Journal of Organization Design (2022) 11:37–45
https://doi.org/10.1007/s41469-022-00112-y

POINT OF VIEW

On the strategic value of equifinal choice

Jose P. Arrieta[1] · **Yash R. Shrestha**[2]

Received: 28 October 2021 / Accepted: 15 February 2022 / Published online: 24 February 2022

Abstract
Managers are often faced with the need to choose among multiple satisficing options. We call this situation *equifinal choice* and argue how it opens an opportunity for managers to choose a new trajectory for their firm—an opportunity for strategic action. Although *equifinal choice* can exist in any environment, it becomes most consequential when uncertainty is high. Uncertainty weakens the adherence of organizational members to a superordinate goal and the plurality of goals leads political processes to guide the firm's strategy. Extant view has identified random choice as an unbiased, fair, simple, and swift solution to the problem of equifinal choice. Random choice is also commonly used in machine learning and artificial intelligence systems. As organizations augment their decision making with these systems, there is a threat that they forego these strategic opportunities and randomly choose actions that fail to harness commitment and trust. In this *Point of View* article, we highlight the problem of *equifinal choice*, explain different ways it can be approached, and motivate why strategic choice can be valuable for organizations over and above defaulting to random choice.

Keywords Equifinality · Optimization · Strategic decision making · Organizational zoos · Diversity

Introduction

Rationality is a tenet of economics (Friedman 1953). Yet, uncertainty bounds how close managers can get to the aim of 'approaching perfection" in organizational choice (Simon 1947; Christensen and Knudsen 2010:77). Faced with uncertainty managers can disagree on their goals (Cyert and March 1963), which leads political processes to take center stage and guide the future of their firms (Levinthal and Rerup 2021; Bridoux and Stoelhorst 2022). As uncertainty subsides, superordinate goals can emerge and organizations, as a unit, can deem choices right or wrong (March 1962). This allows, errors, and more importantly their minimization, to guide organization design (Shannon 1948; Tushman and Nadler 1978). A pursuit subsumed in the search for optimal solutions (i.e., optimization) to the problems of division of labor and integration of efforts (Puranam et al. 2014), such as error minimization (Csaszar 2013), optimal preference aggregation (Csaszar and Eggers 2013), efficient problem solving (Glynn et al. 2020), interdependency reduction (Puranam et al. 2012), effective conflict resolution (He et al. 2020), optimal policy search (Rivkin and Siggelkow 2003), among others (see Puranam 2018 for a review).

Optimization has two necessary conditions for "designing efficient organizations" (Burton and Obel 1984). First, management needs to agree upon a superordinate goal (i.e., an objective function) for ranking the performance of potential solutions (Csaszar and Ostler 2020). Second, a search algorithm needs to exist that either assigns multiple options to choose from (Posen and Levinthal 2012) or articulates a way to explore the universe of possible options (Levinthal 1997). When these two conditions are met, optimization can reliably identify the top performing options in the local environment (Levinthal 1997) and serves as a workable logic (i.e., an optimization logic) for choosing among options of varied characteristics.

There is a catch. If the environment has multiple options that achieve the highest performance (i.e., multiple global maxima), an optimization logic will fail to choose a single final alternative. This can appear even in the absence of uncertainty (Levinthal 1997). Yet, they become more commonplace when uncertainty is abundant (Posen and Levinthal 2012). Uncertainty increases the gap between

✉ Jose P. Arrieta
j.p.arrieta@uva.nl

Yash R. Shrestha
yshrestha@ethz.ch

1 University of Amsterdam, Amsterdam, The Netherlands

2 ETH Zürich, Zurich, Switzerland

bounded rationality and *homo-economicus* rationality (Friedman 1953; Persky 1995). As this gap grows, so does the number of satisficing options for the managers to choose from (Simon 1947). We call the situations in which managers need to choose among a set of multiple satisficing options, *equifinal choice.* Since multiple options satisfice the organization's needs, managers need a fail–safe heuristic to choose among them; in its absence decision paralysis can set in (Schwartz 2004). Random choice is an unbiased, fair, simple, and swift heuristic to avoid decision paralysis (Denrell et al. 2015; Liu 2021).

Recently, scholars have shared great optimism with respect to the value that artificial intelligence and machine learning algorithms could bring to organizations (Shrestha et al. 2019; Murray et al. 2020; Puranam 2021). However, these algorithms are—*by design*—optimization systems that draw on clearly defined objective function and search algorithms (Rumelhart et al. 1985; Agrawal et al. 2018). Randomness lies at the core of information and computer science and thus is a commonly used heuristic for breaking deadlock situations (Newborn 2012).

Therefore, the accelerating inclusion of algorithms into organizations can amplify the use of randomness for breaking an *equifinal choice.* This can be problematic as random choice foregoes the opportunity for strategic action opened by the existence of an *equifinal choice*. Strategic heuristics of choice might be biased and lack the fairness of random choice. Yet in the more complex and slower strategic decision making processes lies the agency that enables managers to build coalitions that drive consequential change without any "illusion of control" (Kaplan 2008; Fast et al. 2009). A manager who chooses to reflect, can foresee developments in the firm's environments, harness commitment within its organization, and build momentum to pivot towards a new strategic trajectory (Barnett and Pontikes 2008; Hampel et al. 2020). In doing so, managers step away from random choice towards more strategic heuristics of choice (Porter 1996). Without acknowledging the strategic relevance of *equifinal choice,* organizations might lose their chance to adapt to changing environments and fall prey to the control of their algorithms (Kellog et al. 2020).

