005). With such interactive emergence, information is constantly presented to these actors, entities and material artefacts. Still, the locus of agency and control lies with the entrepreneurs interpreting this information in the complex process and navigating uncertainty. “Sensemaking is about the interplay of action and interpretation rather than the influence of evaluation on choice. When action is the central focus, interpretation, not choice, is the core phenomenon” (Weick et al., 2005: 409).

Information visualisation involves complex and sophisticated information processing, transformation, representation and interaction from the action net involving multiple actors and artefacts. The aggregate of this information forms the opportunity construct that helps alert entrepreneurs to identify trends and patterns to develop exploitative strategies. Saraiya, North and Duca define “an insight as an individual observation about the data by the participant, a unit of discovery” (Saraiya et al., 2005: 444). They add that to “measure insights gained from visualisation, a rigorous definition and coding scheme is required” (Saraiya et al., 2005: 444). Here, we discuss this as entrepreneurial imagining as a critical driver in shaping the form of opportunity as an artefact. Elias, Chiles and Crawford define “entrepreneurial imagining as a complex, situated, relational performance that unfolds through conscious and unconscious, self-reflective and embodied processes (Elias et al., 2022: 203).

Entrepreneurial imagining is recognised as part of the entrepreneurial process where entrepreneurs imagine and generate novelty; first by identifying all the critical material resources and available social connections and by connecting the dots, creating, and conjecturing to form an imagination based on visible and observable circumstances (Lachmann, 1990) “rooted in assumptions that reflect a world of radical uncertainty, widespread heterogeneity, and perpetual disequilibrium” (Chiles et al., 2007: 486). Entrepreneurs “imagined deemed possible”, conceiving a diverse spectrum from the worst to the best possible scenarios (Shackle, 1993). Chiles, Bluedorn and Gupta urge scholars to move entrepreneurial imagining to centre stage by featuring these two criticalities: “(1) the creation of opportunities through human imagination directed toward an envisioned future, and (2) the exploitation of opportunities through continuous resource combination and recombination” (Chiles et al., 2007: 486). Sarasvathy pushes the agenda to place “imagination at the centre stage of economics” (Sarasvathy, 2002: 95). She believes entrepreneurial imagining must be rooted in deep conviction of the opportunity belief that lead entrepreneurs to take the plunge decision. “Entrepreneurs are risk-loving, they believe steadfastly in their indomitable vision of success, fly toward the sun uncaring, and, unlike Icarus, manage to survive and even prosper” (Sarasvathy, 2002: 98). Such steadfastness in their indomitable vision can similarly lead to epic failure when they take the plunge decision.

The ability to visualise the future, with available information and knowledge stock and finally bearing the risk and taking the final plunge is what entrepreneurship is about- they are those “who believe the world is “in the making” are unlikely to spend time analysing the future or trying to predict it” (Sarasvathy, 2002: 109) but forge ahead (despite odds) with available means and resources.

1.2 Eureka Moments, Sensemaking and Interpretation

Weick’s definition of enactment and its relation to sensemaking applies to entrepreneurial research as it can be used to illustrate how enactment has been used to understand entrepreneurial behaviours broadly. Sensemaking can come from deciphering the environment, the opportunity presented, and the web of relationships among the various actors and artefacts situated in the environment. It aims to deconstruct and explain the movement of sensemaking, which is the reciprocal exchange between ambiguity and action (Eddy-Spicer, 2019). Ambiguity and uncertainty are closely related but have fundamental distinctions. “An important aspect of the proposed distinction is that ambiguity refers to missing information that could be known. Whole fundamental uncertainty implies that some information does not exist at the decision time because the future is yet to be created” (Dequech, 2000: 41). Townsend, Hunt, McMullen

and Sarasvathy add that the “diffusion of more information over time turns uncertainty into risk” (Townsend et al., 2018: 667) which is measurable uncertainty as distinct from unknowability. “Knightian uncertainty goes to objective unknowability, existing in the environment, about potential outcomes and the probability distributions on possible outcomes from actions: these are not knowable ex-ante” (Miller, 2012: 60).

