Chapter 5
Serendipity in Entrepreneurship, Strategy, and Innovation—A Review and Conceptualisation

Christian Busch and Matthew Grimes

Abstract Serendipity is at the core of many innovations, inventions, and entrepreneurial opportunities. However, despite its importance for organisations and individuals alike, research on the dimensions and antecedents of serendipity is surprisingly scarce. In this chapter, Christian Busch and Matthew Grimes review and synthesize research on serendipity in the entrepreneurship, strategy, and innovation context, and suggest a novel conceptualisation of the process of (cultivating) serendipity. They thereby provide the reader with a thorough and wide-ranging view of how serendipity has come into the fore in the field of organization and management, but also what possibilities it opens up for understanding and creating the conditions for entrepreneurial success. They advance a process-oriented model of serendipity that serves as a basis to elaborate factors that increase the chances for serendipitous encounters and how to capitalize on them. Amongst those, Busch and Grimes distinguish between individual (including reframing, extrovertedness and perseverance) and organizational factors (including systematic evaluations, iteration and team-based collaboration). Their paper, thereby, advances the conceptual understanding of serendipity as much as a theory of how to transfer this understanding successfully into the entrepreneurial context.

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Introduction

"Chance favors the prepared mind only."

(Louis Pasteur)

"The best education is one that prepares you for your own venture into the unknown."

(Lee C. Bollinger, President, Columbia University)

Both entrepreneurs and organisational leaders tend to assume that market opportunities can be mapped out in advance, such that the process of strategy is frequently focused on developing targets and plans (Brown 2005). This focus is undergirded by the premises that individuals and organisations are able to anticipate possible outcomes a priori, and that activities and interactions can subsequently be coordinated around stable "strategic" objectives such as seeking particular resources (Engel et al. 2017; Hallen and Eisenhardt 2012). However, despite the wide acceptance of such premises, research into the practice of strategy and entrepreneurship offers evidence that in a fast-changing world it is often difficult to deliberately determine which resources, partners, or co-founders might be needed in the future (Busch 2021; Engel et al. 2017). As such, seminal studies have noted that firms' and entrepreneurs' strategies are often best understood as "emergent" (Mintzberg and Waters 1985; Mintzberg et al. 1996; Sarasvathy 2008), wherein intentionality is unclear and any corresponding formalised plans arise not as advanced directives but rather as tools for rationalising and justifying current action. In this way, positive outcomes such as opportunity discovery and (social) innovations and inventions (e.g., Viagra, microwaves, or post-it-notes) are often a matter of serendipity rather than planning (Denrell et al. 2003, 2015; Grimes et al. 2019; Liu and de Rond 2016; Ramus et al. 2017).

Building on a recent systematic review on serendipity in the management context (Busch 2022), we define serendipity as a surprising and valuable discovery originating from agentic responses to unplanned events. Thus, rather than being merely an event that happens *to* an individual or organisation, serendipity requires sagacity—i.e., it builds on the notion that positive discoveries are facilitated by "controllable" elements such as an open mind (Makri et al. 2014; Merton and Barber 2004; van Andel 1994). And yet, while serendipity as a concept has been occasionally referenced by strategy researchers (e.g., Graebner 2004; Kilduff and Tsai 2003), most prior research in entrepreneurship and management has interpreted serendipity as an exogenous structural, and thus uncontrollable, feature of spontaneous encounters (Casciaro et al. 2014; Feld 1981; Shipilov et al. 2014), and sometimes even as an "error" or type of "uncertainty" that needs to be avoided, rather than as something that can be beneficially managed (Brown 2005; Engel et al. 2017). Such depictions within the strategy and entrepreneurship literature of serendipity as uncontrollable may explain the clear divergence between the lack of academic exploration on the topic of serendipity and the frequency and consistency with which practitioners credit it for their success (Busch 2020a; Gyori et al. 2019).

Given the seeming mismatch between the (theoretical and empirical) importance of the phenomenon and the lack of research on the topic, we embarked on

an exploration of the role of serendipity in entrepreneurship, strategy, and innovation. Although our chapter is focused on serendipity as a general phenomenon, we also recognise prior distinctions from the literature that differentiate at least three types of serendipity based on the nature of the search process as well as the relation between the emergent solution and that search process (Busch 2020a; Yaqub 2018; also see Napier and Vuong 2013). They can broadly be clustered into three types:

1. **Thunderbolt serendipity**. No search for a solution to a specific problem is under way, but the actor unexpectedly ("thunderbolt") comes across a new problem-solution dyad, often conceptualised as an 'opportunity'. The problem and solution thus unexpectedly emerge at the same time, like in the example of the rolling suitcase: A traveling luggage company worker observed an employee in the airport, who rolled a heavy machine on a wheeled skid, while the traveler had to drag his heavy suitcases through the airport. When he realised that he could mount furniture casters on a travel suitcase, and put a strap on the front, the rolling suitcase was born (von Hippel and von Krogh 2016).
2. **Archimedes serendipity**. A search for a solution to a known problem is under way, but the solution comes from an entirely unexpected place. Example: in the apocryphal tale, Archimedes was trying to find out whether his king's crown was made of pure gold, yet he unexpectedly found his answer when watching the water level rise as he lowered himself into a public bath, realising that submerging the crown in water could give him the solution to his problem (Busch 2020a).
3. **Post-it note serendipity**. A search for a solution to a known problem is underway, but in the process the social actor stumbles across a solution to a previously unrecognised or entirely different problem. Example: An inventor at 3M was initially looking for a stronger glue, but unexpectedly realised that a weaker glue, used in a different way, could result in an effective product.[1]

What unites each of these different types of serendipity is the presence of some unexpected event or trigger, a subsequent noticing and bracketing of weak cues, followed by the socio-cognitive and cultural effort involved in connecting that information to a potential problem or solution. And such serendipitous processes can be contrasted with more rational or non-serendipitous problem-solving processes, in which the actor has a clear initial problem, a search process that is directed toward proposing one or more solutions to that problem, while filtering out seemingly peripheral and/or unrelated information (Busch and Grimes 2023; Grimes and Vogus 2021;

[1] Some researchers have differentiated between "real" and "fake"/"pseudo" serendipity (e.g., de Rond 2014), others (such as Dew 2009) focus on existing search. For example, a few researchers have contended that examples such as penicillin are "pseudo-serendipitous". In this view, pseudo-serendipity is about a situation in which you are looking for something already, and then come across something coincidentally that helps you reach the initial goal. In the case of Fleming's penicillin, the team was somewhat prepared, as they were already interested in the antibiotic effects of substances. In this logic, "true" serendipity would require a change in objective (Roberts 1989). However, most researchers do not share this narrow notion, and rather look at serendipity in the broader sense—else, most of the documented serendipity stories would be "pseudo-serendipitous" (also see Busch 2022; Copeland 2018). In this paper, based on recent research, we cover the whole spectrum.

