How international marketers make decisions: exploring approaches to learning and using heuristics

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Abstract
Purpose – The paper addresses the following research question: how do decision-makers use heuristics in their international business (IB) environment? Whereas, the literature has focused on entrepreneurial companies, here contrasting approaches to learning and using heuristics in international marketing (IM) decisions are examined and discussed.

Design/methodology/approach – The paper aims to address a gap in the study of micro-foundations of internationalization, exploiting research from other disciplinary fields. It combines a multidisciplinary literature review and longitudinal case studies to illustrate different approaches in learning and using heuristics by international marketers.

Findings – International marketers can adopt “closed” heuristics that are consolidated and consistently followed, or “open” heuristics, which are constantly being adapted and learned. Established multinationals learn heuristics in international marketing decision-making, following both “closed” and “open” models.

Originality/value – This paper offers an original contribution by presenting different approaches not yet examined in the literature, focusing on how international marketers make decisions through learning and using heuristic rules. The focus is on established exporters, in contrast to the literature that has largely paid attention to the effectiveness of heuristics in new entrepreneurial firms.

Keywords International marketers, Uncertainty, Decision-making, Learning, Heuristics

Paper type Research paper

1. Introduction
This paper contributes to the international marketing (IM) and international business (IB) literature exploring how international marketers learn and use heuristics in making decisions. Heuristics has been defined as efficient cognitive processes that provide solutions to complex problems starting with few informational inputs (Brighton and Gigerenzer, 2012). The recent literature stresses that the IB environment appears to be affected by conditions of volatility and uncertainty that have been defined as unprecedented and has recently been included as an essential element of the VUCA conditions (volatility, uncertainty, complexity and ambiguity) that characterize the current IB environment in which marketers operate (Bennett and Lemoine, 2014; van Tulder et al., 2020; Petricevic and Teece, 2019, p. 1494). International marketers can approach heuristics to accommodate risk and acclimatize to uncertainty for opportunity seeking (Duncan, 1972; Downey and Slocum, 1975; Aharoni et al., 2011; Ambos et al., 2020; Sinyard et al., 2020).

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While there is a growing literature on the psychological underpinnings of actors’ behavior in strategic management (Raffaeli et al., 2019; Santangelo and Meyer, 2017), the degree of valorization of this recent research in the field of study of the international marketers’ behavior still appears at an initial level, highlighting the existence of research gaps (Vahlne and Johanson, 2020). The central research question in this paper is how do decision-makers learn and use heuristics in their international business environment? The paper examines literature including different disciplinary fields, such as experimental psychology and strategic management, seeing in this a source of fertilization for a possible contribution to the development of IM and IB business literature (Buckley et al., 2018; Guercini and Milanesi, 2020). The literature on heuristics in experimental psychology focuses primarily on the performance of decision-making based on heuristic rules, and this has influenced the literature on IB decision-making (Abroni et al., 2011). In particular, the management literature has been the major influence on these studies, considering heuristics both as a source of error (Manimala, 1992; Busenitz and Barney, 1997) and for providing effective solutions to complex problems (Davis et al., 2009; Eisenhardt and Sull, 2001). The study of the ways in which heuristic rules are learned and used can contribute to the interpretation of conflicting approaches to the issue of the effectiveness of heuristic rules (Gigerenzer and Gaissmaier, 2011). Within the literature, the effects (effectiveness, biases and accuracy) deriving from the use of heuristic rules in decision-making (judgments and choices) need to be considered much more closely in relation to different situations (Dowling et al., 2020).

The empirical part of this paper examines two illustrative cases of marketers who operate in business-to-business markets, in which markets take on peculiar characteristics and inter-organizational and interpersonal relationships take on particular importance, characterizing the related marketing processes. We know firms can vary considerably from each other, even in the same industry, as is evident in the inconsistency in results from empirical studies in IM fields. Similarly, the literature on the use of heuristics in internationalization processes also seems to follow a variety of approaches and similarly of heuristic-based decisions (Guercini and Milanesi, 2020).

The next section gives an overview of the literature, discussing different perspectives on the role of learning and the use of heuristics from the perspective of international marketers. In particular, we divide our review into three steps: on the subject of risk and uncertainty from the perspective of international marketers; the extent of heuristic rules in their decision-making processes; and learning and using these rules in decisions. Following the literature review, we present the methodology of the proposed case studies, the results and discussion and finally the conclusion.

2. Literature review and theoretical development
2.1 Uncertainty and heuristics in international marketing and international business
The issue of uncertainty is a subject of growing interest in a diverse array of literature that includes IM, international entrepreneurship and IB, as recently highlighted with particular reference to entrepreneurial companies (Magnani and Zucchella, 2019; Styles and Seymour, 2006). This is not a new topic and has been the object of attention from various perspectives, in particular in the economic literature and in the field of strategic management (Vahlne and Johanson, 2020, p. 5). Uncertainty and risk, together with ignorance, confusion, avoidance and other biases in decision-making by firms (Meyer and Gelbuda, 2006; Madhok and Liu, 2006), influence the pace and the direction as well as the scope of internationalization. Similarly, both uncertainty acclimatization and risk accommodation separately and jointly, coevolve, thus influencing internationalization decisions by managers that lead to changes in international commitment (entry, exit and re-entry) and the activities that will be pursued in the exploitation of opportunities (Liesch et al., 2011; Vissak and Francioni, 2013; Vissak et al., 2020; Vahlne and Johanson, 2017).
The focus is more on unmeasurable uncertainty than on measurable risk, because of the volatility and growing difficulty of reliably measuring the probability of future events (Knight, 1921, p. 20).

The validity of the “recipes” already learned by marketers in the processes of internationalization and their replicability in relation to new events (Campos et al., 2018) and experiences that trigger how they conceive and exploit opportunities is related to the issue of uncertainty. In this sense, there emerges a problem of the extension of the field (scope) in which the heuristic rules are manifesting their efficacy (Guercini, 2019). The scope of the decision-making process in studies of decision-making processes generally divides into two mutually exclusive types: “rational decision-making” versus “rule-based decision-making” (March, 1994), following an economic-based behavioral theory approach (Cyert and March, 1963).

The condition of uncertainty is related to available information (Souchon et al., 2016) and it is relevant to the micro-foundations on which internationalization studies are based (Vahlne and Johanson, 2020). To address the issue of uncertainty as depicted by both IM (Styles and Seymour, 2006) and IB scholars (Vahlne and Johansson, 2020), we contribute by responding to recent calls to broaden their perspective.