“...the role of uncertainty in discovery opportunities. While discovery opportunities are risk based and exist exogenously to the entrepreneur (Alvarez & Barney, 2007), when the discovery opportunity itself exists within an emerging context, significant Knightian uncertainty (Kirzner, 1997) likely remains. This residual uncertainty makes imprecise the attempts, even by experienced experts, to comprehend opportunities arising from market imperfections” (Miller, 2012: 60)

Thus, information can be seen as the connective tissue between sensemaking and enactment/organising for entrepreneurs to comprehend opportunities and enact them from the perspective of information visualisation. Entrepreneurs in an uncertain environment “may be stymied by information cascades and indeterminate means-ends relations” (Miller, 2012). The amount of information or the measure of information reflects the instrumental value for decision-makers (Frankel & Kamenica, 2019). Frankel and Kamenica maintain that “the ex-ante amount of information coincides with the ex-ante reduction in uncertainty” (Frankel & Kamenica, 2019: 3).

The critical issue with information is scanning and interpretation. “Information about the external world must be obtained, filtered and processed” (Daft & Weick, 1984: 2) and be visualised in a certain way to make sense and trigger enactment. Entrepreneurs have to cope with significant ambiguity and develop a mental model of how the environment works (Hill & Levenhagen, 1995), particularly how the encoded information in the opportunity artefact can motivate and guide actions.

2 DISCUSSION

Entrepreneurs are situated in uncertainty involving diverse actors, with differing capabilities and value contribution and artefacts/ resources, in terms of abundance or scarcity. These combine to form a particular information constellation that conveys specific meanings. Information visualisation is about creating a mental model based on all the related information arising from the multiplicity of actors and artefacts, including resources in the environment. Making sense of this body of information is a common activity in any visualisation. “Sensemaking is the process of searching for a representation and encoding data in that representation to answer task-specific questions. Different operations during sensemaking require different cognitive and external resources” (Russell et al., 1993: 269). “To cope with these uncertainties, the entrepreneur must develop a “vision” or mental model of how the environment works (sensemaking) and then be able to communicate to others and gain their support (sensegiving)” (Hill & Levenhagen, 1995: 1057). Opportunity as an artefact is thus the resultant mental model shaped by information derived exogenously from the environment and those that are endogenously accrued through experience. Accurate information embedded within the opportunity artefact “is important in evaluating the feasibility and utility of alternative actions, and accurate perceptions increase decision quality” (Weick et al., 2005: 415).

“However, because this opportunity formation process often takes place under conditions of Knightian uncertainty, different entrepreneurs are more likely to make different decisions, which lead to the formation of different opportunities, and the creation of heterogeneous resources and capabilities” (Alvarez & Barney, 2019: 19). The different interpretations of information result in the non-uniformity of action.

Gartner’s critique pointed out that the empirical non-uniformity of action is not the problematic part of the puzzle in the complex environmental contexts. Still, the puzzling part is that it is not even empirical. To Ramoglou, Gartner and Tsang, this is a “pseudo-empirical puzzle” in the way entrepreneurs see the world through their impressions (Ramoglou et al., 2020). The fact that only some decide to act entrepreneurially depends on how they are uncovered that “nourishes the illusion” in Ramoglou, Gartner and Tsang’s words (Ramoglou et al., 2020) or, in this context, creative imagining of the opportunity causal enablers. The creative imagination of the causal enablers provides the impetus for entrepreneurs to act. By studying the knowledge structure (how entrepreneurs frame their belief systems, their cognitive maps of material resources and connections and mental models), the understanding can guide scholars to understand entrepreneurs’ perception, decision-making and intent to act. Here, we argue that the contents (prior knowledge and experience), the formation of the beliefs, and the relevance of contextual information at the point in time before action are criticalities that compel entrepreneurial action. These form the entrepreneurial mindset, readying entrepreneurs to action. The entrepreneurial mindset plays a significant role in entrepreneurial behaviour (Pidduck et al., 2021). The perspective creates dispositional beliefs, and here,

we theorise that the origins, mechanisms and manifestations of entrepreneurial action come from this opportunity belief, essentially made up of information.