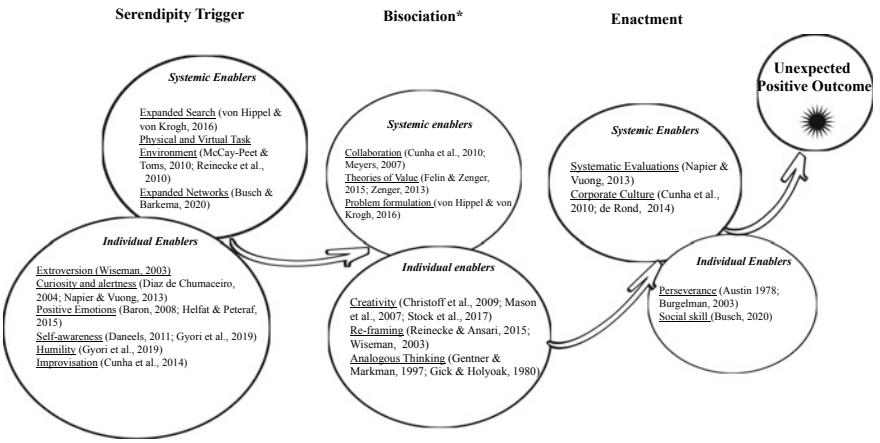

Fig. 5.1 The process of (cultivation) serendipity

Yaqub 2018). They can also be contrasted against "garbage-can" models of decision-making or effectual models of innovation in which the actor starts with existing solutions, resources, or other means and subsequently searches for problems that might be addressed by way of those means (Cohen et al. 1972; Sarasvathy 2008).

Throughout the article, we argue that for serendipity to be more systematically incorporated into entrepreneurship and business strategy, social actors must seek to increase (a) the likelihood of trigger events, (b) the likelihood of noticing and bracketing weak cues, and (c) cultural appreciation for and support structures which help to materialise unconventional solutions within and across organisations (Busch 2022). As per Fig. 5.1, in the following sections we consider how prior studies offer insight into the various factors that might constrain and enable such increases which may then result in serendipity.

Our chapter thus attempts to move the conversation beyond a consideration of the related tensions such as those having to do with strategy versus luck, top-down causal planning versus bottom-up emergent or effectual action (e.g., Mintzberg et al. 1996; Sarasvathy 2008), and goal-directed activity versus deterministic structure (Engel et al. 2017; Porter and Woo 2015). In synthesising and building on this work, we illustrate how serendipity within the context of entrepreneurship and innovation can be best understood as a process (and related outcome) rather than an event. Our article contributes to the literature a review and conceptualisation of serendipity that questions the key assumptions of traditional "risk management" and "planning" approaches, showing how factors of unexpected innovation previously perceived as exogenous might instead be (partly) endogenous. This reframing allows us to then elaborate on the conditions required for the emergence of serendipity (Busch 2022; Gyori et al. 2019), thus opening up a number of fruitful avenues for further research.

How Biases of Conventional Decision Making Constrain Serendipity

Prior studies have shown how conventional decision-making approaches are often shaped by cognitive and behavioural biases, which can obscure the importance of weak cues and thus constrain serendipity (Denrell et al. 2003; Liu and de Rond 2016). Such biases include: underestimating the unexpected, self-censoring, illusion of control, and functional fixedness.

First, social actors tend to have a particular—and potentially biased—view of the surrounding environment that shapes both expectations and attention. Events and information that are unexpected often go unnoticed or are discarded (Cunha et al. 2010). People also tend to overlook associated weak cues as they tend to focus on prominent features of the environment (Cunha et al. 2010, see also Ross, Chap. 9 in this volume).

Second, as social actors engage in conventional thinking and decision-making, they are prone to self-censoring based upon normative pressure. The pressure to conform with such conventional wisdom is not only due to social desirability, but also with the desire to appear rational (Denrell et al. 2003). However, this pressure to conform with taken-for-granted insight or normative decisions can lead to the discarding or self-censoring of new ideas (Grimes and Vogus 2021, see also Arfini, Chap. 7 and Soto, Chap. 11 in this volume). This has shown to be particularly true in cases in which those ideas emerge unexpectedly, such as in the case of serendipity, due to those ideas' lack of perceived legitimacy (Busch 2020a).

Third, research shows that social actors tend to presume high degrees of control over the decision-making and innovation processes (e.g., Grimes et al. 2020; Sand and Jongsma 2020), such that when serendipity occurs, it is frequently airbrushed out of the ensuing narrative of change.[2] Unfortunately, such perceived control is often an illusion. Research has shown that much of success is "unexplained variance"—it cannot be explained by traditional factors on which management tends to focus (Liu and de Rond 2016; McGahan and Porter 2002; also see Denrell et al. 2015; Henderson et al. 2012). For example, forecasts for fast-moving consumer goods (e.g., film box office revenues, company growth, toiletries) tend to have error rates of up to 70% (Coad 2009; Fildes et al. 2009; Geroski 2005). This is due to the fact that most situations and systems are too complex to be captured by models in every detail (Bansal et al. 2018). In addition, honest mistakes, unexpected events, and social dynamics tend to lead to outcomes that are different from those that were planned (Cohen et al. 1972; Hannan et al. 2003; Herndon et al. 2014). Given such illusions

[2] Related research has shown that we tend to look for patterns where there are none: pareidolia (Sagan 1995; Voss et al. 2012). For example, in an experiment by behavioural psychologist Skinner (1948), a pigeon was placed inside a box, and food pellets were released at random intervals. While the pigeon had no way of predicting when pellets would drop (and indeed, no way of causing it), it began to behave as if it could. For example, if it received a pellet when walking in a circle, it started repeating that action, until the next one appeared. It began acting as if it could exercise control over it—even though it was an unpredictable event (also see Conrad 1958; Mishara 2010).

of control, social actors are thus likely to not only minimize the role of serendipity in the past, despite evidence, but they are also likely to discount the possibility of similar serendipitous occurrences in the future.

Finally, the process of professionalisation has led to increased degrees of specialised expertise but also functional fixedness—the quality of being mentally blocked from using tools and approaches in novel ways (Adamson and Taylor 1954; Duncker 1945). People who are deeply familiar with and skilled at particular methods tend to overlook opportunities for innovation (Allen and Marquis 1964; Arnon and Kreitler 1984). Conversely, by deviating from these "tried and true" methods and engaging in non-routine action, this encourages greater displays of creativity (Dane 2011; also see Arnon and Kreitler 1984). New experiences and unusual situations, in other words, tend to enhance cognitive flexibility, helping social actors to overcome functional fixedness. Intriguingly, this also introduces an argument for why serendipity might be less constrained in contexts where resources may be lacking, and where there are no particular methods, system, or tools to "unlearn" (Busch 2022; also see German and Barrett 2005; German and Defeyter 2000). For example, the MPesa money transfer system in Kenya emerged in a context lacking a reliable ATM network.