Over the last few decades, a debate has matured in the literature on the role of heuristics in dealing with decisions under conditions of uncertainty. The topic of heuristics is the subject of growing attention in the IB and IM literature, but the attention reserved still appears to be relatively limited and with often heterogenous approaches (Guercini and Milanesi, 2020). In IM, heuristics are placed above all in the field of consumer behavior, for example, they are frequently referred to in the field of research on the country-of-origin effect (Chen et al., 2020). Heuristic rules are an object of study in cognitive sciences, particularly in experimental psychology (Kelman, 2011). The role of heuristics has been studied in organizational behavior, strategic management, IB and entrepreneurial decision-making, for example, in the latter case, opportunity capture (Artinger et al., 2015; Bingham et al., 2015; Guercini et al., 2014; Loock and Hinnen, 2015; Shepherd et al., 2015), but recent research developments have only partially incorporated IB and IM into the debate (Guercini and Milanesi, 2020).

Heuristics provide solutions to complex problems starting from one or few “cues”. They are defined as “rules on the shelves” or as “cognitive shortcuts” that emerge in the presence of limited information, over time or processing capacity (Newell and Simon, 1971). The literature (Simon, 1963; 1990) highlights how the cognitive limits of individuals (Miller, 1956) and the characteristics of the “task environment” can be addressed through the use of heuristic procedures. Cognitive limits and ignorance represent internal conditions of uncertainty, recently highlighted in the IB literature (Vahlne and Johanson, 2017), where however attention is often focused on external conditions due to the novelty and psychic distance of the foreign environment (Zaheer, 1995; Eden and Miller, 2004; Johanson and Vahlne, 2009). The “heuristics and biases approach” (Tversky and Kahneman, 1974; Kahneman, 2011) draws our attention to some of the inherent biases of heuristic processes. Heuristics are considered as “intuitive statistics” with which human beings are naturally endowed. In a dual process theory perspective (Hodgkinson and Sadler-Smith, 2018) one utility of heuristics is recognized as “fast thinking”.

The “fast and frugal heuristics approach” (Gigerenzer, 1996; Gigerenzer et al., 1999; Todd and Gigerenzer, 2012) views heuristic processes as the result of adaptive behaviors by managers through which effective decisions can be reached from a few cues (“less-is-more effect”). Heuristics are translated into formal models through analysis to form “building blocks”, to test the accuracy of judgments formulated through heuristics that are part of an adaptive tool-box (“adaptive-behavior-and-cognition program”). This body of research reveals that heuristic rules-based cognition may turn out to be not only less onerous in terms of cost-benefits to the cognitive processes (Payne et al., 1993) but may even lead to better results (Gigerenzer et al., 1999), while erroneous, unnecessary or even unwanted information can be deliberately avoided by decision-makers (Gigerenzer and Garcia-Retamero, 2017). For
example, some studies have argued that exporters do not always perceive that they face barriers when undertaking international operations (Harcourt, 2006). Thus, managerial perceptions might also be a reflection of ignorance by exporters rather than recognition and acceptance of uncertainty and risk (Souchon et al., 2016; Vahlne and Johanson, 2017, p. 1091).

In IM decision-making, the role of experience does not necessarily lead to reduced uncertainty but may lead to increased (perceived) uncertainty from the subjective perspective (Vahlne and Johansson, 2020). This is because reactions to new information by marketers can vary. It is not related simply to the type of information. Rather, it is linked to prior experiences that act as biases as they influence and shape the way information is now sought, received, evaluated and then interpreted within the firm (Buckley, 2002). How a firm is currently performing is an essential element as a setting within which the new information is placed. For example, for exporters, strong positive or negative sales performance can lead to information overload as evaluations are being made by managers, often under tight time pressures (Wiedersheim-Paul et al., 1975). This can be exacerbated if the threat of failure is looming. Individuals play a central role in the assessment of the firm’s uncertainty and risk perspectives, which are related to prior events and this can change quickly, as people move in and out of firms, or their positions of responsibility change in decision-making (Liesch et al., 2011, p. 861).

In short, heuristics offers different approaches that managers might adopt, with a range of views expressed in the management, IB and entrepreneurship literature about its effectiveness. In particular, the management literature has been the major influence on these studies, considering heuristics both as a source of error (Manimala, 1992; Busenitz and Barney, 1997) and as a set of tools providing effective solutions to complex problems (Retjers and Mansar, 2005; Davis et al., 2009; Eisenhardt and Sull, 2001; Sull and Eisenhardt, 2015).

The subject of heuristics is addressed by Bingham and Eisenhardt (2011) through a case study (multiple) analysis of six “entrepreneurial” companies engaged in internationalization processes. What emerges as a result is that heuristics can deliver more effective strategic actions than models that follow more analytically complex decisions and “information-intensive” approaches, even when time, ability to compute and new information are available.

Highlighting the psychological literature of the “fast and frugal heuristics approach”, which proposes the concept of “ecological rationality” (Brighton, 2020; Luan et al., 2019) we emphasize the presence of several types of rationality (March, 1994). In the strategic management literature (Bingham and Eisenhardt, 2011) heuristics are often the result of learning from experience, even if in other cases they may appear pre-existing and as such correspond to an innate attitude of decision-makers (Todd and Gigerenzer, 2012).

2.2 Learning and using heuristics in individual decision-making

In our prior discussions, we have suggested that events might trigger personal involvement by business decision-makers, and heuristic approaches provide a more individual level framework for understanding complex processes. Bingham and Eisenhardt (2011) raise several questions about the benefits of heuristics for understanding individual decision-making. First, it should be clarified whether heuristics are attributable to the organization or to the individuals, who are part of it, since heuristic rules relate to the decision-maker and in this sense are more problematic and individual than repetitive and organizational. In this sense being very different from routines (Guercini et al., 2015), heuristics represent components of an “adaptive toolbox” that in turn is evolving through processes of learning and adaptation and that in turn should responds to conditions of simplicity (Guercini and Lechner, 2021). The question is relevant, since it is necessary to ask under what conditions a change in company decision-makers would justifying remaining within the current heuristic portfolio approach. Second, it should be clarified whether heuristics can always be linked to the theme of learning or if they are not primarily the result of human nature (Tomasello, 2009). And therefore, as such, they are not
learned but “innate” or genetically transmitted as a result of the so called species selection process according to the Darwinian perspective (Stoelhorst, 2007).