Pidduck, Clark and Lumpkin broadly suggest two sources of information influence that shape the content of a mindset-cognitive and dispositional sources. Opportunity beliefs trigger cognitive schemas, and dispositional beliefs are informed by entrepreneurs' value systems and individuals' traits (Pidduck et al., 2021). Simply put, a mindset consists of "a disposition or readiness to respond in a particular manner". How an imagined opportunity artefact is framed and believed is all that matters to the entrepreneurs as this opportunity belief drives them to action, even if they are wrong. "Different mindsets can lead to different judgment and decision-making styles, each associated with perspective and biases. To change perspective, people can, and often do, switch mindsets. We argue, however, that mindset switching can be costly for subsequent decisions" (Hamilton et al., 2011: 13). The strength of entrepreneurs' beliefs and their responses is crucial to why only a few people have the entrepreneurial quality, and many do not.

We argue that imagination is a crucial driver of entrepreneurship, and this future-envisioning provides the positive contexts, including the possibly profitable outcomes, spur entrepreneurs to action. Imagination involves the ability to holographically project a future that can excite the entrepreneurs; the complexities of imagination must entail the desire for a particular desired endpoint and certain foolishness. March describes this as the dilemma of absurdism (March, 2020), arguing irrational problem-solving approaches. He argues that foolishness helps address the complexities of situations by looking at guarded societal institutions or sacred cows. He explains how organisations with impossible goals dismantle such guarded institutions (or slay the sacred cows) by mobilising irrationality and foolishness. Hu and Rerup discuss "fools with impossible goal". They explain that foolishness is useful, at times, because it frees agents from the restraints and "constraints of conventional knowledge and enables them to explore distant search spaces and find better solutions than would have been found through rational search" (Hu & Rerup, 2021: 97). However, such foolish indulgences are mostly done at the imagination stage before actualising. Sarasvathy expresses this better: "before there are products, there is human imagination; and before there is a market, there are human aspirations" (Sarasvathy & Dew, 2005: 387).

Creativity is needed where entrepreneurs "experiment with forms and processes of emancipatory organising" (Holm & Beyes, 2022: 227), interweaving material artefacts and agentic connections to string them into imagined deemed possibility. Imagination is needed for creative design problem solving (Dimov et al., 2016), imagining the many parts and seeing how these parts can be inter-related and interdependent and assembling them as solution sets; such that new solutions "emerge from situated interactions in continual processes of becoming and organising" (Elias et al., 2022: 204). In bricolage, active imagining is crucial to put the parts together to work, creating something from nothing (Baker & Nelson, 2018).

Imagination is a subjective endeavour with an individualised realm of expectations and endpoints. It largely depends on available information and interpretation because the outcome of imagination, whether foolishly and irrationally imagined or otherwise, is finally about visualising a future state better than the present one.

2.1 Visualisation of opportunity-construct as an artefact

Saraiya, North and Duca define an insight as an individual observation of the information through discovery (Saraiya et al., 2005). The quantifiable characteristics of each insight can then be encoded in the opportunity construct for analysis. The information visualisation influences the interpretation of the information and insight gained (Saraiya et al., 2005). Such visualisation enables the "arriving at an insight often sparks the critical breakthrough that leads to discovery: suddenly seeing something that previously passed unnoticed or seeing something familiar in a new light" (Saraiya et al., 2005: 443). The visualisation provides mental models of how these opportunities can be construed based on encoded information. Entrepreneurs need to consider the roles this opportunity-construct as artefacts play in the interactive emergence as purposeful even if their outcomes remain unpredictable. These opportunity artefacts are situated in a nexus between the individual and environment with boundary conditions. The boundary conditions can be clarified by examining how the opportunity, context and actor/entrepreneur interact in the nexus.

"The boundary conditions of opportunity creation are the most straightforward of the three frameworks because opportunity creation began as a deductive exercise, with its assumption states as priors. For effectuation and bricolage, the boundary conditions have to be implied due to the fact that they were inductively derived" (Welter et al., 2016: 10).

Whether by way of creation, effectuation or bricolage, or any other engines/mechanisms lie in “the fact that expert entrepreneurs develop the competencies intuitively (without conscious rationalising) through their previous experiences” (Welter et al., 2016: 10) while operating under uncertain contexts. The information encoded within the opportunity artefact provides insights that align action at the intersection of strategy and entrepreneurship. The opportunity as an artefact in its varied forms can be considered emergent or independently existing, making no difference as entrepreneurs’ actions are contingent on the information embedded in the opportunity artefact and contexts. We argue that the process of opportunity formation is of lesser concern than the practical value of the opportunity, particularly the informational value of the opportunity that finally spurs action in entrepreneurs. The information and contexts catalyse the action agendas. The information causality in opportunity artefacts that bring about the various behavioural concepts like effectuation, bricolage, creation or discovery affects the field of entrepreneurship. Information and information visualisation provide building blocks for a paradigmatic shift in entrepreneurship research. By centring the discussion around information and information visualisation, advances in these concepts and refinements theoretically will allow for a more flexible interpretation of opportunities.