In this *Point of View* article, we aim to highlight the problem of *equifinal choice*, explain different ways it can be approached, and motivate why strategic choice can be valuable for organizations over and above defaulting to random choice.

Theory

The reason why multiple options can exist in a system that satisfice an organizational need is derived from the property of equifinality. *Equifinality* being a characteristic of "a system [that] can reach the same final state, from different initial conditions and a variety of different paths" (Katz and Khan 1978:30). Prior literature has explored multiple paths in which equifinality manifests (Eisenhardt 1988; Doty et al. 1993; Gresov and Drazin 1997; Klein and Sorra 1996; Siggelkow and Rivkin 2005; Payne 2006; Fiss 2007; Marengo 2015; Matejka and Fitzmaurice 2017). Equifinality can exist at any level of performance, e.g., multiple global minima and maxima. Yet, only when equifinality leads to multiple satisficing options is that optimization experiences the problem of *equifinal choice*.

Equifinality causes decision paralysis

Equifinal choice is problematic, because it requires managers to choose an option without an objective reason for the decision—as all options are satisficing. This is also known as the "duplicates problem" and is a well-known problem in foundational theories of choice (Luce 1959; Debreu 1960; Gul et al. 2014). This problem is known in philosophy literature as Buridan's paradox, which explains how "should [multiple] courses be judged equal, then [one's] will cannot break the deadlock, all it can do is to suspend judgment until the circumstances change, and the right course of action is clear" (as quoted in Kinniment 2008:3; see Rescher 1959 for a review).

Theoretically, *equifinal choice* should not have any detrimental effect on the organizations; any choice should achieve satisficing performance. Yet, Buridan's paradox highlights the *practical* problem of *equifinal choice:* "a [decision maker], being just as hungry as thirsty, and placed in between food and drink, must necessarily remain, where [s/he] is and starve to death." (Aristotle, 350 BCE). This situation emerges due to Hick's law that explains how as the number of options increases so does the time for our brains to decide (Hick 1952). This effect is amplified by Pieron's law that tells us that as the quality of options increases so does the time for people to decide (van Maanen et al. 2012) and by Fredkin's paradox that describes a negative correlation between how different two options are and the difficulty of choosing between them (Minsky 1988:52). As Aristotle explains, the problem is not the choice but the wait, while stuck managers will waste potential early mover advantages and fall prey to others who do not succumb to this form of decision paralysis (Schwartz 2004).

Towards a strategic view of equifinal choice

In computer science, decision paralysis is circumvented by implementing fail–safe heuristics to choose between the multiple satisficing options. For example, IBM's Deep Blue famously managed to defeat Gary Kasparov by employing one such fail–safe. In an important part of a game, the algorithm "defaulted to a last-resort fail–safe in which it picked a play completely at random… [this choice] was likely what allowed the computer to beat Kasparov" (Silver 2012:288; Newborn 2012). Note that Deep Blue only chose at random, because multiple paths were predicted to achieve the same performance.

As in the case of Deep Blue, random choice is a popular heuristic used to avoid *decision paralysis* (Saunders 2008; Denrell et al. 2015; Liu 2021). It has been employed for hiring decisions (Berger et al. 2020), promoting employees (March and March 1977; O'Flaherty and Siow 1991), granting research funding (Smaldino et al. 2019), among others. The reason for its popularity lies in the fact that random choice is an unbiased, fair, simple, and swift way to choose among equifinal options (Liu 2021). Random choice is used in these situations not, because the decisions are inconsequential (Ketel et al. 2016) but because a choice—*any choice*—is needed to break the decision paralysis. Further investments in searching for an optimal choice could lead to bias (Liu 2019), unfairness (Eliaz and Rubinstein 2014), cost more than it would benefit (Schreurs et al. 2018), lead to errors in the long run (Denrell et al. 2017), and waste opportunities for coordination and experiential learning (Puranam and Swamy 2016).

When faced with multiple satisficing options, managers need to choose one. Yet, the burden of being accountable (Tetlock 1983) and having true agency can be frightening to many managers. Random choice provides a cop-out, e.g., a simple and swift way of escaping the task at hand while still making an unbiased and fair choice. These characteristics might give managers the "illusion of control" and rational choice (Fast et al. 2009). However, they are not always beneficial for organizations. Indeed, the formulation of what is strategy presented by Porter (1996) intrinsically asks for managers to perform *equifinal choices*. Porter (1996) requires the decision-maker to position its firm's among a continuum of positions along the possibility frontier and which are expected to achieve the same performance (Adner et al. 2014). Organizations might not face a continuum of positions to choose from but as Gans et al. (2019) explain in their reconceptualization of entrepreneurial strategy, it is paramount for organizations have at least two satisficing options to choose from. Any heuristic of choice that stops after the first satisficing option is found, fails to engage in the strategic opportunity at hand (Posen et al. 2018). So does any heuristic that chooses to wait until the uncertainty induced by the equifinality subsides (Folta and O'Brien 2004) or chooses at random amongst the options (Liu 2021). Therefore, we argue that strategic choices are inherently *equifinal choices.*