The process of learning heuristics has been present in the literature for some time, considering both the individual level and the organizational implications. Nelson and Winter (1982) compared the concept of heuristics with that of routines. Routines provide a very detailed and often automatic response to particular problems, without a more solid grasp of the problem. Heuristics provide a common structure for a range, of similar problems, but without offering many details about the specific solutions to be adopted and the problematic perception of the issues to be addressed. In fact, heuristics are simplified rules that suggest the appropriate use of limited information for decisions (March, 1994), while routines are presented as a detailed system of rules and precise steps that can be applied consistently in different environments. Thus, heuristics are not a type of simple routines but a distinct construct, differing in the amount of structure, range of problems, cognitive engagement, availability of results and strategic importance of actions (Cohen et al, 1996). Regarding the “individual-versus-organizational” character of heuristics, processes of “simplification” follow through to those of “elaboration” of the heuristic portfolio by the company, since the decision-makers intentionally reduce the portfolio of heuristic rules as the effect of experiences are absorbed into decision-making (Bingham and Eisenhardt, 2011, p. 1458). The explanation of this simplification process over time is identified and represented as three orders of motivation:

1. The growth of experience sees the actor not only learn, but maintain a “watchful” attitude over the heuristic rules that are part of his/her portfolio, whose raison d’être is only their effectiveness, so that heuristics that prove “obsolete” due to the change in the context or in any case not effective should be promptly eliminated from the portfolio;

2. The number of heuristic rules present is not positively associated with the usefulness of the heuristic portfolio, since there is a “trade-off” between the advantage given by the utility introduced with the addition of a new heuristic rule and the loss of flexibility that could result from a broader portfolio in real decision-making;

3. Thus, erasing heuristics can produce an under-utilization of past experience and increase the possibility of repeating errors. However, an excessive number of heuristic rules might generate a lower response speed because of the need to consult a very wide repertoire of rules, which may even be contradictory.

The approach to positive heuristics proposed by Bingham and Eisenhardt (2011) examines entrepreneurial firms, recently established and facing international markets. The subsequent literature has extended this line of argument by examining the types of marketers (Magnani and Zucchella, 2019). Our point of difference in the empirical part of our paper is to focus on the less known small multinationals that have been established for some time and thus, highlighting that this theme is not exclusive or relevant only to new entrepreneurial firms that are now entering international markets.

In short, heuristics offers different approaches that marketers might adopt, with a range of views expressed in the management, IB, marketing and entrepreneurship literature about its effectiveness. The literature appears to be characterized by different approaches to the study of heuristics in IB, as has already been highlighted recently (Guercini and Milanesi, 2020). We examined a range of seminal and more recent literature and present this in summary in Table 1, where three groups of studies following different thematic areas are identified. For each group, recent literature is examined and the main issues addressed and major research gaps are presented (Table 1).

Some gaps are expressly indicated in the literature, the main ones being the (1) lack of research on micro-foundations and psychological basis of decisions and behavior; (2) lack of
| Study lines | References | Research subjects | Main research gaps |
|-------------|------------|-------------------|--------------------|
| Group 1 – research on uncertainty, risk and heuristics in international marketing and international business | Ahroni et al. (2011) | Heuristics and biases in IB decision-making | Lack of research on microfoundation and psychological basis of decisions and behaviors |
| | Bennett and Lemoine (2014) | Volatility, uncertainty, complexity, ambiguity (VUCA) | |
| | Buckley et al. (2018) | Controllable risk, uncontrollable risk and managers’ experience | |
| | Campos et al. (2018) | Smaller early internationalizing firms | |
| | Elsahn and Benson-Rea (2018) | Multinational-local government relation and heuristics | |
| | Liesch et al. (2011) | Risk and uncertainty in IB and entrepreneurship | |
| | Magnani and Zucchella (2019) | Uncertainty in IB strategy and international entrepreneurship | |
| | Petricevic and Teece (2019) | Reshaping of globalization and VUCA condition in IB | |
| | Santangelo and Meyer (2017) | Evolutionary process in internationalization | |
| | Souchon et al. (2016) | Spontaneity versus planning in IB performance | |
| | Vahlne and Johanson (2017) | Evolution in condition of uncertainty and partial ignorance | |
| | Vahlne and Johanson (2020) | Managers’ psychology as micro-foundations in international business studies and “VUCA” conditions | |
| | van Tulder et al. (2020) | VUCA conditions in IB environment | |
| | Vissak et al. (2020) | Knowledge and relationship in decision-making logic in de-internationalization and re-internationalization | |
| Group 2 – research on uncertainty and heuristics in experimental psychology | Artinger et al. (2015) | Adaptive decision-making in management and heuristics | |
| | Brighton (2020) | Uncertainty and statistical foundation of ecological rationality | |
| | Gigerenzer (2008) | Adaptive toolbox as modular set of heuristics | |
| | Gigerenzer and Garcia-Rotamero (2017) | Risk aversion and deliberate ignorance in presence of negative event and ambiguity aversion | |
| | Luan et al. (2019) | Uncertainty and effectiveness of fast and frugal heuristics in managerial decision-making | |
| | Kahneman (2003) | Accessibility rules, relation between biases and effective intuition | |
| | Kahneman (2011) | Decision-making and characteristics of system 1 and system 2 | |
| | Kelman (2011) | Positive and negative views on heuristics in the scientific debate | |
| | Payne et al. (1993) | Judgment and choice strategy and adaptive decision-making | |
| | Tversky and Kahneman (1974) | Heuristics (representativeness, availability, anchoring) and biases | |

Table 1. A selection of references and emerging research gaps from a literature review
adequate valorization of the results of psychological research to study how marketers learn and use heuristics; and (3) greater focus on heuristics in new entrepreneurial business to the detriment of more established exporters. These are gaps that mainly concern the issue of how they are used, and the impact of prior learning of heuristic rules for decisions in conditions of risk or uncertainty. Of these three gaps highlighted in the literature, in this paper we focus on the second one. More precisely, our paper addresses the following research question: how do international marketers learn and use heuristics in their international environment? A related research question is how wide is the context in which the heuristics are applied by marketers that face risk and uncertainty in international markets?