2.2 Eureka Moment – Instigation to Action

Enactment arising from a Eureka moment where a flash of insight instantaneously connects the information for everything to make sense is a crucial step that needs elaboration. When the opportunity artefact makes sense, it is done by noticing and bracketing a vast array of information. The information visualisation needs to reduce the information load in the organising process of selection and retention to create an artefact with a narrative that can instigate the process of organising entrepreneurial action. The method of organising and the process of sensemaking is an iterative, recurring theme in information visualisation.

“Here a combination of retrospective attention, mental models, and articulation perform a narrative reduction of the bracketed material and generate a locally plausible story. Though plausible, the story that is selected is also tentative and provisional. It gains further solidity in the organising process of retention. When a plausible story is retained, it tends to become more substantial because it is related to past experience, connected to significant identities, and used as a source of guidance for further action and interpretation” (Weick et al., 2005: 414).

Information visualisation in the opportunity artefact is tentative and provisional and gains solidity by consolidating information from the vast array of participating actors and related artefacts. The integration and reorganisation of the information form an initial representation of the opportunity artefact that acts either as an activator or pointer guiding entrepreneurial actions. “Opportunity-as-artefact can act both as activator and pointer” (Leong, 2021: 2150021-7).

In the search for a breakthrough, entrepreneurs’ creative imagination is looking for a moment of sudden, triumphant discovery, inspiration, and insight that can move them into action. Such flashes of insight show a way out of problems or inspire them to take unconventional pathways. An eureka moment is a magical epiphany where the convergence of information takes a form and shape that suddenly bears new meaning with renewed clarity.

2.3 Contribution to Theory and Practice

In practice, through active and creative imagination, mental visualisation provides the space to create something disruptive. The inter-relations and interdependence between objects/entities/artefacts/actors that are not previously noticeable at first glance may seem unrelated or complex. Still, creative imagination draws the dots together to create an opportunity belief (Figure 1).

Connecting the objects/entities/artefacts/actors (represented by the dots in Figure 1) allows a shape/form to emerge and establish interdependence and inter-relationships between them. Each dot represents a different experience to the entrepreneur and has correlated histories when there are some forms of interactions before. When the dots are aggregated, a bigger picture is formed. Still, not all will understand the structure and shape it because of the different interpretive abilities and limited information processing capacity. The big picture or the shape of things (in Figure 1, when the dots are connected) becomes the opportunity that is being imagined – the imagined future state of where that opportunity informs entrepreneurs. Davidsson prefers it to be called an external enabler “for equilibrating external circumstances that can

facilitate a variety of entrepreneurial endeavours” (Davidsson, 2017: 66). He further adds that the external environment (represented here as the array of dots, each with its momentum of change and direction), imagined future ventures (mental visualisation of the possible relations of the dots) and favourability assessment (ability to connect the dots to form a favourable imagined future state) are “ontologically very different entities” (Davidsson, 2017: 67). Still, the emergence of these future states can “change interdependently from each other at different points in time” (Davidsson, 2017: 67) depending on the level of interactions and their correlated histories (between the dots). While Davidsson fervently calls for the dismantling of the opportunity construct because of its language and semantics and, in his words, “choice of terminology” (Davidsson, 2017: 67), we argue that the opportunity construct is still instrumental in entrepreneurial research. Opportunity as an imagined artefact can flexibly interpret entrepreneurial phenomena. We argue that we should develop a theoretically and practically helpful language to help entrepreneurs understand entrepreneurial action's origins, mechanisms, and manifestations. These actions come from a firm conviction of the opportunity belief, essentially made up of information accrued by the entrepreneurs.

To do that, an entrepreneur needs to stay open-minded, non-judgemental and hungry for new experiences with objects/entities/artefacts/actors that can be part of the big picture or potentially become an integral part of the larger scheme of things. Seeing connections and putting contexts to them is vital in imagination. Finally, entrepreneurs must believe that that future state encapsulated in the opportunity belief is actualisable, and they can commit time and resources to the venture “with the means of opportunity actualisation; thus, whether they are discovered or created is simply immaterial to the nature of opportunities” (Ramoglou & Tsang, 2018: 815).