Organizational Zoos as a symptom of equifinality

Equifinal choice requires the redirection of a firm's strategy (Kelly and Amburgey 1991). In environments with high uncertainty, such as industries in the "era of ferment" of a technology cycle (Anderson and Tushman 1990), management will need to lead the collective action of multiple stakeholders for the organization to function properly (Bridoux and Stoelhorst 2022). Any change in the firm's trajectory requires the political alliances to be reconfigured (March 1962; Kaplan 2008) and as in uncertain environments people follow a plurality of goals (Levinthal and Rerup 2021), when faced with an environment that provides multiple satisficing options, different organizations will choose differently. This variance can be seen as a precursor to the diversity of organizational forms present in many industries, the so-called organizational zoos (Puranam and Håkonsson 2015; Burton et al. 2017).

The existence of organizational zoos has been puzzling scholars for decades, Organizational zoos counteracts the evolutionary pressures towards the "Iron Cage" of isomorphism (DiMaggio and Powell 1983; Nelson and Winter 1982; Nelson 1991). We conjecture that the existence of organizational zoos is likely the result from the presence of diverse organizational forms that satisfice the performance needs of the organization (Levinthal 1997). This is because, in the presence of *marked* performance differences between the "animals" in the organizational zoo, competition would shake out the ones with the lowest fit and narrow down the variety on display (Hannan and Freeman 1986).

Yet, as the literature in technology cycles explains, many phenomena take long time to occur (Anderson and Tushman 1990). With time, aspects of the environment can change, some uncertainties subside, while others emerge, and different payoffs materialize that give rise to marked performance differences between the options that initially satisficed the organization's needs (Raveendran et al. 2020). During the "era of ferment", multiple organizations can be active in the market and achieve similar performance. However, at one point, a dominant design will appear. A phenomenon that marks the start of the "era of incremental change" and with it, the variety of the organizational zoos starts to erode. Firms that made the *right* choice during the "era of ferment" thrive, the ones who chose other options either adapt or perish.

Model

So far, we have presented *equifinal choice* in an abstract manner. Yet, the task of choosing among multiple satisficing options is a common problem in organizations. In this section, we explain how *equifinal choice* is performed in a less abstract manner using an example from the literature in decision structures (Sah and Stiglitz 1988).

Multiple satisficing options in decision structures

The literature on decision structures formalized the core processes required for creating decision-making organizations and estimating their respective commission and omission error rates (Christensen and Knudsen 2010; Csaszar 2013). However, for every commission and omission error rates, there exists infinitely many organizational forms that achieve identical rates.

Taking the data from Table C.1 of Csaszar (2013:1099), Fig. 1 shows this phenomenon, for decision structures with less than six members. Observe that the performance of a single agent (in yellow square) is compared with various organizational forms. While some forms are able to achieve lower error rates as compared to the single agent, others fail to do so. In Fig. 1, errors for all forms are plotted in terms of multiples of the error rates corresponding to a single agent.

As Csaszar (2013) explains, there is "an efficient frontier in organization design". Given this information, management can create an objective function to rank order the performance of various alternative organizational forms. A common way of doing this is using a weighted sum to forecast the expected overall costs incurred by the firm due to the two types of errors. Different organizations will estimate different costs for the different types of errors. For example, air transport and nuclear power suppliers have very high commission error costs (Perrow 2011), whereas video game design and venture capital firms tend to have high omission error costs (Puranam and Håkonsson 2015).

For the sake of simplicity and following prior research in decision structures, we assume that both errors have identical cost in our analytical exercise. In doing so, we follow work on mutual funds (Csaszar 2012) and banking industries (Christensen and Knudsen 2010, 2020). If we use the error rates from Table C.1 of Csaszar (2013), we can rank the different organizational forms according to the minimum summed error rates:

$$\pi_i = P_{\mathrm{OE}}(i) + P_{\mathrm{CE}}(i).$$

We can then transform this measure into the final objective function Q_i, following:

$$Q_i = \frac{\pi_i - \mathrm{Max}(\pi_x)}{\mathrm{Min}(\pi_x) - \mathrm{Max}(\pi_x)}.$$

The objective function, Q_i is a more intuitive performance measure than the summed error rate. Q_i has a range between zero and one, the highest value, 1.0, is given to the options with the lowest summed error rates (i.e., the optimal). In Fig. 2 (blue line), we rank the organizational forms according to their objective value, with the top-performing on the left. The organizational forms are color-coded to show the organizations that either: a) have summed error rates higher than the error rate of an individual—in red, (b) have similar summer error rates as individuals—in green, or (c) have lower error rates than individuals—in blue. As shown in Fig. 2, a total of six distinct organizational forms achieve much lower summed error rates than the individual. Of the six, two achieve the lowest error summed error ratio (i.e., $\pi_i/\pi_{Individual}$) of 67.0% summed rate of an individual, and thus $Q_i = 1.0$. The four others achieve a summed error rate, just 0.1% higher. For the example, we will call these six options, the *equifinal set* from which the firm needs to choose.