3. Methodology
To answer these interrelated questions, we examine two cases of established organizations where decision-makers describe two different approaches. The two cases are related to international markets and business-to-business contexts. Given the research questions indicated at the end of the previous section (“how” heuristics is learned and used), the methodological choice of case research appears particularly appropriate. Case study research has been defined as “inquiry focusing on describing, understanding, predicting, and/or controlling the individual” (Woodside and Wilson, 2003, p. 493). Yin (1994) defined a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-
life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 13).

We selected the two cases on the basis of three criteria: (1) the fact that they were mature companies with a consolidated presence in international markets and therefore with marketers with substantial experience; (2) the willingness to be interviewed and observed on several occasions on a delicate subject such as internationalization, availability of time, as well as observation by researchers; and (3) the reachability of businesses and the willingness to accept visits. In these companies, it was expected we would find organizations that could deal with the decisions about the decision rules they adopt with relative safety. Sampling is a concern, as the people to be interviewed in the companies needed to be in senior management roles, given their experience and wisdom acquired over time. The data collection included an integration of qualitative interviews, observation of the non-participants and collection of corporate documents (in particular financial statements, both for 2020 and for 2021). A summary of the data used in the analysis is shown in Table 2, where the sources of the data analyzed together with case descriptions are presented.

The use of case studies has the purpose of generating new content while at the same time summarizing the requirements of rigor, benefiting from procedures suggested in qualitative research in the organizational field (Gioia et al., 2013) and the modalities of transparency of the processing, for example through the use of tables that present the data structure (Corley and Gioia, 2004). Since heuristics are individual rule-based decision-making processes, the rules that an actor gives her/himself on which to decide are related to her/his identity. The paper by Corley and Gioia (2004) deals with identity and sense giving, which offers useful elements for our paper on a methodological level, but to some extent also with respect to the object of study. With respect to the subject of study, Corley and Gioia (2004) address the issue of identity ambiguity as an element positively connected to organizational change. Identity has to do with the answer we give to questions such as “what we are” (who we are as an organization) and “what do we want to be” (how do we wish to be known), questions that are

| Cases   | Age of the firm                  | Number and % of overseas customers | Annual profit/turnover | Number of employees | Interviewee name and role* | Interview (length) |
|---------|----------------------------------|-----------------------------------|------------------------|---------------------|---------------------------|--------------------|
| Case alpha | Founded in 1967, family-run, by first and second generation | Many hundreds, including big luxury and fast fashion players, represents 75% of turnover | €49 mln (US$ 60 M); net profit €1.4 M** | 84; Plus another 115 employees in subsidiaries abroad (China and Romania) ** | The international marketing director (FP1) and second generation entrepreneur (FP2) | Total 7.5 h in 4 interviews and one group discussion between 2012 and 2017 |
| Case beta  | Founded in 1947, family-run, second and third generation | Many hundreds, including big luxury fashion players, representing 80% of turnover | €23 M (US$ 27 mln); Net profit; €5.3 mln** | 40**Trade affiliated in two countries abroad (United States and France) | The international marketing director (LO1), second generation (LO2) and third generation entrepreneurs (LO3) | Total 5 h in 3 interviews between 2011 and 2014 |

Table 2. Case studies and data sources

Note(s): * pseudonyms are used for the purpose of anonymity; ** 2015
related to heuristics as the rules that guide refining of our judgments and our selection of choices (Corley and Gioia, 2004, p. 174). At the organizational level, identity must be collectively understood (Albert and Whetten, 1985) or a shared context (Guercini and Medlin, 2020). If the rules on the basis of which decisions are made are not fully consolidated, this can imply a consequent relative ambiguity in the definition of the identity of the organization. A very defined identity can as such represent an obstacle to change, at least at the level of established decision-making rules, completely configured and therefore at this point static and not subject to change, with limited possibilities of adaptation to an evolving context.

On a methodological level, the article by Corley and Gioia (2004) proposes the study of a spin-off case from a large company. The sampling is concerned more with identification of the interviewees than of the organization, whose choice appears substantially made a priori with no reason other than the relevance of the parent company (belonging to the Fortune 100 ranking) and of the spin off (evidenced by the considerable size, however, in the order of the many thousands of employees). The paper proposes elements of a methodology which are then discussed in more general terms in a subsequent paper by Gioia et al. (2013). After sampling, these further phases are recognized as data collection, in which the forms of interview adopted are essentially defined (semi-structured, through electronic support and non-participant observation) and the documents acquired; data analysis with the presentation of a data structure that connects (also visually, through a scheme) the evidence collected to the topics under study; and finally, the results are presented through the presentation of the results of the case analysis (Gioia et al., 2013).

Following this approach, we draw on the empirical evidence emerging from the study of two family-owned established firms engaged in international markets to emphasize different characteristics that highlight the relationship between learning and using heuristics in approaching large international clients. This is an approach adopted in coherence with the need for longitudinal research, both qualitative and quantitative, also recently highlighted for the study of the micro-foundations of the company’s internationalization process (Vahlne and Johanson, 2020, p. 7). These cases are used to highlight in detail specific situations in which the calculation of risk and perception of uncertainty occur, during the process of opportunity seeking, giving rise to the adoption of heuristics with different characteristics (Halinen and Törnroos, 2005; Ghauri and Grønhaug, 2005).

The recent literature on theorizing from case studies, highlights that this method has an established place in IB research (Welch et al., 2011, p. 740). In this article it has emerged that the international context “is a highly appropriate field in which to discuss the development of rigorous, yet context-sensitive, theory” and “qualitative research has been suggested as a remedy for this imbalance, thus placing approaches such as the case study squarely on the agenda” for IB theory development (Welch et al., 2011, p. 741). The approach adopted by Welch et al. (2011) corresponds to the development of case studies “to generate contextualized explanation”, overcoming the trade-off between theory generation from case studies and a case study viewed as a “natural experiment” or as “interpretative sense-making”. The objective, therefore, is not merely to generate new theory or to test existing hypotheses, but rather to integrate both perspectives, with particular reference to the context in which the phenomena analyzed are produced. In this sense, we follow a third alternative “... that rejects this trade-off, and instead emphasizes the ability of the case study to generate contextualized explanation” (Welch et al., 2011, 741).