Step 1: Serendipity Triggers

Although the biases that characterise conventional decision-making can often constrain serendipity by limiting attention to weak cues, other research suggests there are various individual- and organisational-level practices that have the capacity to both increase trigger events as well as overcome the aforementioned cognitive biases. In this chapter, we focused on those that have managerial relevance (for others, see for example, Wiseman 2003).

Extroverted/introverted behaviours. Previous research has shown that displays associated with extroversion (the state of enjoying being with other people) can increase "fortunate" encounters by increasing the number and diversity of individual interactions, as well as by encouraging sustained engagement with those individuals (McCay-Peet et al. 2015; Wiseman 2003). Such extroverted displays often involve increases in culturally-inviting gestures, which have been shown to enhance the degree to which others feel more "attracted" to them (Wiseman 2003). Such attraction can thereby give rise to increased sharing of novel information, thus potentially surfacing unexpected solutions. However, given that the noticing and bracketing of peripheral information or weak cues may also require self-awareness, time, and inward-focus, serendipity may also arise from more introverted displays and practices, such as meditation or engagement with non-human sources of cultural engagement including the consumption of books, movies, or the internet (Beale 2007; Liang 2012).

Curiosity and alertness. Being alert to a potentially meaningful trigger—and making sense out of it—is at the core of experiencing serendipity (Busch and Barkema

2020; Cunha et al. 2010; Erdelez 1999; Kirzner 1979; Merton and Barber 2004). Research in psychology and management has shown that alertness and the desire to know or learn ("curiosity") are paramount to noticing unexpected moments and events (Diaz de Chumaceiro 2004; Napier and Vuong 2013). Specifically, noticing and bracketing peripheral information without being cognitively constrained by goal-directed search processes helps social actors identify possibilities that might have previously been overlooked (Merton and Barber 2004; Cunha et al. 2010). Serendipity thus plays a major role in opportunity discovery (Corner and Ho 2010; Dew 2009), especially in the early stages of firm formation (Mirvahedi and Morrish 2017).

Prior research has noted how such curiosity and alertness tends to vary based on domain experience and specialisation. For example, inexperienced founders tend to be more open to new information and demonstrate a high level of alertness, whereas more experienced ones tend to develop a high degree of focus which limits "distractions" (Busenitz 1996). Interestingly, this suggests possible unexpected benefits to inexperience in the early stages of a project, wherein the time-contingent importance of serendipity is presumed to be amplified (Cunha et al. 2010; also see Kornberger et al. 2005).

Positive emotions. Positive emotions can be conducive to serendipity, as they increase alertness to outside stimuli, as well as responsiveness to external events, by broadening individuals' action repertoire and scope of attention (Baron 2008; Cunha et al. 2010). This is particularly true of other-oriented, positive emotions such as compassion, wherein concern is expanded out from individual experience to account for others and their suffering. In turn, such positive emotions also increase a person's capacity to make bisociations, because they can boost fluid and integrative thinking across topics (Isen et al. 1987). Conversely, negative emotions can diminish receptiveness to (potential) serendipity triggers, as they decrease receptivity to novel or unconventional information (Busch 2020a; also see Kahneman 2011).

Self-awareness. Researchers have linked self-awareness to positive well-being and mental health (Fenigstein et al. 1975; Sutton 2016). The importance of self-awareness goes beyond psychological strength and affects performance, rumination, and interpersonal stress (Brinker et al. 2014; Feldman et al. 2014). A way to conceptualise self-awareness is through the practice of mindfulness (Brown and Ryan 2007). This practice is known to directly improve social interaction (Brown and Ryan 2003), which can contribute to our ability to notice serendipity triggers (Danneels 2011; Gyori et al. 2019). In addition, self-awareness plays an important role in the way social actors interact with their environment by reducing negative emotions and increasing the perception of one's own potential (Kamenov 2013)—behavioural outcomes which may help increase receptivity to serendipitous trigger events.

Humility. Psychologists have correlated humility with openness to alternative ideas and lack of dogmatism (Leary et al. 2017; McCray and Sutin 2009; Petrocelli et al. 2007; Seckler et al. 2021). This can be conducive to recognising serendipitous triggers because serendipity requires alertness to new connections (Krumrei Mancuso and Rouse 2017; McElroy et al. 2014). Humility is also associated with awareness

of one's intellectual "blind spots" and thus ensures increased openness to different persons, arguments, or ideas (Driver 1989; Spiegel 2012). In this way, social actors' efforts to question their own assumptions can increase serendipity (Gyori et al. 2019; also see Cunha and Berti, Chap. 4 in this volume, for a great discussion of the role of "generative doubt").

Improvisation. Improvisation is about intentionally, quickly, and creatively reacting to a situation (Hmlieski and Corbett 2006; Magni et al. 2010; Weick 1998; Baker et al. 2003). The precursors that affect each individual's potential to improvise are their skills, confidence, and self-efficacy, each contributing to the propensity of acknowledging serendipitous clues (Fisher and Amabile 2009; Fultz and Hmieleski 2021; Magni et al. 2010). (More on this can be found in Cunha and Berti, Chap. 4, this volume).

In addition to these *individual enablers*, there are *systemic enablers* that support the emergence of serendipity triggers.

Expanded search. Recent research in management similarly contended that narrowly defined problems can constrain serendipity triggers, as they limit the space for potential (unexpected) need-solution pairs to emerge (Stock-Homburg et al. 2021; Stock-Homburg et al. 2021; Von Hippel and von Krogh 2016). This research contends that adding more information to the respective problem allows for generating a broader range of solutions. For example, an appeal to "reduce costs" might result in people coming up with solutions such as buying less expensive raw materials or reducing headcount. If instead the problem was defined as "increase profit margins", people might come up with additional suggestions such as raising the selling price, substituting the product with a more efficient option, among others (von Hippel and von Krogh 2016; also see Busch 2022). However, an organisation or individual is usually not able to provide all the potentially relevant information about the underlying need—and new information tends to emerge along the way as the problem-solving process unfolds (Tyre and von Hippel 1997; von Hippel and von Krogh 2016; von Hippel and Tyre 1996). Thus, "search strategies" that cast a wider net of possible problems and solutions potentially lead to a higher likelihood of serendipitous outcomes to occur (von Hippel and von Krogh 2016; McGahan et al. 2021).

Expanded networks. Although social actors may vary in their openness to serendipity, much of the process of serendipity and even these aforementioned individual differences can be shaped by contextual factors, which enable or otherwise constrain serendipitous triggers. Social embeddedness, "the nature, depth and extent of an individual's ties into an environment, community or society" (McKeever et al. 2014: 222; also see Portes and Sensenbrenner 1993), can facilitate or constrain action. It potentially gives access to resources (e.g., financial resources; Batjargal et al. 2013), status and legitimacy (Burt 1997), emotional support (Ozcan and Eisenhardt 2009; Schutjens and Stam 2003; Shane 2003), and learning benefits (Busch 2014)—all of which can be conducive to the surfacing of serendipity.