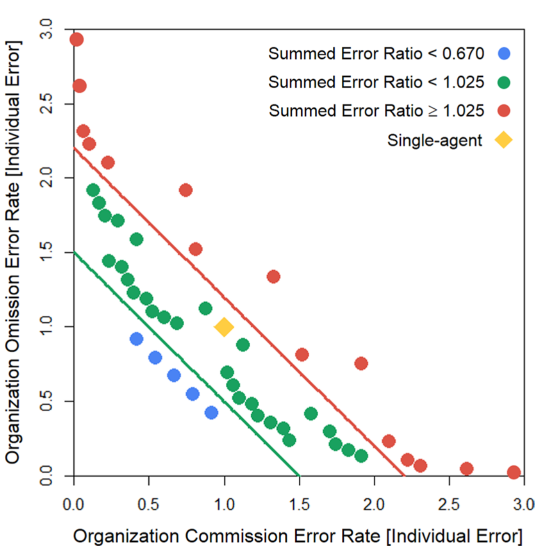

Fig. 1 Ratio of organizational error rates over individual error rates

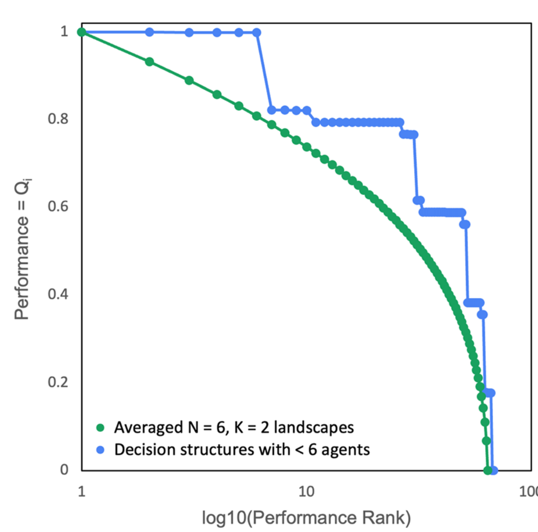

Fig. 2 Organizational forms rank-ordered by performance

The Anna Karenina principle binds our expectations from the optimization logic: "All [optimal solutions] are alike; each [suboptimal solution] is [suboptimal] in its own way" (Tolstoy 1877:1). This expectation is key to the rugged landscape model (Levinthal 1997). In this model, only one organizational form, achieves the highest performance and deviations from this form decrease performance. To show an environment with a sharper performance decrease, in the green line of Fig. 2, we show the average rank-ordered performance of NK models with $N=6$, and $K=2$. The main difference between the decision structure model (blue) and the NK landscape (green) is that the NK model has a single and clear global maximum. On average, the global maximum of the NK models achieves a performance around 8% higher than any other local maxima in the landscape. Therefore, managers in an NK-like environment benefit from searching longer and finding the global maximum and after the global maximum is found management is obliged to employ it as any other choice would be negligent behavior.

In the case of decision structure, there are six different organizational forms that achieve practically the same performance and thus management can enact their agency in harnessing support for their choice. Importantly, as shown in Fig. 3, these six organizational forms differ significantly in how they structure their agents. They differ in the number of agents that compose them (4 or 5), the number of hierarchical levels (2 or 3 columns), and the number of routes that lead to an option being chosen (2 or 3 rows). Due to these structural differences, it is plausible that each organization will adapt differently to changes in the environment and the firm. Presented with these six organizational forms: *how should a manager choose?*

Heuristics for equifinal choice

Equifinal choices are not per se objective. To choose among the satisficing options organizations need to garner support for a new measure for ranking the options that is independent (e.g., non-collinear) to the original objective function. In other words, the selection of one of the multiple satisficing options indeed requires an additional objective, but the reasons that motivate the choice are intrinsically subjective and directly dependent to the organization in which they originate.

Independent of the proselytizing, in making the *equifinal choice,* management can follow multiple theoretically grounded heuristics of choice. Below we enumerate a set of heuristics of choice managers can employ for choosing among multiple satisficing options. These heuristics are built from insights from behavioral strategy and organization science, some are strategic, some are not. We present several of these heuristics to highlight how varied opinions our field has developed for making *equifinal choices* and thus the possibility of acting strategically instead of simply at random. We separate them in two main groups: a) search and selecting, and b) search then select. The former performs the two actions in parallel, whereas the latter follows a sequential process, where the *equifinal set* is identified first and followed by a choice within the set.

Search and select

Resources tend to be limited and thus firms engage in broad search only when the prospect of a valuable opportunity is foreseen. In other cases, firms might choose the first solution that is good enough, wait, or experiment with a couple of options to see how they develop.

1. Problemistic search: The original search heuristic from March and Simon (1958) bypasses the need to make an *equifinal choice* by always choosing the first organizational form that satisfices the needs of the organization instead of looking for all possible satisficing options (Posen et al. 2018). Similar to the secretary problem the use of boundedly rational logics can fall prey to choosing suboptimal choices (Ferguson 1989).

2. Waiting: The manager could wait until the *equifinal set* is winnowed down. This delay could avoid switching costs that might have appeared if the designer had chosen wrongly (Schilling 2002). However, waiting is a choice, another firm could avoid the wait, choose well, and accrue early mover advantages (Folta and O'Brien 2004).

3. Experimentation: Testing hypothesis by making small investments in one or multiple options can be a valuable choice that allows the organization to learn more about their true value (Kerr et al. 2014; Camuffo et al. 2020; Zellweger and Zenger 2021). However, experimentation requires resources, and competitors that do not experiment could use the corresponding resources to solidify their competitive advantage.