Our intent here is to use two cases to highlight models of learning and the use of different heuristics, using the rich empirical material offered to analyze models vertically and in depth. To achieve our goal, the choice of cases was purposeful, as only through such sampling is it possible to achieve the aim of highlighting different models illustrated through the in-depth study of two contrasting cases. By selecting cases representing organizations that are established and willing to provide considerable access over an extended time period we were able to establish a relationship of trust with the entrepreneurs and managers interviewed,
making the relationship less formal and improving communication between researcher and interviewee (Guercini, 2004). The willingness to create this type of relationship was also a selection factor among the cases, which were nevertheless chosen as stable exporters in their sector. As indicated previously, the literature has extensively examined learning and use of heuristics by entrepreneurial companies, while our attention has been focused on established companies with considerable experience in foreign markets.

As pointed out by Skinner, it is not a matter of reducing the research effort, but of placing it differently: “instead of studying a thousand rats for one hour each, or a hundred rats for ten hours each, the investigator is likely to study one rat for a thousand hours” (Skinner, 1966, p. 21). In the literature review, we compared the results of research conducted by scholars who have examined the use of the case study to build theory (Eisenhardt, 1989). In their article on heuristics in strategic learning, Bingham and Eisenhardt (2011) approached the decision on appropriate sampling by making a selection based on “entrepreneurial companies” (new companies) who were faced with the problem of entering foreign markets. The question they posed was what do they learn when they enter other markets? The answer is what they learn are above all heuristics from which they start when they have to enter other markets later. We adopted a similar approach not limiting it to entrepreneurial companies, but also considering companies already established and have been stable exporters for many years.

As far as sampling was concerned, the people interviewed in the companies were in the first place part of the top management team, given their availability and importance for their point of view. The data collection included an integration of qualitative interviews, observation of the non-participant and collection of corporate documents (in particular financial statements, both for 2020 and for 2021).

For both cases, the paper benefited from several meetings with the interviewees and visits to the company carried out over a multi-year period. We believe this type of interaction did not given rise to any problems as these are companies established for many years and have long been present as marketers in international industrial markets. The character of a new entrepreneurial venture would probably have changed over time, while the mature companies we have selected as our cases have not changed their nature in this observable period. Above all, however, the choice of proposing a “longitudinal” type survey (interviews and document collection), we believe, has given various benefits to the quality of the data. In the first place, the interviews repeated at different times have been considered to distinguish the “stable” aspects from those “in progress”, focusing on non-marginal aspect to verify if certain heuristics are of the “closed” or “open” type. In addition to the statements of the interviewees made at an initial (first) interview, added to the observation of the activity in the company during the successive visit to the plants, it is possible to carry out checks over time. Repeating the examination of the same problem during visits made over the years allows us to establish informality and a level of effective communication with the interviewees affording much richer levels of data collection than that provided in a single interview at a moment in time. Finally, a relationship of knowledge and trust is established which favors the exchange of complex data and information.

Finally, in Table 2 we have summarized the interviews undertaken and the role of managers interviewed. The nature of this project was such that while not all who were interviewed were quoted in the text there were interviews conducted where confirmation of time and events to support the recall of others was apparent. Therefore, this part of the interview was used to obtain confirmation of what was said by a previous interviewee from the same company. For this reason, it could be argued that in many cases to use data from all interviewees would have created unnecessary repetitive text that simply confirmed what had been said in another interview by someone else. Where the interviews with several people of the same company produced different results or in any case were to be compared, however, we then presented the texts of the various interviewees.
4. Approach one – a closed model in learning and using heuristics

In the closed model, heuristic rules are pre-defined for decisions involving negotiations with international clients, as illustrated through our first case, the alpha case.

This first study illustrates a business organization in a textile organization based in Prato, near Florence, Italy. Alpha relies on a team of decision-makers comprising three executive officers and a second-generation entrepreneur. Each of the four has full autonomy within their respective field of responsibility. Issues of particular importance must be examined by the entire team, while other issues are assigned to only one member of the group. The team meets at least weekly to discuss matters concerning the enterprise as a whole, as we were able to observe during the visits made to the company (all the interviews were carried out at the company headquarters, where the main production plants are also located).

The company has been operating stably for many years in international markets, having as its customers major brands and clothing retailers, both in the field of luxury fashion and in fast fashion. Their clients are major international players who are located not only in Europe but in extended areas of America and Asia. Around 75% of its turnover is with a single international customer, both in the luxury and fast fashion industry (see Table 2). The in-depth semi-structured interviews with the members of this team (see Table 2: coded names, FP1 and FP2) revealed at least six decision-making fields in IM activities involving each interviewee having to demonstrate decision-making in his/her capacity as a member of the team:

1. Negotiating with IB clients;
2. Defining the product offering;
3. Budget and purchase planning;
4. Developing new product lines;
5. Choosing trade fairs in which to participate; and
6. Selecting new suppliers and production sites.

Each of these fields represents an area of decision-making important for the IM activity of the firm and which occurs with varying frequency. These decision-making fields are listed above (1–6) in ascending order with (1) the most important to the interviewee and (2) what the interviewee was most often called upon to address. The decision-making field for the analysis of case alpha addressed item one.

The choice of whether or not to accept an international client order may take on the form of defining a “best offer” (firstly in terms of price) for a given quantity of a predefined product within a predefined delivery time. Such decisions may correspond to simply accepting or refusing a proposal advanced by the international client, or (more frequently) to define the best possible conditions to close the deal (proposal). It is a decision that involves a great deal of managerial oversight, such as evaluating the internal production cost and time for the requested product, the average discount applicable to its list price, the margins associated and the relationship with the specific client. This is the decision-making field that one of the interviewees (FP2) stated he was most often faced with, but it is also of fundamental importance to the firm’s overall performance. This is particularly true from the standpoint of interviewee, FP2, whose executive role deals with predominantly marketing aspects and who is therefore judged within the enterprise’s top management team, particularly in terms of the results that he manages to achieve in customer relations and especially in sales.

From the interviewees’ perspective, such sales decisions (accepting, refusing and including helping to formulating client order requests) represent a relatively typical field of application for
heuristic rules. In fact, the decision in such cases (1) must be made quickly (within a few hours), given that delivery times are also very short; (2) is based on limited information; and (3) can be reached efficaciously by applying rules previously learned and legitimized in the organization or (less often) new rules defined case-by-case. Thus, interviewees FP1 and FP2 explained the use and application of “rules” for his heuristic decision-making.

