

Cognitive Structure, Managers' Shared Social Understanding: From Psychological and Sociological Concepts to Managerial Strategic Choices

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Abstract: In this paper, the cognitions of industry participants are explored, by analyzing the shared social understanding of the industry ('mental models', 'industry recipes') as a factor limiting the pursuit of innovative strategies. It is hypothesized that the managers' interpretation of Porter's five industry forces, within a given industry, represent the 'cognitive' proxy for performance, since shared cognitions represent the (self) imposed performance limitations. The empirical research has been conducted in the Croatian food & beverage industry, where CEOs of mid-sized and large enterprises have been surveyed. Initial support for this hypothesis is provided, since the perceived industry impact (measured by the INDUSTRUCT construct) has been empirically linked to the managers' strategic behavior pattern. In addition, the discriminant analysis demonstrated that it is possible to forecast the specific strategic behavior archetype by analyzing the cognition of the industry's structure. Implications for both theory and managerial practice are discussed.

Keywords: cognition, industry, structure, Croatia

JEL Classification: L22

Industry Structure: Objective vs. Subjective Reality

The traditional view of strategy, concentrated on the issue of strategic positioning confronts the two fundamental variables: (1) characteristics of the external environment and (2) characteristics of an organization, relevant for obtaining the sustained

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competitive advantage. This understanding of strategy is derived from industrial organization literature by M. E. Porter (1980), who successfully applied it to business strategy. As to understand why different levels of profitability are attained, i.e. why sustainable differences in performance appear, Porter suggested the *five forces concept*, which describes the *industry structure* as a general driver of industry members' strategic behavior and strategic outcomes (profits). The *Structure (S)* of the industry, characterized by five forces, stipulates the *strategic Conduct (C)* of the industry participants and their managers. In case of adequate behavioral response to the industry structure, an organization is supposed to be rewarded by a high level of *Performance (P)*. This model, usually referred to as the *Structure-Conduct-Performance (SCP) paradigm of strategy*, implies that the strategic management should achieve a fit with the environment, i. e. position an organization toward the competitive forces in the most consistent manner.

This study addresses the following *research questions*:

- *Is the industry structure a fixed, objective phenomenon (as suggested by the classical strategic management research)?*
- *Is there an alternative explanation of the industry structure, based on managerial cognition, which could be empirically verified?*

We follow the previous research, proposing that the *industry structure is a mental construction, created by shared meanings and social interactions* among the major actors in the industry. This venue of analysis has been already applied to by Porac et al. (1989, 1995) in their influential studies of the Scottish knitwear industry. They have shown that managerial interpretations of events result in the emergence of the notion of an 'industry' and competitive behavior within this structure (Huff, 1982). If these interpretations are shared, a common understanding of competitive success factors arises, usually referred to as an *industry recipe*, or a strategic frame (Spender, 1989). This has been established for a long time in the field of social psychology, where the comparable notion of a *working model* is commonly used to describe both the psychological determinants and social experiences, which influence the strength and the form of individual attachment to other actors in their environment (Collins & Allard, 2003). The unexplored linkages between the psychology (and, more specifically, cognitive science) and strategic management have been identified by Stubbart (1989), who called for a more active research of managerial cognition.

In his review, Hodgkinson (1997) refers to the process of mutual cognitive interactions between managerial mental models as *competitive enactment*. In this process, the difference among different mental models is being lowered, until a common framework is reached and individual actors 'agree' on the 'rules of the game' in their industry. In the same paper, the need for *empirical research of linkages between the mental models, strategic behavior and performance has been emphasized*, although, until today, this avenue of inquiry has not been adequately addressed.

Therefore, the *objective of this study* is to provide an empirical assessment of the conceptual line of research, describing the industry structure as a mental model of the participating actors. The *significance of the chosen scientific problem* is confirmed by a range of recent contributions, affirming the field as still being able to offer interesting questions to the multidisciplinary research (Porac et al., 2011), as well as demonstrating that fundamental constructs used, such as the *industry recipe* concept, are valid and promising for further research (Kaplan, 2011).

