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COMPARING THE VRIO-FRAMEWORK TO THE RECOGNITION HEURISTIC

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Can Ignorance Beat the Resource-based View? Comparing the VRIO-Framework to the Recognition Heuristic

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ABSTRACT

Decision-making heuristics are widely used in different economic and non-economic contexts to yield a good solution with an acceptable problem-solving effort. This paper presents the main features of an experimental research project to analyze the effectiveness and efficiency of selected heuristic techniques, which can be used to facilitate and improve the strategic decision-making process. The resource-based view and modern, psychologically inspired decision-making theory provides the theoretical basis for the study.

INTRODUCTION

Making high-quality strategic decisions is a critical factor in ascertaining the long term success of the firm. High-quality strategic decisions pose a major problem to managers since the future is hard to predict, and, typically, there are a lot of complex and often contradictory factors influencing the decision-making process. The challenge is augmented by the fact that decision-makers are only boundedly rational (Simon 1955). Even if they want to act rational, their limited capacities to receive and process information restrict decision-makers in making optimal inferences. In everyday life, human decision-making is usually not based on the rules of logic, the theory of probability, or the theory of utility maximization (Gigerenzer et al. 1999).

Both in economic and in non-economic contexts, heuristics are used to reach accurate conclusions when uncertain, complex, and imperfectly structured decisions have to be made. Heuristics can be understood, for example, as "rules of thumb" or "cognitive methods" that are used to manage the decision-making process appropriately, and to make reasonable inferences despite limited knowledge.[1] Heuristics can be seen as a special form of *satisficing* (Simon 1982): they are problem solving methods that often lead to acceptable and satisfying (rather than optimal) results.

The Strategic Management literature traditionally advocates, and practitioners use a multitude of tools, frameworks, and other decision-making heuristics. However, the extent to which these different heuristics can be effective and efficient when applying them in the strategic decision-making process is a neglected but unresolved issue. This research project analyzes the usefulness of selected heuristics empirically, by focusing on their power to forecast the firm's performance. It will be examined, whether complex problem solving techniques lead to systematically better results than simple heuristics, or vice versa.

[1] The term "heuristic" is defined very differently in the literature. The meaning varies, for example, dependent on the underlying theoretical perspective, the context, or the intended function (e.g. Gigerenzer/ Gaissmaier 2005; Krabuanrat/ Phelps 1998; Streim 1975).

THE CONTENDERS

We will undertake a competition between a popular tool advocated in the Strategic Management literature and a well known simple decision-heuristic. The contenders are: the resource-based view – respectively the *VRIO-Framework* – and the *Recognition Heuristic*.

The resource-based view (RBV) is currently the dominating theoretical concept in the field of Strategic Management. According to its underlying logic, the success of a firm and performance differences between firms of an industry can be explained by the existence of firm-specific, strategically valuable resources (Barney 1991). In order for firms to use their resources as a source of sustainable competitive advantage, it is necessary that resources are heterogeneously distributed and immobile between firms.

The VRIO-Framework[2] represents the practical application of the RBV (Barney 2002; Barney/ Hesterly 2006). As a heuristic, it transforms the RBV into a series of four questions about the resources or capabilities of the firm. Specifically, a firm's resources should be analyzed with regard to their value, their rarity, their imitability, and their exploitation by the organization. Based on the results of such analyses, a decision-maker should be able to determine whether a particular resource represents a strength, and therefore a source of competitive advantage, or a weakness. Such resource-based assessments lead to predictions as to the competitive position attainable by the firm and its economic performance. The elements of the VRIO-Framework are shown in Table 1.

[2] The acronym VRIO stands for the terms value, rarity, imitablility, and organization (Barney/ Hesterly 2006, p. 79).