By way of example, interviewee FP2 described a recent decision on whether or not to accept an order requested by an important international client (a large fast fashion global player) for 60,000 kg of yarn in three colors at an average price of €40.00 per kg, for an overall order value of around €2.4 million, an especially large order for a firm with annual sales of about €30 million. The time frame for responding to this order request was particularly brief, given that delivery would have to be made within two days. The time available for coming to a decision was therefore extremely short, and although the firm has an IT system able to furnish nearly real-time data on inventory and costs, such information is inevitably only partial.

The rule for accepting the order in this case was based on two parameters: what discount could be offered so as to give the buyer the lowest possible price; and how quickly could the company respond to the order request, given that any delay longer than a few hours could prompt the international client to find alternative supply solutions. Interviewee FP2 claims they adopted the following heuristics in decision-making as part of a search for relevant information and the “stop decision”, as the point reached in order to make a decision that was formulated using the Gigerenzer’s approach to a heuristic definition (Gigerenzer and Brighton, 2009, p. 113).

4.1 “Search rules”

(1) Collecting data on the virtual cost to produce an article similar to that requested by the client, to define an acceptable price;

(2) Gathering information directly from the warehouse manager regarding the raw materials already in stock or readily available through its supplier network; and

(3) Gathering information from the firm’s production manager on the production capacity that could be mustered within the required delivery times, both within the firm and through the suppliers;

4.2 “Stop rule”

(1) Availability of data on all three points above;

(2) Availability of data about exposure to the customer; and

(3) Availability of the response times required by the client;

4.3 “Decision rule”

(1) To calculate the maximum applicable discount that, based on the data collected, enables the firm to achieve its target margin for top clients.

The interviewees (FP1 and FP2) indicated that the cited example corresponded to a standard approach, a default procedure, adopted and legitimized in their organization, taking into account the size of the order and short time period to make the decision. Considering what we observed and the temporal extension during which our interviews and therefore our visits to the company were carried out (on several occasions from 2012 to 2017), we can say that this is an approach confirmed over time by our interviewees in the organization.
5. Approach two – an open model in learning and using heuristics

In the second model, the definition of heuristic rules is one of adaptation and learning in the decision-making process, which is characterized as the “open” approach. The second case study, the beta case, illustrates a competitor business organization in the same industry and cluster (the textile manufacturers cluster of Prato, near Florence, Italy), strongly involved in IB markets. Beta is a producer of the finest, high quality yarns designed for large, globally recognized international luxury fashion brands. Approximately 80% of its turnover is exported. The top management team of the firm comprises (1) the entrepreneur who closely follows purchasing decisions, regarded as a delicate area that requires a great deal of experience; (2) the first daughter of the entrepreneur engaged in product engineering; (3) the second daughter involved in the foreign sales division; (4) the general manager, who has been with the firm for a long time; and (5) the administrative manager.

The interviewees included the general manager (in code, LO1) the entrepreneur (LO2) and the second daughter (LO3) (see Table 2). In the long, open-ended interviews they described the characteristics of the organization, emphasizing the presence of significant resources in relation to its size, including both financial resources (e.g. they can work without bank credit) and significant international experience.

There is a high degree of interchange among members of the top management team. For example, although one of the interviewees (LO3) is responsible mainly for trade matters, particularly with foreign partners, she has also found herself involved in marketing and in other areas, such as deciding to explore new suppliers; and managing purchases, including related logistical issues. The interviewees share decision-making fields about IM activities that include

1. Decisions on international client order requests (products, prices, delivery and payment times);
2. Decisions on promotional events (e.g. international fairs) and trade contacts (sample distribution, visiting clients abroad); and
3. Other product-related decisions for the various international markets.

The interchangeability amongst the decision-making roles of the team produces opportunities for continuous learning. One of the interviewees (LO3) acts as team leader particularly in defining price quotes to propose to clients. She views such decisions as particularly complex, requiring an extremely high level of managerial oversight: price inevitably evolves over time; accessory costs for special requests have to be considered; and implications of increasing parceling of the lots requested by clients. Interviewee LO3 is the team leader in pricing decisions but works on such assignments together with another member of the decision-making team, the general manager. The decision-making field for the analysis of case two: beta, addressed the first decision-making field.

One of the interviewees (LO3) provided an example of the decision-making process she follows. For example, typically, a major international client sees and likes the company product listed at a price of €25 per kilo and asks for the maximum discount the firm could manage on such a price for the purchase of 1,000 kg. The firm has to respond within a few hours. Otherwise, the international buyer (customer) will go elsewhere. They know the customer well and have done business with them for many years. What factors come into play? The interviewee underlined various critical factors. In the first place, “knowing the client counts, our experience and history with them” (LQ2). Second, “the client’s decision-making process counts, because our customers are sometimes organizations thirty or forty times larger than ours, and often we are not in touch with the final decision-maker” (LQ3). The adopted decision-making processes are however not viewed as predefined recipes, as “...
very often the decisions are shared by the top management team and assessed on a case-by-
case basis . . . the process is hard to translate into formulas, at least in our experience . . . ”
(LQ3). Information gathering is essentially limited in this type of scenario, since all the
knowledge to be acquired could simply emerge from comparisons with earlier experiences
and the information available to another member of the decision-making team.

For instance, “in order to evaluate whether I can offer a 10% discount, all I have to do is
consider the information that I already know and then have a moment’s discussion with the
general manager [LO1], who has his own view of things, and we come to a decision that seems
acceptable to both of us” (LQ3). In this case, there are more levels to consider, there is not a
procedure by default, and thus, the decision-making process becomes even more complex.

6. Additional findings and discussion
The two approaches identified and described through case analysis, the “open” and “closed”
approaches, emerge from the research as a key finding. Further findings are considered and
integrated relative to the discussion of the implications of these two emergent approaches
with respect to three themes: (1) the “role” of context in the two approaches; (2) the “scope” of
the heuristic rules; and (3) the “specificity” and “convergence” of the heuristic rules in the two
approaches.

6.1 The role of context in relation to the two models of learning and using heuristics
This paper identifies different approaches to applying heuristic processes by international
marketers. As is evident behind the adoption of heuristics to cope with situations of
interaction with customers, different types of processes emerge from the two cases. Both the
alpha and beta cases are medium-sized business organizations, established exporters and
small multinationals. More precisely, they are two textile firms, operating in the same
industry and in the same cluster, and in this respect are competitors. Both are strongly
oriented to seek out and “capture” opportunities in international markets and have a history
of collaboration over many decades with global and international buyers involved in
manufacturing high quality fashion brands. Both adopt rule-based decision-making
processes, but their approaches seem significantly different, even for similar decision
fields (accepting a large order from a major and well-known international client).