Search then select

Instead of trying to choose before the multiple satisficing options are found, management could first search then

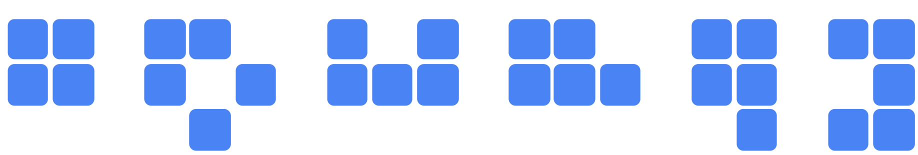

Fig. 3 Organizational forms with lowest summed error rates

select. Selection then can be at random, or via a new performance measure. Note that this set of heuristics require the search process to find the multiple satisficing options that compose the *equifinal set,* This task is known as the enumeration problem in computer science literature and is known to be computationally much more intensive than finding one or a few satisfying options (Creignou et al. 2019). Strategic choice comes at a cost.

4. Random choice: A manager could employ a lottery and choose at random. Random choice will have the positive effect of removing any bias (Saunders 2008; Goodwin 2013). However, random choice is hard to justify as managers are accountable for the future of their firms (Liu 2021; Tetlock 1983).

5. Elimination by aspects: Management could determine which new performance measure they prefer (e.g., commission errors) and filter out the satisficing options that do not reach the highest value on that measure (Gul et al. 2014). If this elimination process leaves behind several options, they can continue with other aspects (e.g., hierarchy levels) until just one is left (Tversky 1972). Below we list a set of measures that could be used to perform elimination by aspects.

a. Lower screening cost: Screening events are costly and the manager could select the organizational form that decides with the least number of screening events (Sah and Stiglitz 1988). Cost minimization is an advisable heuristic in the short term but might limit the scalability, because, by design, each agent will be busier.

b. Fewer agents: Similar to screening events, higher number of agents could also incur costs, such as salaries, coordination costs, etc. Manager could prefer options that require the fewest agents and choose to employ the saved costs for another projects. This heuristic can be valuable for startups or Skunkworks that have limited resources (Rich and Janos 2013) but could lead to problems as "being efficiently fickle" (Nickerson and Zenger 2002).

c. Flatter organization: Management could choose organizational form with the flattest hierarchy, as this will lead to an organization being more adaptable to changes in the environment (Child 2019). Conversely, they could choose the tallest organization as this will lead to more knowledgeable managers at the top (Klapper et al. 2019).

d. Fewer interdependencies: They could instead choose the options that lead to organizational forms with fewer interdependencies (Puranam et al. 2012). These designs might be more modular and potentially easier to scale and adapt (Henderson and Clark 1990).

To be clear, the selection of measure as well as the heuristic itself requires manager's subjective judgement on both the political environment within the organization as well as foresight about changes in the external environment.

Discussion

In this *Point of View* article, we outline the relevance of *equifinal choice.* Organizations often face problems that can be solved effectively in multiple ways, leaving the decision makers in a philosophical dead end—a situation that can lead to decision paralysis (Aristotle 350BCE; Schwartz 2004). Spinoza (1677) argued that when paralyzed, we are not fully rational. As Puranam and Swamy (2016) have shown, decisive action can be valuable for organizations even when the wrong decision is chosen. This can explain why heuristics that limit the frequency of *equifinal choice* are common in organization theory (i.e., search and select heuristics, as in Posen et al. 2018, Folta O'Brien 2004; or Camuffo et al. 2020). Yet, in this *Point of View* article we have argued that the *equifinal choice* is valuable, and it can help organizations make strategic actions and drive change.

Equifinal choice differs from the optimization logic in two ways. First, the optimization logic tends to focus on the short term (considering a steady environment), because goal interdependencies do not allow for long-term effects to be measured accurately, whereas *equifinal choice* is based implicitly on forecasts of possible futures for the organization (Raveendran et al. 2020; Gavetti and Menon 2016; Tetlock and Gardner 2016). A second key difference is the agency that management holds when making the *equifinal choice* as they can choose among different heuristics to decide (Gans et al. 2019). Therefore, we can view *equifinal choice* as a subsequent but separate process to optimization. Management first curates a set of satisfying options through optimization and then, in parallel or sequentially, makes the *equifinal choice* by choosing the option they foresee will achieve the highest long-term performance. Future studies can learn a lot from following managers who are required to choose among *equifinal choices* on a routine basis (Hampel et al. 2020). As Tetlock and Gardner (2016) explain, forecasting and anticipating changes in the environment is something people can learn and an important addition to organizations as they continue to be augmented by algorithms.

Uncertainty is a central aspect in *equifinal choice.* As March (1962) explained, only in stable environment can the idea that people in organizations follow a single organizational goal make sense. A view highlighted by Levinthal and Rerup (2021) who show that when multiple goals are present in an organization political processes among others are needed for action to be decisive. Yet, uncertainty has to be low enough so that from the start management can form a "truces" on the objective function used to rank the performance of options (Nelson and Winter 1982). Truces are fickle in nature and need to be reformed as the environment evolves. *Equifinal choice* can serve as a way of reforming such truces and keeping commitment up through a periodic update whenever multiple options open up to reorient the firm's strategy.