Is a resource or capability…					
Valuable?	Rare?	Costly to imitate?	Exploited by organization?	Competitive implications	Economic performance
No			No	Competitive disadvantage	Below normal
Yes	No		⇕	Competitive parity	Normal
Yes	Yes	No		Temporary competitive advantage	Above normal
Yes	Yes	Yes	Yes	Sustained competitive advantage	Above Normal

Table 1: VRIO-Framework (Barney 2002, S. 173)

The Recognition Heuristic (RH) is a centrepiece of research in modern, psychologically inspired decision-making theory (Goldstein/ Gigerenzer 1999, 2002). The task to which the heuristic is suited, is selecting a subset of objects that is valued highest on some criterion. Regarding a choice between two alternatives – the original form of the recognition heuristic – the following can be stated: "If one of two objects is recognized and the other is not, then infer that the recognized object has the higher value with respect to the criterion" (Goldstein/ Gigerenzer 1999, p. 41). The RH can be generalized for choosing a subset of objects from a larger set by suggesting: "When choosing a subset of objects from a larger set, choose the subset of recognized objects" (Borges et al. 1999, p. 61).

But the RH will not always be applicable. Several premises have to be fulfilled: First, people have to possess the cognitive ability to recognize what they have encountered before, even if they cannot recall specifically when and how they encountered an object previously. Mere recognition, for example, of a face or a name, is a minimal state of knowledge that is considered integral to the memory capacity of humans, unless this capacity is damaged. Damage can

result from old age or certain kinds of brain damage (Craik/ McDowd 1987; Schacter/ Tulving 1994; Goldstein/ Gigerenzer 1999).

Second, the RH requires a certain degree of ignorance. It will only work, if some objects – not all – are recognized. For example, a group of people who recognizes the names of all corporations cannot use the RH to choose among those corporations with respect to a specific criterion, e.g., the level of performance or competitive advantage. Conversely, entirely ignorant people who have not heard of any corporations also cannot use the RH (Borges et al. 1999; Goldstein/ Gigerenzer 1999). So, a certain limitation of knowledge is actually necessary for the heuristic's application. This limitation is referred to as the "less-is-more-effect" in the literature: people with less knowledge can display a higher inferential accuracy than those who know more (Goldstein/ Gigerenzer 1999).

The effectiveness of the RH depends on its ecological rationality, i.e., "its ability to exploit the structure of the information in natural environments" (Goldstein/ Gigerenzer 2002, S. 76). In other words, the RH is likely to be an effective tool for accurate predictions if recognition (or the lack thereof) in an environment is systematic and not random. This systematic distribution of unrecognized and recognized objects is typical of many natural environments, and it suggests that the RH will be successful, if there is a strong correlation between recognition and what one wishes to infer (the criterion). An example of how the RH can exploit the structure, i.e., the different levels of information contained in natural environments is given in the next section with regard to predictions of the size of two major U.S. cities.

Figure 1 summarizes the main features of the RH:

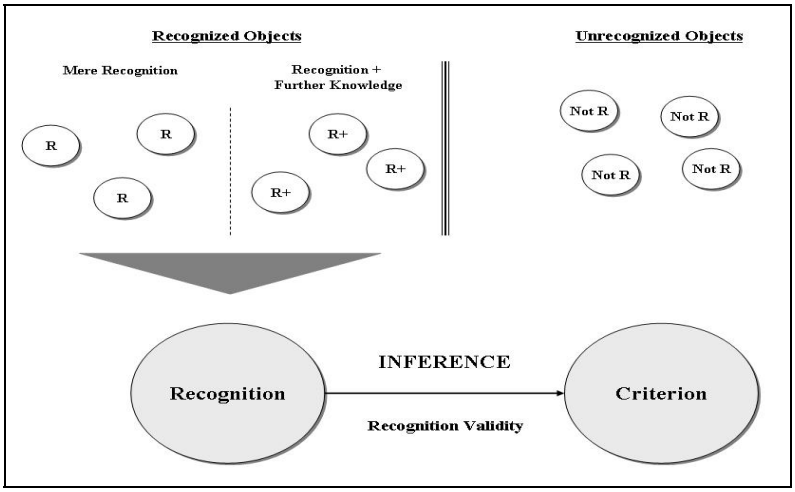

Figure 1: The Recognition Heuristic (adapted from Goldstein/ Gigerenzer 1999, p. 39, 42)[3]

THE COMPETITION

The effectiveness and efficiency of heuristics can be evaluated on the basis of different criteria: e.g., the quality of the developed solution, the fundamental probability of finding a solution, the resource and time requirements, or the practical usefulness (Czerlinski et al. 1999; Goldstein/ Gigerenzer 1999; Newell 1969). In our study, we will make a systematic comparison to look at the question whether the use of the VRIO-Framework or of the RH will lead to better results concerning the prediction of firm performance. Performance forecasts with regard to the pursuit of alternative strategy options are especially relevant within the strategy formulation process, and thus have a direct influence on the selection of future firm strategies.