Although social actors can also inform and shape their own networks (Busch 2014; Fligstein 2001) to coincide with their specific goals (e.g., Dhanaraj and Parkhe 2006; Hallen and Eisenhardt 2012; Provan and Kenis 2008), the uncertainty surrounding

those goals is likely to constrain the actor's capacity to properly evaluate existing and possible networks and related interactions (Alvarez and Barney 2007; Alvarez et al. 2013; Busch and Barkema 2020). Instead, the value of networks is often surfaced by way of serendipitous encounters and only recognised post-hoc. However, social actors may deliberately form innovation communities (Fleming and Waguespack 2007; Furnari 2014; Garud and Karnoe 2003), communities of practice (Wenger 1998), or social innovation communities (Toivonen 2016). While rituals and joint experiences may facilitate a feeling of belonging, which can foster serendipity (Merrigan 2019; also see Toivonen 2016), strong social networks and communities can also constrain individuals, as (over-) embeddedness can lead to the sedimentation of homogenous networks and lack of access to novel or diverse information (Di Falco and Bulte 2011; Khavul et al. 2009; Khayesi and George 2011; Kiggundu 2002; Maurer and Ebers 2006).

As such, recent research (e.g., Busch 2022; Busch and Barkema 2020; Engel et al. 2017; Obstfeld et al. 2020) has highlighted the ways in which third-party organisations might act as boundary organisations, fostering serendipity by facilitating networks and resources for social actors such as entrepreneurs in contexts of high uncertainty. Specifically, given the importance of social networks for organisational survival and growth more generally, a number of organisations such as accelerators and incubators have been increasingly mobilised around the globe (Amezcua et al. 2013; Cohen et al. 2019). While some of these organisational sponsors provide highly structured support programs that specify which networks or resources are being offered (e.g., Rothaermel and Thursby 2005) and thus potentially "lock in" social actors (and their organisations), others have rejected this model in lieu of more open designs that actively encourage serendipity via mechanisms such as elevating commitment (e.g., appealing to an enlightened self-interest); agile platform design (e.g., supporting flexible space design); cultivating open-mindedness (e.g., fostering an openness to the unexpected); and highlighting emerging opportunities (e.g., developing adaptive support programs) (Busch and Barkema 2020; Giudici et al. 2018).

Physical and virtual task environment. To increase the rate of serendipity triggers, prior research suggests that physical proximity matters. To the extent that entrepreneurs, innovators, and other stakeholders are co-located for an extended period of time, this will increase the likelihood of serendipitous trigger events and interactions. Supporting such assumptions, prior scholarship has highlighted how the physical task environment (as well as the type of work itself) has a major impact on the likelihood of serendipity occurring (McCay-Peet and Toms 2010; Reinecke and Ansari 2015). In companies, for example, it has been shown that small design changes such as placing couches next to doorways can increase the likelihood of serendipity, as they allow people to bump into each other (Lindsay 2013). Companies such as Pixar and Google have organised their headquarters to maximise "cross-pollinations" of data and people, across different areas. For example, the main buildings of Pixar—one of the highest grossing film studios of all time—were designed to maximise inadvertent encounters (Catmull 2008; Lehrer 2011). Instead of designing separate buildings for computer scientists, executives, and animators, the company developed

a single big space with a big atrium as well as mail boxes, meetings rooms, and a coffeeshop at the center. This led to people "bumping into each other" in the atrium (Catmull 2008; Lehrer 2011).

Research in the information sciences has shown that factors such as proximity play a major role for serendipity in *virtual spaces*, too. For example, it has been contended that smoother informal virtual communication between colleagues can increase serendipitous encounters (Guy et al. 2015; McKay-Peet and Toms 2018). Organisations have used approaches such as "randomised coffee trials", in which people are randomly paired with strangers across the organisation to facilitate unplanned conversations (Busch 2020a; Soto, Chap. 11 in this volume). This is based on the idea that serendipity is governed by probability (Pirnot et al. 2013).

The world's biggest technologist gathering, Web Summit, provides a case study of how data scientists "engineer serendipity", on-line and off-line (Cosgrave 2012). The conference hosts 50,000 participants, and uses complex systems and networks approaches such as eigenvector centrality (measuring the influence of a person in a particular network). For example, graph theory helps to "recommend" people on (potential) visitors' Facebook feeds, and groups for pub-crawls are put together based on propensity to encounter commonalities (Cosgrave 2012).

Step 2: Bisociation

Research has shown that *bisociation*—the connection of previously unrelated matrices of events, skills, or information (for example, linking a serendipity trigger to something relevant)—tends to be at the core of serendipity (Busch and Barkema 2020; von Hippel and von Krogh 2016). Often, these bisociations occur between problems and unexpected solutions to these problems, as in the Archimedes example discussed above. However, while problems may at times be formulated a priori, social actors might also "see" the problem and the solution at the same time (Busch 2020a; Stock-Homburg et al. 2021; von Hippel and von Krogh 2016), like in the rolling suitcase example mentioned previously. Here, the problem and solution "arrived" at the same time, via a sudden bisociation that lead to a serendipitous outcome. (Importantly, what is new to one observer might not be new to others; Felin and Zenger 2015). Consequently, innovation researchers von Hippel and von Krogh (2016) suggest to model problems/needs (e.g., a patient's ailments and symptoms) on one landscape, and possible solutions to each problem/need on another (e.g., a doctor's experiences, information, etc.). Problem-solving, then, is about linking a specific point on the problem landscape with a point on the solution landscape.