We also have pointed at the threat that machine learning and artificial intelligence systems presents to *equifinal choice*. When faced with equifinal choice, as organization design scholars we can draw on the literature on random choice (Liu 2021) and prescribe randomness when faced with multiple satisfying options based on it being an unbiased, fair, simple, and swift solution to the problem of *equifinal choice*. However, by giving away the strategic opportunity inherent in *equifinal choice* to chance, we might be making a big bet in the future of our organizations. Indeed, the importance of strategic heuristics of choice is heightened when we consider the fact that artificial intelligence systems tend to require extensive data. Data that is increasingly shared across firms and industries (Zuboff 2019) and thus can strengthen the "Iron Cage" of isomorphism. As in the case between Deep Blue and Kasparov (Newborn 2012), the few occasions, where multiple satisfying options exist will increasingly turn into important battleground upon which competitive advantage is captured and winners decided.

This dire state can be abated by following developments in human–machine interaction, such as human-in-the-loop and active learning frameworks (Cohn et al. 1996; Grønsund and Aanestad 2020). Effectively, these frameworks function as a double-loop learning organization (Argyris 1977; Rerup and Feldman 2011) in which the algorithms perform the day-to-day actions and managers handle exceptions (He et al. 2020). In a double-loop learning organization, decisions are escalated to managers when strategic action is needed the most. Furthermore, use of random choice for *equifinal choice* is also problematic, because change in organizations requires a redirecting the collective action and political processes that hold firms together (Bridoux and Stoelhorst 2022; Levinthal and Rerup 2022). If multiple options are open to an organization it would be a happy coincidence that random choice select the option that can harness the most support within the firm. Without such luck, random choice will not only forego the strategic opportunity but also fail to garner commitment to enact the new random choice. There is value in acknowledging the strategic opportunity inherent in *equifinal choice*.

Authors' contributions J.A. conceived of the presented the idea, developed the theory, and performed the computations. Y.S. verified the analytical methods and contributed to the interpretation of the results. All authors contributed, read, and approved the final manuscript.

Declarations

Competing interests The authors declare that they have no competing interests.

References

Adner R, Csaszar FA, Zemsky PB (2014) Positioning on a multiattribute landscape. Manage Sci 60(11):2794–2815
Agrawal A, Gans J, Goldfarb A (2018) Prediction machines: the simple economics of artificial intelligence. Harvard Business Press, New York
Anderson P, Tushman ML (1990) Technological discontinuities and dominant designs: a cyclical model of technological change. Admin Sci Quart 1:604–633
Argyris C (1977) Double loop learning in organizations. Harv Bus Rev 55(5):115–125
Aristotle (350 BCE) *On the Heavens*. Book II, Part XIII
Barnett WP, Pontikes EG (2008) The Red Queen, success bias, and organizational inertia. Manage Sci 54(7):1237–1251
Berger J, Osterloh M, Rost K, Ehrmann T (2020) How to prevent leadership hubris? Comparing competitive selections, lotteries, and their combination. The Leadership Quarterly 1:101388
Bridoux F, Stoelhorst JW (2022) Stakeholder governance: solving the collective action problems in joint value creation. Acad Manag Rev
Burton RM, Obel B (1984) Designing efficient organizations. Adv Ser Manag 7:1
Burton RM, Håkonsson DD, Nickerson J, Puranam P, Workiewicz M, Zenger T (2017) GitHub: exploring the space between boss-less and hierarchical forms of organizing. J Organ Des 6(1):1–19
Camuffo A, Cordova A, Gambardella A, Spina C (2020) A scientific approach to entrepreneurial decision making: Evidence from a randomized control trial. Manage Sci 66(2):564–586
Child, J. (2019). Hierarchy: A Key Idea for Business and Society. Routledge.
Christensen M, Knudsen T (2010) Design of decision-making organizations. Manage Sci 56(1):71–89
Christensen M, Knudsen T (2020) Division of roles and endogenous specialization. Ind Corp Chang 29(1):105–124
Cohn DA, Ghahramani Z, Jordan MI (1996) Active learning with statistical models. J Artif Intell Res 4:129–145
Creignou N, Kröll M, Pichler R, Skritek S, Vollmer H (2019) A complexity theory for hard enumeration problems. Discret Appl Math 268:191–209

Csaszar FA (2012) Organizational structure as a determinant of performance: evidence from mutual funds. Strateg Manag J 33(6):611–632

Csaszar FA (2013) An efficient frontier in organization design: Organizational structure as a determinant of exploration and exploitation. Organ Sci 24(4):1083–1101

Csaszar FA, Eggers JP (2013) Organizational decision making: an information aggregation view. Manage Sci 59(10):2257–2277

Csaszar FA, Ostler J (2020) A contingency theory of representational complexity in organizations. Organ Sci 31(5):1198–1219

Cyert RM, March JG (1963) A behavioral theory of the firm. Wiley-Blackwell, New York

Debreu G (1960) Review of 'Individual Choice Behavior: A Theoretical Analysis' by R. D Luce. Am Econ Rev 50:186–188

Denrell J, Fang C, Liu C (2015) Perspective—Chance explanations in the management sciences. Organ Sci 26(3):923–940

Denrell J, Liu C, Le Mens G (2017) When more selection is worse. Strat Sci 2(1):39–63