Concerning the *theoretical foundations of this study*, we follow the idea, originally introduced by Porac et al. (1989) and Hodgkinson (1997), that the *industry participants' cognitions* are involved in the process of constructing a shared understanding of the boundaries and structure of an industry. These conceptual propositions have been, over the years, applied to a range of problems in the strategic management research. Reger & Huff (1993) have studied how managerial cognitions influence the creation of strategic groups, which have been found to be self-renewed by the cognitive process (Kaplan, 2011). Johnson & Hoopes (2003) have analyzed the relationship between the managerial cognition and evolution of industries, while Tikkanen et al. (2005) interpreted the idea of a business model in terms of managerial cognition, etc.

However, until now, *there has not been an attempt to use the influential Porter's view of five forces (as determinants of industry structure) in the cognitive school of the strategic management*, which is the *fundamental purpose for this study*. Such an approach has been inspired by Nadkarni and Barr (2008), who call for integration between the 'economic' (i.e. traditional, positioning-based school) and the 'cognitive' view of strategic action. In order to do so, we use the Porter's (1980) notion of an industry as an objective competitive environment in terms of a *cognitive space, created by the mutual construction* of the relationship between the own organization and competitors.

Such a view of the industry construct can be supported by a range of theoretical approaches, including the view of contemporary management as progressing toward the loose, complex networks of organizational stakeholders, with differing cognitions (Duh & Štrukelj, 2011). Similar reasoning can be applied to inter-organizational systems, including industries, which has been demonstrated for the case of developing the 'entrepreneurial habitus' in some Croatian industries, such as wine-making in the region of Kutjevo (Čengić, 2007). Cognitive basis for development of the organizational/industry constructs is conclusively influenced by the wider social environment, i.e. social values, norms and other characteristics of the culture, which may represent a good venue for future research.

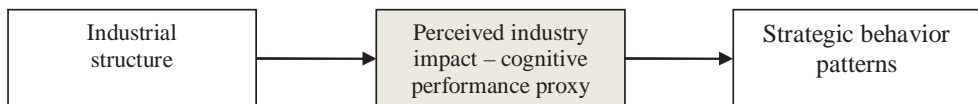
Theoretical Model and Hypothesis

In this study, we analyze the *strategic manager's overall perceptions of the extent to which industry forces impact his/her organization*. This construct is referred to as

the *perceived industry impact* and measured as the sum of influences of Porter's five forces on a single organization, as perceived by its manager. This research construct is based on the initial research of Pecotich et al. (1999), who pioneered the use of psychological tools to measure the perceptions of strategic managers.

It can be argued that perceived industry impact actually determine the cognitive limits of managers' *perception of what kind of performance may be 'realistically' achieved* in the existing industry environment. It is believed that such a construct can serve as a '*cognitive proxy*' for *organizational performance*. Provided that the understanding of organizational environment is essential for anticipating the relevant future, the *relative competitive position* ('*cognitive performance proxy*'), obtained in such a manner, honors the differences in direction and intensity of individual competitive forces, as well as their combined influence to a single entity. These theoretical considerations lead to the formulation of the following model:

Figure 1. Research model



The traditional SCP (Structure-Conduct-Performance) approach focuses on industrial structure determining the strategic behavior, which is, then, being rewarded by adequate performance, in case of successful and consistent positioning. Nevertheless, it should be emphasized that Porter (1991) never insisted on the unidirectional nature of this relationship and allowed the interpretation of strategy in terms of the interaction with the environment. This position leads us to propose that *structure actually shapes the managers' cognitive representations, as to (self) impose the performance limits and the resulting strategic behavior patterns*. Our model-building approach has been based on the existing criticism of the SCP paradigm, both from the position of general strategy research (Thomas & Pollock, 1999), as well as from the viewpoint of strategic groups' cognitive analysis (Panagiotou, 2006). Based on an extensive literature review, we are not aware of the previous application of such a modified SCP paradigm at a level of individual industry.

This may suggest the cognitive limitations of the SCP approach, which are reflected by the previously presented research questions and formulated in the following hypothesis:

Strategic choices are influenced by managers' cognitive representation of industrial structure.

Methodology

The empirical research has been conducted in the food and beverage industry of a small European country. The choice of such an industry was based on the fact that it was one of the most concentrated in the analyzed economy, i.e. contained one of the largest amounts of mid-sized and large enterprises. This allowed us to identify a group of strategic managers, who were in charge of operations that could be assessed as being of 'considerable' size (of at least 250 employees – for the mid-sized enterprises, or 500 employees – for the large enterprises. At the time of data collection, the financial performance of these enterprises was almost equal to the overall national economic performance. All these characteristics of the population allowed for the development of the sense of belonging to a developed industry structure and a clear identification of competitors and their business models among the surveyed executives. Our methodological approach has followed several theoretical recommendations, related to the strengths of choosing a mid-sized and/or large enterprise population for the industrial analysis (Powell, 1996; Claver et al., 2003; Morgan et al., 2003).