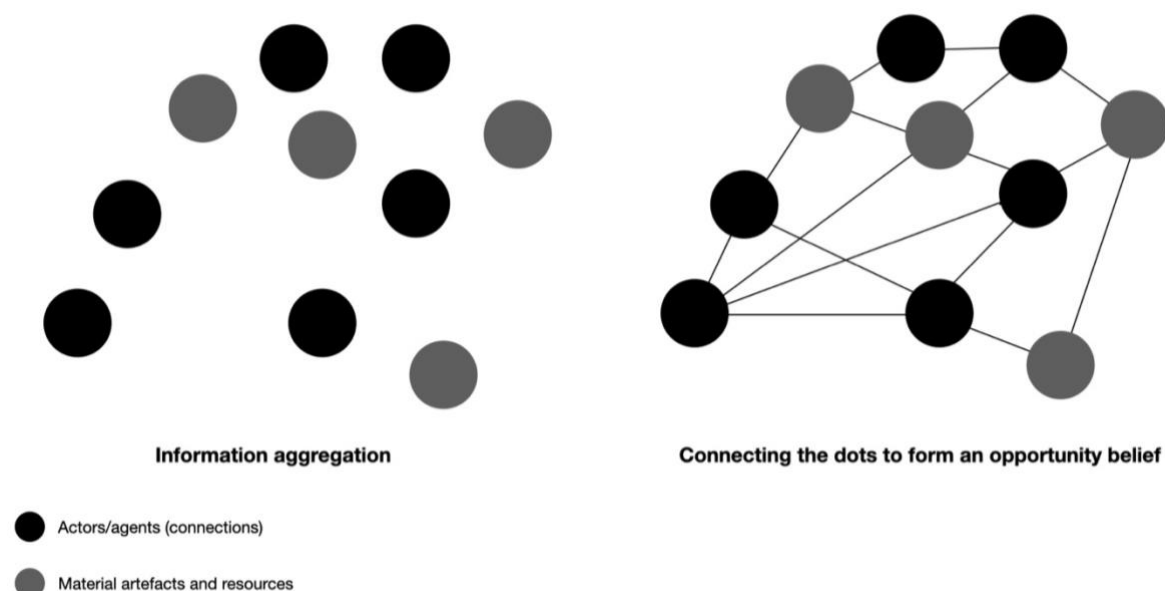


Figure 1, Meanings and contexts arising from connecting the dots

3 CONCLUSION

Our research reveals that information is the common core and denominator that guides entrepreneurial processes and action in discovery, creation, effectuation and bricolage. Opportunity is merely an evolving construct, as information is revealed, encoded over time, and constantly interpreted in a sensemaking process. This analysis reveals a set of exciting implications that can guide future conceptual and empirical research in entrepreneurship. Our insights underscore the necessity to critically examine information theory and causation in opportunity as an artefact that will clarify the concept of

opportunity. The concept of opportunity is still fruitful in the field of entrepreneurship. Foss and Klein argue that the concept of opportunity is redundant and misleading (Foss & Klein, 2020). We argue that the concept of opportunity is still relevant. Still, it should be centred on information as the elementary unit for analysis instead of featuring opportunity, per se, since it has definitional clumsiness.

Information visualisation presents visual metaphors of the opportunity that provides entrepreneurs with better insights to make more effective decisions. Insight gaining processes reduce uncertainty and allow entrepreneurs to exploit opportunities better. We believe that informational value in the opportunity artefact holds promise in furthering research in entrepreneurial action. Through information visualisation and treatment, entrepreneurial opportunity (as an artefact) can capture the complexly interacting entities, actors and mechanisms, one way or another, for entrepreneurs to make sense of and to act upon them informationally. "Entrepreneurs are strong information processors... They use problem-solving and sensemaking information applications, which they combine with social interaction with their boundary spanners and information catalysts to identify opportunities. They combine opportunity construction with opportunity recognition and enactment" (Vaghely & Julien, 2010: 84). Information acts as a trigger, motivator, activator or pointer at a fundamental level to inform entrepreneurial actions.