DiMaggio PJ, Powell WW (1983) The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. Am Sociol Rev 1:147–160

Doty DH, Glick WH, Huber GP (1993) Fit, equifinality, and organizational effectiveness: a test of two configurational theories. Acad Manag J 36(6):1196–1250

Eisenhardt KM (1988) Agency-and institutional-theory explanations: the case of retail sales compensation. Acad Manag J 31(3):488–511

Eliaz K, Rubinstein A (2014) On the fairness of random procedures. Econ Lett 123(2):168–170

Fast NJ, Gruenfeld DH, Sivanathan N, Galinsky AD (2009) Illusory control: a generative force behind power's far-reaching effects. Psychol Sci 20(4):502–508

Ferguson TS (1989) Who solved the secretary problem? Stat Sci 4(3):282–289

Fiss PC (2007) A set-theoretic approach to organizational configurations. Acad Manag Rev 32(4):1180–1198

Folta TB, O'Brien JP (2004) Entry in the presence of dueling options. Strateg Manag J 25(2):121–138

Friedman M (1953) Essays in positive economics. University of Chicago press, Chicago

Gans JS, Stern S, Wu J (2019) Foundations of entrepreneurial strategy. Strateg Manag J 40(5):736–756

Gavetti G, Menon A (2016) Evolution cum agency: toward a model of strategic foresight. Strat Sci 1(3):207–233

Glynn PW, Greve HR, Rao H (2020) Relining the garbage can of organizational decision-making: modeling the arrival of problems and solutions as queues. Ind Corp Chang 29(1):125–142

Goodwin, B. (2013). *Justice by lottery.* Andrews UK Limited.

Gresov C, Drazin R (1997) Equifinality: Functional equivalence in organization design. Acad Manag Rev 22(2):403–428

Grønsund T, Aanestad M (2020) Augmenting the algorithm: emerging human-in-the-loop work configurations. J Strat Inform Syst 29(2):101614

Gul F, Natenzon P, Pesendorfer W (2014) Random choice as behavioral optimization. Econometrica 82(5):1873–1912

Hampel CE, Tracey P, Weber K (2020) The art of the pivot: How new ventures manage identification relationships with stakeholders as they change direction. Acad Manag J 63(2):440–471

Hannan MT, Freeman J (1986) Where do organizational forms come from?. In *Sociological forum* (Vol. 1, No. 1, pp. 50–72). Kluwer Academic Publishers.

He, V. F., Puranam, P., Shrestha, Y. R., & von Krogh, G. (2020). Resolving governance disputes in communities: a study of software license decisions. *Strat Manag J*

Henderson RM, Clark KB (1990) Architectural innovation: the reconfiguration of existing product technologies and the failure of established firms. Admin Sci Quart 1:9–30

Hick WE (1952) On the rate of gain of information. Quart J Exp Psychol 4(1):11–26

Kaplan S (2008) Framing contests: strategy making under uncertainty. Organ Sci 19(5):729–752

Katz D, Kahn RL (1978) *The social psychology of organizations* (Vol. 2, p. 528). New York: Wiley

Kellogg KC, Valentine MA, Christin A (2020) Algorithms at work: the new contested terrain of control. Acad Manag Ann 14(1):366–410

Kelly D, Amburgey TL (1991) Organizational inertia and momentum: a dynamic model of strategic change. Acad Manag J 34(3):591–612

Kerr WR, Nanda R, Rhodes-Kropf M (2014) Entrepreneurship as experimentation. J Econ Persp 28(3):25–48

Ketel N, Leuven E, Oosterbeek H, van der Klaauw B (2016) The returns to medical school: evidence from admission lotteries. Am Econ J Appl Econ 8(2):225–254

Kinniment DJ (2008) Synchronization and arbitration in digital systems. Wiley

Klapper HJ, Maciejovsky B, Reitzig M (2019) Influence, interests and information in organizational decision making. Acad Manag Proc 2019(1):11990

Klein KJ, Sorra JS (1996) The challenge of innovation implementation. Acad Manag Rev 21(4):1055–1080

Levinthal DA (1997) Adaptation on rugged landscapes. Manage Sci 43(7):934–950

Levinthal DA, Rerup C (2021) The plural of goal: learning in a world of ambiguity. Organ Sci 32(3):527–543

Liu C (2021) In luck we trust: capturing the diversity bonus through random selection. J Organ Des 1:1–7

Liu C (2019). Solving the Brexit Deadlock by Lottery. *Psychology Today.*

Luce RD (1959) Individual choice behavior: A theoretical analysis. Wiley, New York

March JG (1962) The business firm as a political coalition. J Pol 24(4):662–678

March JC, March JG (1977) Almost random careers: the Wisconsin school superintendency, 1940–1972. Admin Sci Quart 1:377–409

March JG, Simon HA (1958) Organizations. John Wiley & Sons

Marengo L (2015) Representation, search, and the evolution of routines in problem solving. Ind Corp Chang 24(5):951–980

Matejka J, Fitzmaurice G (2017) Same stats, different graphs: generating datasets with varied appearance and identical statistics through simulated annealing. In: Proceedings of the 2017 CHIconference on human factors in computing systems. pp 1290–1294