This is where often ***creativity***—the process of surfacing something new and valuable information—comes into play (see Ross, Chap. 9, this volume). Although creativity can be broadly useful to entrepreneurs and managers as they engage in goal-directed search for solutions to known problems, it is also essential to the process of serendipity wherein unexpected solutions must be creatively derived from bisociations – the perceived intersection of different and sometimes divergent perspectives,

observations, and areas of application. Research in neuropsychology exposes the cognitive foundations of such creativity, illustrating how the "aha" effects tend to arise from the feeling of something (unexpectedly) making sense (Stock-Homburg et al. 2021; also see: Cosmelli and Preiss 2014; Schooler and Melcher 1995). These moments happen through a sudden gain in "processing fluency"—people fill in gaps in their own thinking that they did not even know existed (e.g., Cosmelli and Preiss 2014; Pelaprat and Cole 2011; Topolinski and Reber 2010). Specifically, the brain's neural network tends to unconsciously integrate varieties of pieces of information over time (Ritter and Dijksterhuis 2015; Van Gaal et al. 2012)—and then, suddenly, a "eureka moment" occurs—a process which interestingly can be measured by analysing the brain's electrical activity (Christoff et al. 2009; Mason et al. 2007; Stock-Homburg et al. 2021). Thus, what appears to be a spontaneous creative idea often is the result of previously forgotten insights and ideas that emerge to help social actors "connect the dots" in a particular moment. Research has shown that often the process of making this bisociation can take a long time, as one might not have initially bracketed an observation as important, or one might have missed a meaningful link. This lag between the triggering event and the bisociation is what some have referenced as the "incubation period," requiring persistence and sagacity in order to eventually form the mental linkages (McCay-Peet and Toms 2010). Trivial activities such as browsing a book store can alert a person to something they might not have previously been aware of, and suddenly, a rapid, complete understanding of a solution—the eureka moment—emerges (Gilhooly and Murphy 2005). Incubation periods tend to take between five minutes and eight hours (Sio and Ormerod 2009), but can be much longer. Indeed, this delay between the triggering event and the related bisociation can make it difficult for an actor to recall and properly attribute the original source of the creative observation (Stock-Homburg et al. 2021).

Previous research has discussed a number of approaches that help facilitate making these bisociations.

Reframing situations. Research in psychology and management shows that how we perceive and categorise ("frame") the world—and how we look at a particular situation from a different perspective ("reframe")—plays an important role with regard to "seeing" opportunity in unexpected situations (Busch 2021; Busch and Barkema 2021; Reinecke and Ansari 2015). For example, "making the best out of what is at hand" (bricolage) can lead to creative solutions, as people look at a given object (or subject) afresh, recombine it with other ideas or objects, and identify opportunities that were not previously conceived as such (Busch and Barkema 2021; Baker and Nelson 2005). In a similar vein, research on frugal innovation highlights how, when social actors operate with limited resources yet reframe such situations as more abundant, this encourages those actors to identify unconventional solutions to perceived or unperceived problems (Prabhu 2017).

Narrative theories of entrepreneurship also provide a basis from which to understand the importance of serendipity within the context of the entrepreneurial process. This builds on the notion that an entrepreneur's role is to create new ideas and opportunities by way of frames or narratives that (re-) construct reality, reframing what

was once deemed improbable as now possible (Grimes and Vogus 2021). In this way, new entrepreneurial narratives expose bisociations that were previously obscured.

Analogous thinking. Approaches such as lateral thinking (focusing on non-obvious and unconventional cognitive links (de Bono 1985, 1992; also see Birdi 2005), disjunctive strategies (Gyori 2018), and analogous thinking (Gentner and Markman 1997; Gick and Holyoak 1980) can facilitate serendipity (Busch 2020a, b). The one most clearly linked to serendipity is analogous thinking, whereby information describing relationships from one domain of knowledge can be used to surface problem-solution dyads in another, perhaps unrelated domain (Cornelissen and Clarke 2010; Cornelissen et al. 2011; Gentner and Markman 1997; Gick and Holyoak 1980; Stock-Homburg et al. 2021). On the one hand, analogous thinking has been shown to require deep expertise (Ericsson and Staszewski 1989). This is most clearly evident when social actors attempt to draw temporal analogies, wherein the objective is to identify connections between current seemingly anomalous observations and future (or previous) experiences (Stock-Homburg et al. 2021). Yet conversely in the context of such deep expertise there is also the risk of "functional fixedness", which can undermine much analogous thinking, which often requires general rather than specialised forms of expertise (Busch 2020a). This also raises the importance of intuition as a potential filter that helps form bisociations (Cunha et al. 2010). Intuition is a way of processing information that is fast, unconscious, and driven by our surroundings (Baldacchino et al. 2015). Besides simply being our "gut feeling" about a situation or person, it is the unintentional ability to create links between information (Cunha et al. 2010; Ezkinali and Giannopulu 2021). The ability to mindfully acknowledge and act on our intuition can thus be important for forming bisociations which can support more original and superior solutions to problems (Eubanks et al. 2010).

However, while serendipity is often thought of as an individual-level phenomenon, it often emerges via ***collaboration***, i.e., the interaction, resources, and skills of several people and teams (Meyers 2007; Cunha et al. 2010). For example, the team that discovered penicillin consisted not only of much-lauded "hero" Alexander Fleming. Ernst Chain, Howard Florey and others continued driving the train that Fleming set in motion, and received the Nobel Prize together (Copeland 2018; Cunha et al., 2010; Meyers 2007). Acknowledging that the understanding and bridging of observations tends to require the skills and resources of several people, the father of the scientific method, Francis Bacon, considered the ideal research organisation to include merchants of light (keeping up with the work of other organisations); pioneers (trying new experiments); inoculators (executing experiments with highest proficiency); interpreters (raising former discoveries into axioms); and mystery men (collecting earlier experiments into the state of the art) (Yaqub 2018). And in fact, research has shown that diversity often breeds serendipity, as the ability to form and then act upon bisociations depends on combining previously unrelated ideas or information (Hargadon and Bechky 2006; Napier and Vuong 2013). Often, the significance of events is only understood when people from other areas help explore the broader relevance of an unexpected moment. Then, "metaphorical leaps"—such as realising that the apple falling from the tree is not only about the apple falling down

but that it might represent gravity's pull on any object—become possible (Busch 2020a).

Recent research has looked at companies and their practices to incentivise people to interact and create serendipity across the organisation, for example via means such as random coffee trials (e.g., NESTA) or learning lunches (e.g., HubSpot), which randomly pair people up to create "watercooler moments" (Busch 2020a). Other researchers have focused on the question of how to integrate people into teams from outside the organisation in an attempt to further broaden the potential opportunity space for need/solution pairs (von Hippel and von Krogh 2016).

Such benefits of increased diversity and interactions, however, can only be realised when organisations ensure a strong collective culture (see below), which emphasises mutual interests, shared causes, experiences, or enemies. In this way, collective identities facilitate a general willingness to connect within teams despite strong differences in perspective (Foster and Ford 2003). Potential barriers to serendipity can thus be overcome by building diverse teams and including people early on in the process (Busch 2020a; Cunha et al. 2010).

Importantly, while traditional innovation (and innovation research) for long has focused on intra-organisational processes, in a fast-changing world, varied customer demands increasingly require collaboration and co-creation across organisational boundaries. Thus, research has increasingly focused on the question of how effective networks of organisational actors—ecosystems—emerge, and how innovation is orchestrated within those ecosystems (Adner and Kapoor 2010; DeJordy et al. 2020; Kapoor and Agarwal 2017; Logue and Grimes 2019; Nambisan and Baron 2013; Thompson et al. 2018).