Assimilating information and making sense of it is something entrepreneurs constantly do. Information and knowledge is power and if information is synthesised intelligently and when entrepreneurs can put together the right information at the right time, imagine and think critically about it, a better future can emerge with decisive actions.

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David Leong, *PhD* started his entrepreneurial ventures early, soon after graduating from the National University of Singapore in 1994 with a Bachelor of Business Administration degree. He has founded various ventures from corporate finance, business consultancy, design consultancy, human resources (HR), publication and technology.

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REFERENCES:

- Alvarez, S. A., & Barney, J. B. (2007). Discovery and creation: alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal*, 1(1-2), 11-26.
<https://doi.org/10.1002/sej.4>
- Alvarez, S., & Barney, J. B. (2019). Has the Concept of Opportunities Been Fruitful in the Field of Entrepreneurship? Sharon Alvarez Tom Olofson Chair in Entrepreneurship Professor, Organizations and Entrepre. *Academy of Management Perspectives*.
- Baker, T., & Nelson, R. E. (2018). *Creating Something from Nothing : Resource Construction through Entrepreneurial Bricolage* Author (s): Ted Baker and Reed E . Nelson Source : *Administrative Science Quarterly* , Vol . 50 , No . 3 (Sep . , 2005) , pp . 329-366 Published by : Sage Publicati.