A specialized survey questionnaire has been developed to capture the dynamics of managerial cognition and the resulting strategic actions in the industry (a detailed description of constructs, survey items and their measurement is provided in the following section of the study). As to test the validity of the survey, 24 executives from the chosen industry were personally approached and briefed on the research topic and provided with the exact information on how to fill in the questionnaire. Out of those, 17 preliminary responses have been received and used to verify the internal consistency of the research instrument and the relevance of the chosen measurement scales.

The logic of the 'classical' (positioning) school of strategy posits that an organization is supposed to create a dynamic process, consisting of patterns of *understanding and interpreting the environment*, as well as of *achieving a fit with such an environment through strategic action*. The *dynamic aspect* of the environment-organization fit is especially promoted by the dynamics of industrial changes, introduced by globalization, high technology and emergence of knowledge as a principal source of economic wealth. It has been argued that the traditional tools, such as the five forces approach, are of static character and are not applicable to the new economic realities (Sheehan, 2005). Nevertheless, the criticisms on the static character of the five forces model, inappropriate to the fast changing industries, have been continued since the 1990s (Stonehouse and Snowdon, 2007), although *the inherent logic of model presupposes that there should be a dynamic link between the cognition of the present situation in the industry and the search for an optimal future position*. This is the reason why we decided to perform a *dynamic assessment* of the relationship between the industry structure (described by the constructs related to the five forces cogni-

tion) and the choice of strategic action. This has been done by measuring managerial cognitions in *three succeeding periods*: i.e. in the *year preceding the data collection*, the *current year* (year of data collection) and the *expectations for the following year* (after the data collection).

The size of the population (i.e. mid-sized and large enterprises in the food and beverage industry) in the analyzed economy, at the time of data collection, equaled 106 organizations. At the final data collection round, top executives of all those enterprises were invited to take a part in the research project, by filling in the printed questionnaire, which has been mailed to them. The choice of respondents is based on the idea of *strategic choice* (Child, 1972), which presupposes that the powerful actors, i.e. individual strategic decision-makers should be surveyed, since their perception of industry and environmental adaptation determines the strategic formulation process. The length of the survey has been limited to eight weeks, as to achieve a high level of data homogeneity. During the survey, all non-respondents were contacted, both by phone, as well as by e-mail, and asked once again to fill in the questionnaires. The total number of collected questionnaires equals 41, i.e. the obtained response rate is 43.4%, which is comparable to similar empirical studies (Powell, 1996).

Theoretical Constructs and Their Measurement

In order to *map the managerial cognition* to the original Porter's (1980) framework of five industry forces, we used the already verified research model, called INDUSTRUCT (Pecotich et al., 1999). Grounding on the INDUSTRUCT scale, we developed a scale for measuring the perceived impact of environment on the organization. This measure captures the items relevant for description of industry effects to a single entity and quantifies them. The refinement of the existing INDUSTRUCT approach was based on a series of in-depth interviews with top managers of mid-sized and large enterprises in food and beverage industry. The INDUSTRUCT items have been tested, as well as several new, cooperation-related items, believed to be relevant for measurement of industry effects. This resulted in a high consistency of the observed managerial perception, which has been mapped to the original formulation of the five forces framework. In this process, 36 original INDUSTRUCT items were retained, while six were eliminated. Seven additional items, related to cooperation with buyers and suppliers, have also been included into the research instrument, following the suggestions of Karagiannopoulos et al (2005). In order to measure the direction and intensity of industry structure factors, the Likert's scale with seven levels of agreement has been used. The resulting score quantifies the construct of *perceived industry impact*, allowing for both positive and negative expectations regarding the impact of market structure (Dyer and Singh, 1998; Yong-Kim and Oh, 2004).