Supportive organisational structures and ecosystems can also facilitate adaptation (i.e., change based on the initial function), as well as exaptation (i.e., use characteristics that evolved for other or no use, and co-opting them for their current role; Andriani et al. 2017; Gould and Vrba 1982). Designing organisational and ecosystem structures in ways that allow for exaptations to happen tends to drive serendipity (Andriani and Cattani 2016; Austin et al. 2012; Garud et al. 2018; Gould and Vrba 1982). For example, companies such as IDEO often accumulate interesting ideas without having a clear sense of how these ideas could be used later—the ideas are being loosely organised, and "search" can be activated whenever something that might be relevant comes along (Busch 2020a; Gould and Vrba 1982; also see Andriani and Cattani 2016; Austin et al. 2012).

Problem-formulation-formulation. Especially in fast-changing environments such as startup companies, ill-structured problems tend to dominate, as situations can change rapidly, and there is often a lack of full information (Busch and Barkema 2020; Engel et al. 2017). Thus, researchers have explored alternative approaches by which entrepreneurs and innovators can facilitate the enactment of serendipity such as iterative problem formulation, whereby a problem is being approached repeatedly in a number of ways, in rapid succession, and quickly assessed for efficacy while lowering initial investment into any one specific solution. Companies such as the design group IDEO have developed related approaches such as rapid prototyping, where the problem-solver responds to initial challenges by immediately developing

an easy-to-adapt working model. Users can then work with the prototype, and experiment and modify, before it goes back to the problem solver/designer, and a more refined prototype is being produced—then the cycle begins again (Thomke and Fujimoto 2000; von Hippel and von Krogh 2016; also see: Kurup et al. 2011; Nelson 2008; Shepherd, Seyb, and George 2021). This rapid prototyping approach tends to interpret each iteration of the prototype not as a "failure" but as a crucial and necessary step in the overall process (von Hippel and von Krogh 2016; also see Conboy 2009), allowing for serendipitous solutions to emerge.

Theories of value. Companies develop firm-specific theories of value creation (bundles of market problems and architecture that guide the strategic direction of a company and help discover and filter opportunities; Felin and Zenger 2015; Zenger 2013) that do not limit but rather foster bisociation. Such theories of value creation can be used to formulate problems and select possible problem-solution pairs, making it not only unique to the respective company but also contrarian with respect to the broader field. Such unique and contrarian theories of value can potentially lead to new unexpected value creation possibilities that might be unforeseen by other companies (Felin et al. 2020; Grimes and Vogus 2021). Apple, for example, in contrast to companies such as Xerox realised the contrarian possibility of the graphical user interface, the "mouse", and bit-mapping technology, as its theory allowed the company to recognise and pursue the potential value (Isaacson 2011). In a similar vein, Starbucks—as we know it today—emerged from Howard Schultz's unexpected observation that replicating Italian coffee bar culture around the world could be a valuable business. His theory focused on the interplay between product sourcing, customer education, and store format, and this guiding frame propelled iterations and experimentation (Felin and Zenger 2015; Schultz 1998).

However, as numerous other examples can attest, to the extent that such theories of value become narrow, over-specified, and conventional this can limit serendipity (Busch 2022). Research in neuroscience, psychology, and library science has shown that overly structured goals or narrowly defined problems can constrain serendipity, while less narrowly defined goals or aspirational objectives make serendipity more likely (Toms 2000; von Hippel and von Krogh 2016; also see McCay Peet and Toms 2010; Stock-Homburg et al. 2021; also see "expanded search" and "iteration"). In one experiment, participants were asked to interact with a reading device. Some participants were instructed to find some particular information, others were given no task at all. The first group often found the particular information they were instructed to seek out; the second group were more exploratory, and came away with interesting information that was not sought (Toms 2000; McCay Peet and Toms 2010). Related experiments have shown that individuals that face narrowly specified problems tend to be more closed to unexpected moments (and making related bisociations) than those that faced broader ones (Stock-Homburg et al. 2021; also see: Cosmelli and Preiss 2014; Schooler and Melcher 1995; Wiseman 2003).[3]

[3] In one experiment (Wiseman 2003), for example, researchers gave participants a newspaper to read, and asked them how many photos were in it. Most of the participants needed around two minutes to flip through the newspaper, and some of the participants double checked—but given

One response to this challenge is to ensure theories of value which are more highly abstract and connected to broader societal purposes, thus allowing for the possibility of positive forms of mission drift (Grimes et al. 2019). For instance, it has been shown that when firms maintain a broader "north star" (a broader purpose or ambition) while embracing emergent strategy, this can lead to an openness to the unexpected, allowing for serendipity to emerge (Gyori et al. 2019). The potential trade-offs between a pro-social purpose (e.g., eradicating malnutrition) and profitability have been used by some companies to generate a "creative tension" that can lead to (serendipitous) innovation (Busch 2020a, b).

Related research has shown that often those at the frontlines (e.g., frontline workers) might generate new ideas through trial and error, heuristics, and informal contacts, while those at the center of an organisation often rely on deductive approaches, intelligence documents, and formal reports—which potentially discourages serendipity (Regner 2003). The integration of cross-organisational responsibilities is particularly important after an acquisition or a merger, given that over 50% of the value in acquisitions can emerge serendipitously—for example, the acquiring company might unexpectedly come across a beneficial technology that the acquired company used that it was previously unaware of (Graebner 2004). Research has shown that when people fill a role in both the subsidiary and the parent company, it helps them link different parts, and gives them the required standing in the parent organisation to "lobby" for ideas that emerge from the "periphery" (Graebner 2004).

However, social actors may recognise new serendipitous opportunities for innovation, and yet still fail to enact that opportunity (Busch 2022; Ross 2022). Such failure can often be attributed to the fact that the process of innovation is fundamentally a social and organisational one, requiring "buy-in" and thus constrained by existing patterns of decision making and resource allocation.

Step 3: Enactment

What are *individual enablers* that facilitate the enactment of serendipity?

Social skill. Social actors tend to outweigh the costs of trying over the reward of potential positive outcomes and thus often focus on the potential risk of "unproductive accidents", thereby preventing action even in cases of otherwise substantial benefit (Austin et al. 2012). Prior studies illustrate how innovation and change processes can be interrupted by fear of change, power dynamics, vested interests, or systemic biases within groups (Austin et al. 2012; Sting et al. 2019). This necessitates social skill—the ability of social actors to induce cooperation in others—which helps them frame and navigate their social context (Busch 2020a; also see Fligstein 2001).

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their focus on the photographs, none of them noticed the headline on page two that read "There are 42 pictures in this newspaper", in large, bold letters. The participants also missed out on the chance to win £100—another large headline read "stop counting and tell the experimenter you see this and win £100". When the researcher asked the participants to not focus on the photographs, they saw the messages immediately (Wiseman 2003).