- 50(3), 329–366.
- Bryant, P. T. (2014). Imprinting by Design: The Microfoundations of Entrepreneurial Adaptation. *Entrepreneurship Theory and Practice*, 38(5), 1081–1102. <https://doi.org/10.1111/j.1540-6520.2012.00529.x>
- Chiles, T. H., Bluedorn, A. C., & Gupta, V. K. (2007). Beyond creative destruction and entrepreneurial discovery: A radical Austrian approach to entrepreneurship. *Organization Studies*, 28(4), 467–493. <https://doi.org/10.1177/0170840606067996>
- Daft, R. L., & Weick, K. E. (1984). Toward a Model of Organizations as Interpretation Systems. *Academy of Management Review*, 9(2), 284–295. <https://doi.org/10.5465/amr.1984.4277657>
- Davidsson, P. (2017). Reflections on misgivings about “dismantling” the opportunity construct. *Journal of Business Venturing Insights*, 7, 65–67. <https://doi.org/10.1016/j.jbvi.2017.03.004>
- Davidsson, P. (2021). Ditching Discovery-Creation for Unified Venture Creation Research. *Entrepreneurship Theory and Practice*, 104225872110308. <https://doi.org/10.1177/10422587211030870>
- Dequech, D. (2000). Fundamental Uncertainty and Ambiguity. *Eastern Economic Journal*, 26(1), 41–60. <http://www.jstor.org/stable/40325967>
- Dimov, D. (2011). Grappling With the Unbearable Elusiveness of Entrepreneurial Opportunities. *Entrepreneurship: Theory and Practice*, 35(1), 57–81. <https://doi.org/10.1111/j.1540-6520.2010.00423.x>
- Dimov, D., Corbett, A. C., & Katz, J. A. (2016). TOWARDS A DESIGN SCIENCE OF ENTREPRENEURSHIP of Start-up Thinking and Action. In *Forthcoming in Advances in Entrepreneurship, Firm Emergence and Growth* (Vol. 18).
- Eckhardt, J. T., & Shane, S. (2010). An Update to the Individual-Opportunity Nexus. In *Handbook of Entrepreneurship Research* (pp. 47–76). Springer New York. https://doi.org/10.1007/978-1-4419-1191-9_3
- Eddy-Spicer, D. H. (2019). Where the action is: Enactment as the first movement of sensemaking. In *Educational Leadership, Organizational Learning, and the Ideas of Karl Weick*. Routledge., 94–118.
- Elias, S. R. S. T. A., Chiles, T. H., & Crawford, B. (2022). Entrepreneurial imagining: How a small team of arts entrepreneurs created the world’s largest traveling carillon. *Organization Studies*, 43(2), 203–226. <https://doi.org/10.1177/01708406211035501>
- Foss, N. J., & Klein, P. G. (2020). Entrepreneurial Opportunities: Who Needs Them? *Academy of Management Perspectives*, 34(3), 366–377. <https://doi.org/10.5465/amp.2017.0181>
- Frankel, A., & Kamenica, E. (2019). Quantifying Information and Uncertainty. *American Economic Review*, 109(10), 3650–3680. <https://doi.org/10.1257/aer.20181897>
- Gartner, W. B. (1988). “Who Is an Entrepreneur?” Is the Wrong Question. *American Journal of Small Business*, 12(4), 11–32. <https://doi.org/10.1177/104225878801200401>
- Garud, R., & Karnøe, P. (2005). Distributed agency and interactive emergence. *Innovating Strategy Process*, 88–96.
- Garud, Raghu, Kumaraswamy, A., & Karnøe, P. (2010). Path dependence or path creation? *Journal of Management Studies*, 47(4), 760–774. <https://doi.org/10.1111/j.1467-6486.2009.00914.x>
- Hamilton, R., Vohs, K. D., Sellier, A.-L., & Meyvis, T. (2011). Being of two minds: Switching mindsets exhausts self-regulatory resources. *Organizational Behavior and Human Decision Processes*, 115(1), 13–24. <https://doi.org/10.1016/j.obhdp.2010.11.005>
- Hill, R. C., & Levenhagen, M. (1995). Metaphors and Mental Models: Sensemaking and Sensegiving in Innovative and Entrepreneurial Activities. *Journal of Management*, 21(6), 1057–1074. <https://doi.org/10.1177/014920639502100603>
- Holm, D. V., & Beyes, T. (2022). How art becomes organization: Reimagining aesthetics, sites and politics of entrepreneurship. *Organization Studies*, 43(2), 227–245. <https://doi.org/10.1177/0170840621998571>
- Hu, Y., & Rerup, C. (2021). “Fools” with Impossible Goals: Mobilizing March’s Technology of Foolishness to Tackle Grand Challenges (pp. 97–128). <https://doi.org/10.1108/S0733-558X20210000076005>
- Johnson, S. (1998). Who moved my cheese. In *Putnam Adult*.
- Kirzner, I. (1997). Entrepreneurial discovery and the competitive market process. *An Austrian Approach. Journal of Economic Literature*, 35: 60–85.
- Kirzner, I. M. (1979). *Perception, opportunity, and profit: Studies in the theory of entrepreneurship*. Chicago: University of Chicago Press.
- Lachmann, L. M. (1990). G. L. S. Shackle’s Place in the History of Subjectivist Thought. In *Unknowledge and Choice in Economics* (pp. 1–8). Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-08097-7_1
- Langer, N. (2012). Who Moved My Cheese? Adjusting to Age-Related Changes. *Educational Gerontology*, 38(7), 459–464. <https://doi.org/10.1080/03601277.2011.559860>
- LEONG, D. (2021). RE-CONTEXTUALIZING OPPORTUNITY AS ARTIFACT SIGNALLING FOR ENTREPRENEURIAL ACTION. *Journal of Developmental Entrepreneurship*, 2150021. <https://doi.org/10.1142/S1084946721500217>
- Lévi-Strauss, C. (1966). *The savage mind*. Chicago, IL: University of Chicago Press.
- March, J. (2020). The technology of foolishness. In *Shaping Entrepreneurship Research*. Routledge, 120–130.
- Miller, J. I. (2012). The mortality problem of learning and mimetic practice in emerging industries: Dying to be legitimate. *Strategic Entrepreneurship Journal*, 6(1), 59–88. <https://doi.org/10.1002/sej.1128>
- Pidduck, R. J., Clark, D. R., & Lumpkin, G. T. (2021). Entrepreneurial mindset: Dispositional beliefs, opportunity beliefs, and entrepreneurial behavior. *Journal of Small Business Management*, 1–35. <https://doi.org/10.1080/00472778.2021.1907582>
- Ramoglou, S., Gartner, W. B., & Tsang, E. W. K. (2020). “Who is an entrepreneur?” is (still) the wrong question. *Journal of Business Venturing Insights*, 13, e00168. <https://doi.org/10.1016/j.jbvi.2020.e00168>
- Ramoglou, S., & Tsang, E. W. K. (2018). Opportunities Lie in the Demand Side: Transcending the Discovery-Creation Debate. *Academy of Management Review*, 43(4), 815–818. <https://doi.org/10.5465/amr.2018.0239>
- Romme, A. G. L., & Reymen, I. M. M. J. (2018). Entrepreneurship at the interface of design and science: Toward an inclusive framework. *Journal of Business Venturing Insights*, 10(April), 1–8. <https://doi.org/10.1016/j.jbvi.2018.e00094>
- Russell, D. M., Stefik, M. J., Pirolli, P., & Card, S. K. (1993). The cost structure of sensemaking. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems - CHI '93*, 269–276. <https://doi.org/10.1145/169059.169209>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and