Heterogeneity of industry members is also cited as an issue in similar research, since it is difficult to expect the uniform effects of industrial structure (Dess et al., 1990). It is also significant to note that empirical studies often employ surveys, or in-depth interviews, based on summaries of industry effects to a potential new entrant. To address this problem, a single organization (an incumbent of a single industry) is used as a unit of analysis and *perceived industry impact* is calculated relatively, with reference to the perception of other industry actors (i.e. their managers' perceptions). Efficiency of such an approach has already been confirmed by Chen (1996). The model observed is dynamic, since past, present and future perceptions of industry role are analyzed.

As to determine the *strategic behavior*, four archetypes (defender, prospector, analyzer and reactor), developed by Miles and Snow (1978/2003), are used. The 'classical' methodological approach to identifying the strategic archetype adopted by management involved respondents' self-typing, based on general archetype descriptions. This methodology has been developed by Snow and Hrebiniak (1980) and used by a range of subsequent studies (McDaniel and Kolari, 1987; Shortell and Zajac, 1990; Slater and Olson, 2000; Cunningham, 2002; Morgan et al., 2003). In this study, we followed methodological suggestions by Conant et al. (1990) and employed a more complex survey, which classified organizational strategic choices, based on a set of 11 dimensions. This has been previously verified in multiple studies (Parnell and Wright, 1993; Dyer and Song, 1997; Parnell et al., 2000; Bednall and Valos, 2005), which proved it to be superior to self-typing, as well as to other approaches, including researchers' categorization and a combination of self-typing and measurement of multiple relevant dimensions (Conant et al., 1990; Woodside et al., 1999).

Strategic behavior has been also analyzed for the three subsequent periods, with the *dominant behavior pattern* being identified, as well. The behavioral changes in the two subsequent periods have been quite consistent (with at least two thirds of the companies retaining their dominant strategic behavior), which confirms the prerequisite of internal consistency in the implementation of behavioral patterns for the further analysis of the competitive position.

Findings

The potential relationship between the *perceived industry impact* (measured by the managers' perceptions of the industry effects on a single organization, and aggregated into a single variable, which reflects all three analyzed periods, i.e. previous year, current year and the expectations for the following year) and the *dominant strategic behavior* is analyzed by the Chi-square test. At the 0.01 significance level, such a relationship can be empirically confirmed (see Table 1).

Table 1. Cross-tabulation and the Chi-square test for the perceived industry impact – strategic behavior relationship

Perceived industry impact (cognitive performance proxy) Analyzer		Types of strategic behavior (count)				Total
		Defender	Prospector	Reactor		
Total influence of Porter's forces (classified in two groups)	Less than average	21	8	9	24	62
	Larger than average	12	31	13	5	61
Total		33	39	22	29	123

	Value	Df	Asympt. sig. (2-tailed)
Pearson Chi-Square	29.188*	3	0.000
Likelihood ratio	31.235	3	0.000
Linear-by-linear association	3.928	1	0.047
N of valid cases	123		

* 0 cells (0%) have expected count less than 5. The minimum expected count is 10.91.

By interpreting the role of environment differently, managers tend to pursue different strategic approaches. Different strategic choices are made, regardless of competing within the same industry. *As a result, strategic choices might not be determined only by the industry specificities and the enterprises' resource bases, but also influenced by managerial interpretation of the industry realities.* Our result confirms the previous findings by Porac et al. (1989), who identified the existence of competitive groups in the Scottish knitwear industry, i.e. established the link between the managerial cognition and mutual identification of competitors. This could be approximated as the verification of a cognitive foundation for a single Porter's force (i.e. intensity of competitive rivalry), which has been also discussed by a range of other, more recent studies (e.g. Porac et al., 1995; Porac et al., 2011). At the other hand, *our results show that the cognition of all five forces could be interpreted as a basis for different strategic actions.*

In order to test the strength of the model, a discriminant analysis has been performed. Several discriminant functions have been tested, with each *forecasting the group membership to a specific strategic behavior archetype by using the cognition of the industry's structural forces as a predictor.* The best predictive strength (of 48.8%) has been obtained by the first of the three tested functions (see Table 2). The overall Chi-square test was significant at the 1% level (Wilks' Lambda value = 0.578; Chi square value = 64,450; df = 15; p=0.000). Results of discriminant analysis demonstrate that our empirical findings are quite robust in predicting the strategic action pattern, based on the managerial cognitions of industry structure, i.e. that rather convincing empirical evidence supports the *Perceived industry impact (Perceived impact of the industry structure) → Strategic action* relationship.