Perseverance. Furthermore, the emergence of unexpected solutions to perceived or unperceived problems often requires continuous experimentation and perseverance in the face of 'negative' outcomes (Austin 1978; Burgelman 2003). Perseverance and tenacity helps enable serendipity by allowing for increased incubation time of new ideas, which is often required for new and peripheral information to be properly noticed, bracketed, and implemented in such a way that it might be connected with perceived or unperceived problems (Busch 2020a; Napier and Vuong 2013).

Factors that influence serendipity on the systemic level—and thus help materialize serendipity (Busch 2022)—are systematic evaluation and corporate culture.

Corporate culture. Culture—the collective beliefs, principles, and values that guide our interactions—plays an important role in whether or not serendipity might be enacted (de Rond 2014; Cunha et al. 2010). In environments in which people feel "safe", they tend to be less likely to self-censor ideas and are more vigilant to unexpected encounters and ideas (Cunha et al. 2010). Research has shown that serendipity increases in settings in which blame is being withheld, and where people are open to a diversity of ideas, as people feel "safe" to discuss unexpected findings or ideas that are not yet fully developed (Cunha et al. 2010; de Rond 2014; Napier and Vuong 2013).

Studies on psychological safety have focused on how people can present themselves without fear of negative consequences related to career, status, and self-image (Edmondson 1999). Better-performing teams tend to talk more about emerging and failed ideas, while lower-performing teams tend to swipe them under the carpet, thus constraining knowledge sharing, learning, and trust (Edmondson 1999). Edmondson (1999) found that psychological safety can be increased by formulating shared meaning and expectations, giving people the feeling that their input is welcome, and expressing appreciation and sanctioning clear violations. High-creativity companies such as Pixar have used approaches such as opening meetings with sentences such as "Early on, all of our movies are bad!", thus giving people the permission to ask critical questions in a "safe" environment (Catmull 2008).

Systematic Evaluations. To the extent that organisations become more welcoming of peripheral and emergent insights, this can also increase the risk of potential information overload (McKay-Peet and Toms 2018). In such cases, the challenge for enacting serendipity becomes filtering in such a way that those firms can balance the need for clarity with the need for surfacing unexpected value (Busch 2020a). Several recent studies provide insight into how this balance within the filtering process might be struck. Napier and Vuong (2013) contrast flash evaluations of serendipity with systematic evaluations. Whereas a flash evaluation is a quick assessment that is based on a gut feeling about the new, unexpected information, a systematic evaluation is a more comprehensive analytical assessment that includes criteria such as risk tolerance, timing, and additional information that helps invalidate or substantiate the unexpected information (Napier and Vuong 2013). For example, companies such as white goods company Haier "place bets" and develop (decentralised) structures that allow for investment into unexpectedly emerging ideas (Gyori et al, 2019). Haier's "micro-enterprise" model encourages employees to leverage company resources to spot and develop new ideas. Investment committees then bet on the best

ideas. For example, employees within the organisation spotted that farmers unexpectedly used their washing machine to wash potatoes—which resulted in a potato washing machine.

Other studies highlight the use of technology that screens for relevance (e.g., items that might be meaningfully related in unexpected ways) instead of similarity (Guy et al. 2015; McKay-Peet and Toms 2010, 2018). Some virtual platforms also allow users to defer serendipitous ideas and to bookmark items for later (McCay-Peet and Toms 2010).

Discussion

Based on our review of the literature and our related work (e.g., Busch 2022; Busch 2020a; Busch and Grimes 2023), we developed *a model of the process of cultivating serendipity* that highlights the role of different individual and organisational practices in both enabling and constraining the various steps involved in that process. Our review thus established that serendipity is not a singular event, but a process (and related outcome) that requires sagacity. It can be influenced by noticing unexpected moments, and turning them into positive outcomes via proactive decisions (Busch 2022; Busch and Barkema 2020; Denrell et al. 2003). The process of serendipity includes a trigger (for example, a person making an unexpected observation), a bisociation (linking the trigger to something relevant), and the cultural and structural features that help to enact that bisociation into an unanticipated outcome (Busch 2020a, 2021; Copeland 2018; McCay-Peet and Toms 2018; Napier and Vuong 2013; also see Merton, 1948).

While a specific random chance encounter is an *event*, serendipity is a *process* and related outcome (Busch 2022; de Rond 2014; Fine and Deegan 1996; McCay-Peet and Toms 2018; Merton and Barber 2004).[4] The process—of trigger, bisociation, and enactment—unfolds at multiple levels of analysis (Busch 2021). Given that serendipitous bisociations often emerge from the interplay between agents and their environment, system-level conditions for serendipity are paramount. For example, these contextual factors can encourage people to question ideas and insights (Busch and Barkema 2020), foster people's motivation to cooperate (Rauch and Ansari 2021), provide interactive physical and digital spaces that allow people to accidentally bump into each other (Amezcua, et al. 2013), legitimise serendipitous insights (Busch and Barkema 2020), and provide funding opportunities for new ideas with unknowable risks (Huang and Pearce 2015).

For companies, we suggest that the ability to integrate, build and reconfigure internal and external competencies to facilitate serendipitous triggers, bisociations, and the enactment of serendipity can become a "dynamic capability" (Busch 2020a, b; de Rond et al. 2011). We suggest that it does so by enhancing the organisation's

[4] Trigger and bisociation may happen at the same time, and there can be feedback effects (Busch 2020a; also see Brown 2005; Busch 2022; Cunha et al. 2010; Merton and Barber 2004).

"absorptive capacity"—its ability to encounter new information and to integrate it into existing structures and processes—which can amplify innovation and learning (Zahra and George 2002). In this way, companies can turn the acceleration of serendipity into a strategic advantage, for example by focusing employees' attention on the important role of the unexpected.

Limitations and future research. The purpose of this article was to give an overview of interesting serendipity-related research in the entrepreneurship, strategy, and innovation context. Our review is by no means exhaustive, and much works remains to be done in terms of conceptualising serendipity (see e.g., Busch 2022; Fultz and Hmieleski 2021). Furthermore, while we mapped serendipity as a linear process, it is clear that there are many opportunities for feedback loops within the process as well as the potential that steps within the process might happen simultaneously or, alternatively, draw out over years. Future research might thus explore some of the temporal dimensions of serendipity and the conditions that give rise to different temporal patterns.

Our review of the literature opens up a number of other valuable areas for further scholarly inquiry. First, although we suggested that organisations' efforts to cultivate serendipity might act as a type of dynamic capability (de Rond et al. 2011), how and under what conditions is this likely to hold? Similarly, while our study denotes a variety of individual and organisational practices that can foster serendipitous triggers, bisociations, and enactments, it is also likely that such practices may be more or less effective in different contexts and at different stages of organisational development (Busch 2022). What are those contingencies that explain the efficacy of the various practices? How can individuals and organisations cultivate "skilled luck" or "smart luck"?