A broad variety of empirical studies that tested the RBV have reported positive associations between strategically valuable resources in the RBV sense and firm performance (Barney/ Arikan 2001). The VRIO-Framework offers decision-makers a comprehensible and structured list of criteria to identify the value (and other RBV desiderata) of a firm's resources, and the resulting sustainability of a competitive advantage with a direct link to firm performance.

[3] The recognition validity is defined as the proportion of times a recognized object has a higher criterion value than an unrecognized object in a particular reference class. Thus it is the strength of the relationship between recognition and the criterion (Goldstein/ Gigerenzer 1999, 2002).

Nevertheless, its practical application is dependent on numerous information requirements and, furthermore, on extensive information processing. Especially, the identification and evaluation of intangible resources and capabilities presents a major challenge. Thus, the VRIO-Framework can be regarded as one of the more elaborate heuristic tools, particularly with regard to the methodology applied and the required data. Currently its virtues are taught in business schools on the basis of case studies (Barney/ Hesterly 2006). The framework is also widely used in consulting practice. However, empirical results regarding its effectiveness in developing performance enhancing strategies do not yet exist.

Compared to the VRIO-Framework, the RH is a very simple heuristic because it does not require any information other than recognition. Gigerenzer et al. (1999), who examined the RH in detail within their "simple heuristics-program", characterise the RH as "fast and frugal". The simplicity of the heuristic might lead to the assumption that its use causes inaccurate results as compared to more scientific, complex decision-making tools. However, several empirical tests have shown that the recognition heuristic allows for intelligent inferences despite missing or limited knowledge (partial ignorance). For example, in an experiment Goldstein/ Gigerenzer (1999) asked students from Germany and from the United States: Which U.S. city has more inhabitants, San Diego or San Antonio? 62 % of the American students chose the correct answer (San Diego). However, 100 % of the German students chose correctly. Since many of the German students did not recognize San Antonio but all had heard of San Diego, they were able to apply the RH and make a correct inference. The American students, recognized both of their native cities, but were not ignorant enough to be able to apply the recognition heuristic effectively.[4]

Based on an experimental research design, we perform the following tests: An expert team (trained MBA-students) will analyze a group of firms with the aid of the VRIO-Framework using publicly available information on the firms' resources and capabilities to predict the future performance of each company. At the same time, a team of laymen (randomly selected students) will infer for the same group of firms the future firm performance based on recognition rates. A comparison of the predicted and the actual performance developments of the

[4] In this example, the RH is said to be ecologically rational because there are systematic differences between German and U.S. students regarding the level of knowledge about U.S. cities that are exploited by the heuristic.

considered firms will enable us to evaluate the relative forecasting power of both used heuristic techniques.[5]

CONCLUSION

In real-life decision-making situations, heuristics can help to achieve good results with limited efforts. However, they cannot guarantee optimal solutions and results. The use of heuristics always contains a trade-off, particularly between the efficiency of the tool (based on its underlying selectivity) and the disregard of potential solutions (Streim 1975). Since heuristics can also lead to (systematic) errors (Dawes 1998), it is important to further investigate their quality, for example, regarding associations between the results obtained by a heuristic, the efforts expanded to reach these results, and the needed degree of accuracy of the results.

A systematic comparison of the forecasting accuracy of the resource-based view, i.e., the VRIO-Framework, and alternative decision-making tools does not exist as of yet. In the presented project, the cognitive Recognition Heuristic, which is centrally examined in the "simple-heuristics-research-program" at the Max Planck Institute of Berlin, is used as a standard for comparison. This study is the first attempt to transfer this novel, socio-psychological research program to the field of Strategic Management. On the one hand, the results should open new areas of inquiry towards understanding strategic decision-making. On the other hand, we expect practical implications concerning the relative advantages of complex versus simple decision-making heuristics in Strategic Management.

[5] Preparations for conducting the experiments are in progress. We expect first results by the end of April 2008.

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