Table 2. Discriminant analysis predicting belonging to a strategic behavior archetype based on the industry's structure cognition

<i>Eigenvalues</i>				
Function	Eigenvalue	% of variance	Cumulative %	Canonical correlation
1	0.480	74,323	74.3	0.570

<i>Classification results</i>							
		Types	<i>Predicted group membership</i>				<i>Total</i>
			Analyzer	Defender	Prospector	Reactor	
		Original	Count	Analyzer	11	7	7
Defender	9			21	8	1	39
Prospector	3			3	12	4	22
Reactor	7			2	4	16	29
%	Analyzer		33.3	21.2	21.2	24.2	100
	Defender		23.1	53.8	20.5	2.6	100
	Prospector		13.6	13.6	54.5	18.2	100
	Reactor		24.1	6.9	13.8	55.2	100

*48,8% of original grouped cases correctly classified.

Analysis of variance (ANOVA) was used to ensure that groups of managers, practicing different patterns of strategic action, also vary in the perception of Porter's forces.

There were significant differences among groups in perception of all Porter's forces, except for the bargaining power of suppliers. However, there was also a significant difference for the *overall perceived industry impact* (i.e. perceived impact of all five industry forces). The obtained empirical results (see Table 3) exhibit that the surveyed managers, using different strategies, have persistently different perceptions of the role of Porter's five forces in their industry, which demonstrates that consistency of our results.

Table 3. Differences in cognition of industry's effects between the groups of organizations with different strategic behavior

ANOVA		Sum of squares	df	Mean square	F	Sig. (2-tailed)	Sig. (1-tailed)
Strength of existing competition	Between groups	12.404	3	4.135	6.143	0.001	0.000
	Within groups	80.100	119	0.673			
	Total	92.504	122				
Suppliers	Between groups	2.938	3	0.979	3.047	0.031	0.016
	Within groups	38.248	119	0.321			
	Total	41.186	122				
New competitors	Between groups	14.800	3	4.933	12.364	0.000	0.000
	Within groups	47.482	119	0.399			
	Total	62.283	122				

ANOVA		Sum of squares	df	Mean square	F	Sig. (2-tailed)	Sig. (1-tailed)
Substitutes	Between groups	5.258	3	1.753	3.480	0.018	0.009
	Within groups	59.925	119	0.504			
	Total	65.183	122				
Customers	Between groups	17.733	3	5.911	10.126	0.000	0.000
	Within groups	69.464	119	0.584			
	Total	87.197	122				
Perceived industry impact (all forces)	Between groups	8.592	3	2.864	14.632	0.000	0.000
	Within groups	23.291	119	0.196			
	Total	31.883	122				

Conclusions

Obtained results verify our research model and provide solid empirical evidence for accepting the hypothesis on the existence of the relationship between the managers' perceptions of the industry's impact (based on a popular strategic management framework) and the dominant strategic behavior, chosen by executives included in the research. We believe that this finding deserves further empirical research, since there might be an opportunity to achieve superior performance by 'breaking out' from the dominant cognitive patterns. Our paper, thus, continues the tradition of a larger body of literature on the strategic identification of competitors and competitive behavior, based on industry actors' cognitions. It confirms Hodgkinson's (1997) proposition that the industries, in their developed stages, imply a high level of convergence among major actors, which, in turn, creates tangible effects in patterns of strategic actions. Instead of analyzing the mechanisms and actors' interactions, which lead to the tangible outcomes at the organizational level (Rindova and Fombrun, 1989), we chose to perform a quantitative analysis of the *Perceived industry impact (Perceived impact of the industry structure) → Strategic action* relationship. Our results provide solid empirical evidence, linking the cognition of industry structure to strategic actions, with the subjective performance being approximated by the cognitive expectations of surveyed managers. In this way, we indicated that the classical *Structure → Conduct → Performance* model could, indeed, be replaced by the model of *Structure cognition → Performance expectations → Conduct*. This study, thus, follows a recommendation by Huff (1997), to provide more empirical evidence on the issue of cognition. Although quite old, this call for wide-scale empirical studies does not seem to be outdated. Namely, only one theme in previous research (analysis of the organizational environment as endogenous to strategic action), identified by Kaplan (2011), responds to it, and none of the previous studies makes an attempt to perform the analysis of the entire industry structure and propose changes to the SCP paradigm. They, however, make formidable contributions to understanding spe-

cialized topics, such as company reputation and evolution (Rindova and Formbrun, 1989), creating a shared meaning of the pace of change in an industry (Nadkarni and Narayanan, 2007), or the direction of the technological trends (Kaplan and Murray, 2010), etc.