- the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Saraiya, P., North, C., & Duca, K. (2005). An Insight-Based Methodology for Evaluating Bioinformatics Visualizations. *IEEE Transactions on Visualization and Computer Graphics*, 11(4), 443–456. <https://doi.org/10.1109/TVCG.2005.53>
- Sarason, Y., Dean, T., & Dillard, J. (2006a). Entrepreneurship as the Nexus of Individual and Opportunity: A Structuration View DLU-JOS CALL FOR PAPERS: Special Issue on Entrepreneurship and Innovation, and Social Entrepreneurship View project. *Article in Journal of Business Venturing*. <https://doi.org/10.1016/j.jbusvent.2005.02.007>
- Sarason, Y., Dean, T., & Dillard, J. F. (2006b). Entrepreneurship as the nexus of individual and opportunity: A structuration view. *Journal of Business Venturing*, 21(3), 286–305. <https://doi.org/10.1016/j.jbusvent.2005.02.007>
- Sarasvathy, S. D. (2001). Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency. *Academy of Management Review*, 26(2), 243–263. <https://doi.org/10.5465/amr.2001.4378020>
- Sarasvathy, S. D. (2002). Entrepreneurship As Economics With Imagination. *The Ruffin Series of the Society for Business Ethics*, 3, 95–112. <https://doi.org/10.5840/ruffinx200238>
- Sarasvathy, S. D., & Dew, N. (2005). Entrepreneurial logics for a technology of foolishness. *Scandinavian Journal of Management*, 21(4 SPEC. ISS.), 385–406. <https://doi.org/10.1016/j.scaman.2005.09.009>
- Savolainen, R. (2017). Information need as trigger and driver of information seeking: a conceptual analysis. *Aslib Journal of Information Management*, 69(1), 2–21. <https://doi.org/10.1108/AJIM-08-2016-0139>
- Shackle, G. L. S. (1993). Elasticities of Surprise in the Concept of Policy. In *Money and Banking* (pp. 1–6). Palgrave Macmillan UK. https://doi.org/10.1007/978-1-349-13319-2_1
- Shane, S. (2003). A general theory of entrepreneurship: The individual-opportunity nexus. *A General Theory Of Entrepreneurship: The Individual-Opportunity Nexus*, 1–327. <https://doi.org/10.4337/9781781007990>
- Shane, S., & Venkataraman, S. (2000). The Promise of Entrepreneurship as a Field of Research. *The Academy of Management Review*, 25(1), 217. <https://doi.org/10.2307/259271>
- Stinchfield, B. T., Nelson, R. E., & Wood, M. S. (2013). Learning From Levi-Strauss' Legacy: Art, Craft, Engineering, Bricolage, and Brokerage in Entrepreneurship. *Entrepreneurship: Theory and Practice*, 37(4), 889–921. <https://doi.org/10.1111/j.1540-6520.2012.00523.x>
- Townsend, D. M., Hunt, R. A., McMullen, J. S., & Sarasvathy, S. D. (2018). Uncertainty, knowledge problems, and entrepreneurial action. *Academy of Management Annals*, 12(2), 659–687. <https://doi.org/10.5465/annals.2016.0109>
- Vaghely, I. P., & Julien, P.-A. (2010). Are opportunities recognized or constructed? *Journal of Business Venturing*, 25(1), 73–86. <https://doi.org/10.1016/j.jbusvent.2008.06.004>
- Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the Process of Sensemaking. *Organization Science*, 16(4), 409–421. <https://doi.org/10.1287/orsc.1050.0133>
- Welter, C., Mauer, R., & Wuebker, R. J. (2016). Bridging Behavioral Models and Theoretical Concepts: Effectuation and Bricolage in the Opportunity Creation Framework. *Strategic Entrepreneurship Journal*, 10(1), 5–20. <https://doi.org/10.1002/sej.1215>