Minsky M (1988) Society of mind. Simon and Schuster

Murray A, Rhymer J, Sirmon DG (2020) Human and Technology: Forms of Conjoined Agency in Organizations. *Acad Manag Rev*

Nelson RR (1991) Why do firms differ, and how does it matter? Strateg Manag J 12(S2):61–74

Nelson RR, Winter SG (1982) An Evolutionary Theory of Economic Change. Cambridge, Mass, Belknap

Newborn M (2012) Kasparov versus Deep Blue: Computer chess comes of age. Springer, New York

Nickerson JA, Zenger TR (2002) Being efficiently fickle: a dynamic theory of organizational choice. Organ Sci 13(5):547–566

O'Flaherty B, Siow A (1991) Promotion lotteries. J Law Econ Organ 7(2):401–409

Payne GT (2006) Examining configurations and firm performance in a suboptimal equifinality context. Organ Sci 17(6):756–770

Perrow C (2011) Normal accidents. Princeton University Press

Persky J (1995) The ethology of homo economicus. J Econ Persp 9(2):221–231

Porter ME (1996) What is strategy? Harv Bus Rev 74(6):61–78
Posen HE, Levinthal DA (2012) Chasing a moving target: exploitation and exploration in dynamic environments. Manage Sci 58(3):587–601
Posen HE, Keil T, Kim S, Meissner FD (2018) Renewing research on problemistic search—a review and research agenda. Acad Manag Ann 12(1):208–251
Puranam P (2018) The microstructure of organizations. Oxford University Press
Puranam P (2021) Human–AI collaborative decision-making as an organization design problem. J Organ Des 1:1–6
Puranam P, Håkonsson DD (2015) Valve's Way. J Organ Des 4(2):2–4
Puranam P, Swamy M (2016) How initial representations shape coupled learning processes. Organ Sci 27(2):323–335
Puranam P, Raveendran M, Knudsen T (2012) Organization design: the epistemic interdependence perspective. Acad Manag Rev 37(3):419–440
Puranam P, Alexy O, Reitzig M (2014) What's "new" about new forms of organizing? Acad Manag Rev 39(2):162–180
Raveendran M, Silvestri L, Gulati R (2020) The Role of interdependence in the microfoundations of organization design: task, goal, and knowledge interdependence. *Acad Manag Ann*
Rerup C, Feldman MS (2011) Routines as a source of change in organizational schemata: the role of trial-and-error learning. Acad Manag J 54(3):577–610
Rescher N (1959) Choice without preference: a study of the history and of the logic of the problem of "Buridan's Ass." Kant-Studien 51(1–4):142–175
Rich BR, Janos L (2013) *Skunk works: A personal memoir of my years of Lockheed.* Little, Brown
Rivkin JW, Siggelkow N (2003) Balancing search and stability: interdependencies among elements of organizational design. Manage Sci 49(3):290–311
Rumelhart DE, Hinton GE, Williams RJ (1985) *Learning internal representations by error propagation* (No. ICS-8506). California Univ San Diego La Jolla Inst for Cognitive Science
Sah RK, Stiglitz JE (1988) Committees, hierarchies and polyarchies. Econ J 98(391):451–470
Saunders B (2008) The equality of lotteries. Philosophy 1:359–372
Schilling MA (2002) Technology success and failure in winner-take-all markets: the impact of learning orientation, timing, and network externalities. Acad Manag J 45(2):387–398
Schreurs S, Cleland J, Muijtjens AM, Oude Egbrink MG, Cleutjens K (2018) Does selection pay off? A cost–benefit comparison of medical school selection and lottery systems. Med Educ 52(12):1240–1248
Schwartz B (2004) The paradox of choice: Why more is less. Ecco, New York
Shannon CE (1948) A mathematical theory of communication. Bell Syst Techn J 27(3):379–423
Shrestha YR, Ben-Menahem SM, Von Krogh G (2019) Organizational decision-making structures in the age of artificial intelligence. Calif Manage Rev 61(4):66–83
Siggelkow N, Rivkin JW (2005) Speed and search: designing organizations for turbulence and complexity. Organ Sci 16(2):101–122
Silver N (2012) The signal and the noise: why so many predictions fail–but some don't. Penguin
Simon HA (1947) Administrative behavior. Simon and Schuster
Smaldino PE, Turner MA, Contreras Kallens PA (2019) Open science and modified funding lotteries can impede the natural selection of bad science. Royal Soc Open Sci 6(7):190194
Spinoza B (1677) *Ethics.* Book 2. Proposition 49
Tetlock PE (1983) Accountability and complexity of thought. J Pers Soc Psychol 45(1):74
Tetlock PE, Gardner D (2016) *Superforecasting: the art and science of prediction*. Random House
Tolstoy L (1877) *Anna Karenina*
Tushman ML, Nadler DA (1978) Information processing as an integrating concept in organizational design. Acad Manag Rev 3(3):613–624
Tversky A (1972) Elimination by aspects: a theory of choice. Psychol Rev 79(4):281
Van Maanen L, Grasman RP, Forstmann BU, Wagenmakers EJ (2012) Piéron's law and optimal behavior in perceptual decision-making. Front Neurosci 5:143
Zellweger TM, Zenger TR (2021) Entrepreneurs as scientists: a pragmatist approach to producing value out of uncertainty. *Acad Manag Rev*
Zuboff S (2019) *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. Profile books