In particular, the two approaches we developed recognize different fields of application
(scope) for the rules learned from a priori experience.

This problem of scope is linked to the relationship between rationality and rule-based
decision-making. Rationality requires less “specific” knowledge, since it relies on abstract rules.
In this approach, following the rules may instead involve understanding them in relation to the
specific context in which they are to be applied. The field of application for heuristics rules in IB
activities by the two firms can vary considerable and two distinct approaches emerged: model
one – a “closed heuristic approach” – and model two – an “open heuristic approach.”

In the first approach, a closed heuristics approach, decision-makers tend to define
structured rules for arriving at a solution and rely heavily on such a priori rules to consider
risk and uncertainties in solving decision-making problems. The rules are described in
relatively detailed terms and are presented as established good practice, which reduces the
managerial oversight that might otherwise be involved in such decisions. For the decision-
makers involved, applying such an approach represents a way to reduce the stress and “cope”
with the complexity and short time frame to reduce the perceived uncertainties of the
decision-making process.

Thus, in this first approach the heuristic rule is “closed”, in that no modifications are
deemed necessary; the path to a decision is laid out and the decision-maker’s role is to
“exploit” the tools represented by the good rules already in place and at their disposal and therefore applicable to all cases. The heuristic in this case is a “rule” formulated approach based on the acquired knowledge (experience) of the decision-maker and applied without being liable to make excessive changes or modifications in its current structure (matrix).

In the second case, which we define as the “open heuristic approach”, the marketer uses rules to define analogies, without a structured solution to the problem or a predefined path for reaching a solution. The path followed to arrive at a decision is not available a priori, but must be formulated “on the fly”.

In contrast to the “closed” approach, such an “open approach” requires a very high level of managerial oversight (uncertainty) and is thus a source of both stress and learning for decision-makers, considering the complexities of the risk, short time period and problem at hand. They must not only address the problem, but also define the rules by which to tackle it. This approach is “open”, because the rules must be formulated each time a decision is to be made and it is moreover structured on a case-by-case basis. A contextualization of these two approaches with the elements emerging from the two case studies is presented in a new multi-level model that contextualizes closed vs open heuristics for individual decision-making within organizational structures involved in IB activities (see Figure 1).

6.2 Scope of heuristics in the two emerging approaches and heuristics portfolio
The “closed approach” is based on a learning process that has already taken place regarding the heuristic rule to be applied. For this reason, in this case the heuristic rule has its own “scope”, in the sense that the case in question is identifiable and it is possible for the decision-maker to recognize and distinguish a case in which to apply it from one in which it should not be applied. This approach has a scope that can be quite broad, in the sense that all the perceived cases of that type are managed through the same specific heuristic rule.

The “open approach” requires an adaptive learning process that must be completed “on the fly” as the decision problem unfolds. Thus, this approach is dynamic, while the former is more static and deterministic. In this case, the rules to be used can be identified at the moment
in which elements are produced that in each case can trigger the need to make a decision. The rule that applies is related to the particular case that is being considered at the time.

The learning in the described IB experiences is ongoing because its field of application is restricted. The rule-definition-process is completed only after the decision-making-process begins. This approach has a scope that can be regarded as narrow, in the sense that all the perceived cases are managed through a wide range of heuristic rules. Therefore, the single heuristics alone is not relevant, but the set of heuristics that can be activated by the decision-maker, who thus has a portfolio of heuristics.

Unlike these aforementioned examples of “corporate” heuristics, the heuristic rules proposed in the psychology literature have much more general characteristics. For example, the heuristic judgments identified by Kahneman and Tversky and the other authors of the “heuristic and biases” approach are few in number and progressively identified by the authors during the research program and are general in nature. This is largely due to the fact that they can be applied to a range of different environments and contexts and are diffused among many individuals (Tversky and Kahneman, 1974). More numerous but connected to a limited number of conceptual “building blocks” are the rules identified by the authors of the “fast and frugal heuristics” approach (Gigerenzer, 2008). In this context, therefore, the portfolio of heuristics can be analyzed as a model whose effectiveness is to be tested.

The heuristic rules identified in our two case studies are similar to those proposed by the previously mentioned in IB and managerial literature. In particular, Bingham and Eisenhardt (2011) show how business decision-makers might utilize a “heuristics portfolio” that has very specific characteristics, subject to evolution when the decision-maker increases his/her experience and anchored to the context according to the logic of the opportunity. In relation to the study of Bingham and Eisenhardt, the type of problem (internationalization processes), the industry/sector and other related aspects (i.e. country of origin, economic situation, etc.) are different and this makes comparisons quite problematic. For each of the six companies involved in Bingham and Eisenhardt’s (2011) case studies, they recognized 11 to 16 distinct heuristic rules learned and applied during entry into foreign countries. Again in terms of comparison with what is shown in the literature, the heuristics identified by Bingham and Eisenhardt (2011) are based on a research design that presents different traits that (1) emerge from the study of a number of business cases not particularly large (six) from specific countries and specific sectors; (2) examines the heuristics formed by “entrepreneurial” companies, that were “born” recently and in the growth phase; and (3) considers these companies within a specific type of corporate process, those of internationalization, which provide for the entry process into a successive series of foreign markets. The heuristics in the “portfolio” of each company are numerous and linked to specific characteristics in the context in which they operate.

In our research the focus is more on “how” learning and heuristics emerge in IB, rather than on the specific rules adopted. The two cases suggest different approaches to learning and heuristics in relation to risk, uncertainty and opportunity seeking. The rules are different and vary considerably from company to company, resulting in quite idiosyncratic outcomes for each company in our two cases.

6.3 Specificity and convergence in closed and open approaches

In summary, in our study, the two cases come from the same context (industry, cluster, organizational size, etc.), but adopt different learning and heuristics processes. In contrast, the study of Bingham and Eisenhardt (2011) examines a set of cases from different contexts (industries, countries, etc.) that adopt learning and heuristics processes converging on a set of rules.
The companies observed in our two cases are already established, mature companies and exporters with long experience engaging in foreign markets, therefore, different from the entrepreneurial ventures described in research such as those of Bingham and Eisenhardt. The role of heuristic processes remains important but they take on different characteristics in terms of activated learning processes.