Furthermore, the emerging literature on entrepreneurial ecosystems and organisational sponsorship (c.f., Amezcua et al. 2013; Cohen et al. 2019; DeJordy et al. 2020; Hallen et al. 2020; Spigel 2017; Thompson et al. 2017) offers a setting within which to explore important tensions within the process of "engineered" serendipity. Much of the associated literature is focused on how systems of support can be structured in such a way so as to increase the likelihood of productive entrepreneurial and innovative outcomes. In essence, there is an implicit assumption that systems which foster serendipitous innovation can be designed, replicating for instance, the Silicon Valley or Silicon Fen phenomenon globally. And yet it is equally clear that some of the most prolific historic sites of innovation have been those in which the systems emerged with little top-down design over decades and even centuries. Future research might, therefore, explore the conditions under which systems of serendipity might be designed in top-down fashion, and the balance that is needed between structure and chaos or coordination and freedom. Also, what are the implications for success measures of organisational sponsors of entrepreneurship (e.g., celebrating "effective pivots" rather than the number of companies "graduating")? Further research could also explore how local community leaders can be legitimised and enabled by policymakers to facilitate local serendipity-enhancing networks (as opposed to overly structured, centralised support programs—see also Soto, Chap. 11 in this volume).

Furthermore, how can schools and universities integrate serendipity into their curricula? What is the role of approaches such as the Socratic method that focus on asking questions rather than solutions? How can scholarships be designed in more inclusive ways (e.g., not only monetary support but also including considerations around creating opportunity spaces for students)?

Moreover, contexts of high uncertainty (e.g., emerging markets) could provide a fertile ground for further research. Although few studies of entrepreneurship make explicit reference to the concept of serendipity, much of the literature is oriented around understanding the related problem of uncertainty and its effects on entrepreneurial ideation and action. For instance, it has become a well-entrenched assumption within the entrepreneurship literature that the survival and growth of enterprises depends on their ability to deal with uncertainty (Alvarez and Barney 2007; McMullen and Shepherd 2006; Ramus et al. 2017). Because early-stage enterprises and entrepreneurs often face exceptionally high levels of uncertainty as to which partners, resources, or co-founders they might need in order to ensure success, they are often forced to frequently and radically change their assumptions about the problem that is worth solving and the solutions that might effectively address those problems (Grimes 2018). Amid such uncertainty, the process of discovering, constructing, and reconstructing the opportunity and its respective components is often a matter of serendipity (Busch and Barkema 2021). In this way the entrepreneur's search to more clearly define a particular problem–solution dyad is subject to ongoing contingencies, which then lead to an emergent strategy (Harmeling and Sarasvathy 2013; Mintzberg and Waters 1985; Sarasvathy 2008). In larger companies, paying attention to weak signals allows managers to more quickly respond to emerging opportunities (Denrell et al. 2003; Liu and de Rond 2016; Teece et al. 1997; Winter 2003), which can play an important part, for example with regard to internationalisation (Kiss et al. 2020). Further research could explore these different contexts of uncertainty and how they might (or might not) provide a fertile ground for serendipity to emerge. This might be of particular relevance with regard to new technologies such as artificial intelligence (Busch and Grimes 2023).

Additional avenues of research could explore how to operationalise and measure serendipity in ways that make it more accessible to larger-scale quantitative studies. Much of the extant research tends to be qualitative or experimental in nature. First attempts to measure serendipity (e.g., Busch 2020a; Busch 2022; Erdelez 1999; Fultz and Hmieleski 2021; McCay-Peet and Toms 2012; Makri and Blandford 2012) have focused on particular aspects of the process. Interesting insights could borrow but also distinguish from related constructs and concepts such as originality (e.g., Grant 2017), novelty (e.g., Toms 2000), interestingness (e.g., Andre et al. 2009), absorptive capacity (e.g., Zahra and George 2002), or unexpectedness (e.g., Adamopoulos and Tuzhilin 2015). Given that serendipity is a process, exploring counterfactuals might also be a worthwhile avenue for further research.

Moreover, what is the link between serendipity and tackling global societal and environmental challenges? Given the complexity of societal and environmental issues (Busch and Barkema 2019), many of the solutions might be unknown a priori, and serendipitously emerge via experimentation (Busch and Hehenberger 2022). How

can companies "prepare" for this? Related questions could focus on the link between serendipity and inequality. Blind luck, social connections, inherited wealth masking as skill (Piketty 2014), or unintended consequences often play a major role in success, and the possibility to encounter serendipity is not equally distributed, as financial and other pressures can sap attention (Mandi et al. 2013)—see also Soto, Chap. 11 of this volume. Given that base levels of potential serendipity are very different depending on the respective context, how could they be improved for those that did not win the birth lottery? Research could also look into the role of "negative serendipity" ("zemblanity"; Boyd 1998; Giustiniano et al. 2016), the faculty of making unlucky discoveries by design. This might be a particularly fruitful line of inquiry, as some individuals and organizations might have (subconsciously) cultivated an environment that fosters zemblanity, thus potentially setting them up for failure.

Another fruitful area of exploration could be the role of culture in (cultivating) serendipity. How does the process of (facilitating) serendipity unfold differently across different cultural contexts? Given that local cultures and belief systems shape behaviours, attitudes, and values (Hofstede 1984; House et al. 2004), they presumably play a major role in the serendipity process. For example, in settings characterised by higher power distance (in which lower-ranking individuals tend to accept that power is distributed unequally), it might be more difficult to trigger serendipity, as hierarchical divisions might hinder the free flow of information and ideas. However, even in very hierarchical settings, innovative solutions can emerge (Nonaka 1991). These contextual nuances extend to whole industries—while in nuclear reactors failure tolerance is low, in more entrepreneurial settings it tends to be higher, and thus serendipity might be more favorable in the latter (Busch 2020a). Future research could explore related contextual questions.

Last but not least, how could serendipity be integrated into policymaking? First experiments have shown that initiatives such as cross-council cultural collaborations, the development of communities of interest linking local areas, and communities such as "friends of park" and police-resident liaison groups can help increase diversity and connect groups that would usually not connect (Rowson et al. 2010; also see Chanan and Miller 2010). How can policymaking empower local communities to create their own "smart luck" by connecting with the right people at the right time? How can cities and regions be designed as "ecosystems" that help produce "unexpected productive collisions"?

Conclusion

In this chapter, we aimed to revisit the planning vs emergence (and luck vs skill) debates by suggesting that not only is there room for synthesis in entrepreneurship, strategy, and innovation, but that it is critical to do so. The role of serendipity has often been discounted in organisational and management theory, even though it is a major driver for innovation and societal impact, and plays a crucial role in much of business and life. Thus, we recommend an integrated approach to education, training,

and skills programs that bridges the demarcations of polarising predecessors. In a fast-changing world, nurturing serendipity is a dynamic capability necessary for companies and individuals alike to not only survive, but thrive.

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