Our cases provide evidence that the main point and the distinguishing characteristic of “expert heuristics” (Baron and Ensley, 2006) adopted by a decision-maker is not the use of a greater number of heuristics, but of “better” heuristics for the specific context. In light of this relationship between heuristics and context, essential properties of entrepreneurial decision-making heuristics that explore the opportunity seeking process that we propose to examine include

1. the “specificity”, with which we refer to the context and the problematic aspects with respect to which of the heuristic rule should be applied; and

2. “convergence”, understood as the degree of diffusion of decision-making among individuals of a given heuristic rule, at least in the context of firm actors. Specificity and convergence are dimensions with respect to which heuristic rules can be defined as relevant to the parameters (Guercini, 2012) as a means for decision-makers to consider risks to the organization, and given their experience, how they perceive uncertainties in the context for considering the proposed IB activity.

An advantage of this intended analysis of specificity and convergence dimensions is that it provides for multi-level decision-making, by the individual and within the organization, which is a rarity. The heuristics are rules adopted at an individual level which, however, have organizational effects, determining a company response to the conditions of risk or uncertainty (Liesch et al., 2011). This is a distinction that is not adequately addressed or proposed in management literature, where there is talk of “universality” or “generality” of the heuristic rule, or of its dissemination through communication within the organization (Guercini et al., 2015). The character of “universality” associated with the heuristic adopted by all individuals (which we call “convergence”), however, is distinguishable from the “universality” associated with the fact that a heuristic rule is applicable to different contexts and/or for a specific problems (which we call “specificity”).

In other words, looking at the two cases in our study, analyzed in the challenging context of IB, heuristic decisions can be defined as specific when they are related to the context in which they are generated, considered and confined. This degree of specificity is therefore high when a “rule” of judgment, for example, refers to a specific and circumscribed theme and is not applied in other broader areas.

The degree of convergence instead is concerned with the diffusion of the adoption of a certain heuristic rule within a population, of a community. The rule is shared as part of the context, being able potentially to correspond to different meanings for each individual. Convergence is high for “rules” that find a very broad, if not general, adoption. Other heuristic “rules” are instead developed by individuals in the formation of their personal judgments and perceptions of uncertainty and seem to characterize them as such without these perceptions necessarily being developed into perceptions held by other individuals.

This suggests that the heuristic rule assumes the characteristics of a source of relative advantage. The opposite scenario is ineffective and likely to have negative effects on the considered activity. Specificity and convergence become the properties of the heuristics adopted by company decision-makers and are strongly linked to the interaction style and context of the top management team in their interpersonal relationships.

Figure 2 presents the relationship between the literature gap highlighted in the first part of the paper, the research question, the subsequent data analysis and the main results, understood as emerging approaches and findings.
7. Conclusions
Research on heuristics has benefited from many advances from applied psychology and cognitive science research and there is growing attention in the strategy and organization literature on the topic of heuristics. Although there is an increasing consideration of the conditions of volatility and uncertainty in the context of IB (Bennett and Lemoine, 2014; Petricevic and Teece, 2019), the IB and IM literature have dealt with learning and using heuristics as decision tools in uncertain situation only more recently (Guercini and Milanesi, 2020), highlighting a research gap. This article helps to address this gap by examining the relationship between learning and using heuristics in IB.

More precisely, this paper makes a contribution to the understanding on “how” and “why” IB marketers use different approaches to learning and using heuristics in their decision-making with international clients. Newly established entrepreneurial enterprises necessarily have ongoing learning processes, so that consolidated and “closed” heuristics hardly emerge. Our choice to focus on mature companies that are established exporters with years of experience therefore allows us to bring out and highlight an otherwise relatively elusive aspect of the processes of using heuristics.

Managing decisions about international activities sometimes needs to be done under significant time pressure to take advantage of and to capture entrepreneurial opportunities that have limited time frames in which to act because of the competition that the studied firms face. This presents international marketers with the difficulty of having to make decisions quickly, as perceived uncertainties and risk are considered under conditions of considerable time pressure.

The proportional cost and loss to the company of the decisions impacts particularly small and medium-sized organizations because marketers have fewer resources, including financial and human and fewer opportunities for utilizing economies of scale. The organization must offset the cost of a poor decision or loss caused by failing to arrive at a decision within the specified time frame. This suggests that international marketers, even if established exporters, are in a particularly vulnerable position.

Being able to engage with major and preferred customers, as well as taking on new international customers, is important for any marketer. However, it is significantly more important for medium-sized organizations as there are different risk exposures with re-engagement with major customers, constant customers (known over long periods of time) and new customers (with little to no history or experience with the firm).

In this context we have used two in-depth illustrative case studies of longitudinal cases, alpha and beta. Both are medium-sized, established exporting companies that are multinationals and offer evidence of the different ways marketing managers use heuristic

Figure 2
rules in their interactions with customers who are large global international fashion buyers. Both businesses are highly experienced in international operations, as producers of textiles and cloth supplied to large, globally recognized foreign market customers in the highly competitive international fashion sector. There are many experiences and learnings that these firms have accumulated over a prolonged period of international activity. We highlight where risk and uncertainty (managerial oversight) are encountered by decision-makers when approached by a key international buyer, important to the firm’s future profitability and sustainability of their business. The firms are being asked to arrive quickly at a major decision that will require considerable managerial oversight and will have significant implications, short term and long term with their customer base—large global international fashion buyers.

Relationships with key international buyers are an interesting field in which to explore the use of heuristics rules because (1) of the nature of the relationship; and (2) the impact of outcomes of the decision made on both parties. Making decisions quickly includes evaluations of cost and loss as well as opportunities and can put international marketers in vulnerable positions with their customers, especially when they represent a significant relationship to the firm, financially.

Heuristics are an appropriate and realistic approach by international marketers for decision-making in these types of situations, such as medium-sized organization facing large orders, as events can trigger different types of heuristics approaches in response to perceived risks and uncertainties.

The two types of decision-making we explored, the closed (broad) and open (narrow) scope of heuristics approach, are both rational and have the advantage of providing a quick response by international marketers to complex problems. They reflect differing approaches to learning and application in the field (scope) of rules used in individual decision-making. The former relies on a broad scope with the same (static) rules applied subsequently in other cases; learning is completed. The latter utilizes a narrow scope with rules emerging in completing the learning through new problems with limited application to a few specific cases; thus, learning is ongoing and is a dynamic process.

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