Since we have 'collapsed' two constructs (*Structure cognition* and *Performance expectations*) into a single one (*Perceived industry impact*), further empirical work should verify the newly proposed model by measuring all three constructs separately. Along with the previously described approach to empirical verification, another significant *limitation of this study* is related to data collection within a single industry, in one country. Along with the need to independently address all three theoretical constructs and perform empirical assessments of multiple industries, different frameworks of construct measurement could be used, as well.

We believe that *significant managerial implications* are arising from the obtained empirical results. Namely, strategic managers, unaware of the idea that the very difference in perceptions might enable high returns, resort to using generic tools, such as benchmarking. Those tools might promise understanding of what the competitors see as important for succeeding in the industry, which further leads to identification and wide acceptance of 'best practices'. Interestingly, industry conferences, symposia, 'guru' speeches, etc., instead of pushing the players in the industry forward, could influence them to converge on several strategic choices and compete by optimizing within the externally imposed limits.

It is the managers' diverse interpretations of the environmental realities what drives differential performance of firms and enables the advancement of the industry in the early and growth stages of its life cycle. Diverse perceptions do not imply the difference in objective data that can be collected, but primarily in the interpretation of the data. Therefore, managers should ensure they constantly question industry dogmas and, even, push themselves to perceive the 'reality' differently from others.

REFERENCES

- Bednall, D. H., Valos, M. J. (2005). Marketing research performance and strategy, *International Journal of Productivity and Performance Management*, 54 (5/6), 438-450. doi:10.1108/17410400510604575
- Chen, M. J. (1996). Competitor analysis and interfirm rivalry: Toward a theoretical integration. *Academy of Management Review*, 21, 100-134. doi:10.5465/AMR.1996.9602161567
- Child, J. (1972). Organizational structure, environment, and performance—the role of strategic choice. *Sociology*, 6 (1), 1.22. doi: 10.1177/003803857200600101
- Claver, E., Molina, J. F., Tari, J. J. (2003). Strategic groups and firm performance: The case of Spanish house-building firms. *Construction Management and Economics*, 21, 369-377. doi: 10.1080/0144619032000111250

- Collins, N. L., Allard, L. M. (2003). Cognitive Representations of Attachment: The Content and Function of Working Models. In: Fletcher, G. J. O.; Clark, M. S. (Eds.): *Blackwell Handbook of Social Psychology: Interpersonal Processes* (60-85). Oxford: Blackwell.
- Conant, J. S., Mokwa, M. P., Varadarajan, P. R. (1990). Strategic types, distinctive marketing competencies and organizational performance: a multiple measures-based study. *Strategic Management Journal*, 11, 365-383. doi:10.1002/smj.4250110504
- Cunningham, G. B. (2002). Examining the Relationship Among Miles and Snow's Strategic Types and Measures of Organizational Effectiveness in NCAA Division I Athletic Departments. *International Review for the Sociology of Sport*, 37 (2), 159-175. doi:10.1177/1012690202037002003
- Čengić, D. (2007). Habitus, tržište i proizvodnja tržišnoga sudionika: Slučaj kutjevačkih proizvođača vina. *Društvena istraživanja*, 16 (4-5), 725-749.
- Dess, G. G., Ireland, R. D., Hitt, M. A. (1990). Industry Effects and Strategic Management Research. *Journal of Management*, 16 (1), 7-27. doi:10.1177/014920639001600102
- Duh, M., Štrukelj, T. (2011). The Integration and Requisite Holism of Enterprises' Governance and Management as Preconditions for Coping with Global Environmental Changes. *Acta Polytechnica Hungarica: Journal of Applied Sciences*, 8(1), 41-60. Available at: http://www.uni-obuda.hu/journal/Duh_Strukelj_27.pdf
- Dyer, B., Song, X. (1997). The impact of strategy on conflict: a cross-national comparative study of U.S. and Japanese firms. *Journal of International Business Studies*, 28 (3), 467-493. doi:10.1057/palgrave.jibs.8490108
- Dyer, J., Singh, H. (1998). The relational view: cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23 (4), 660-679. doi:10.5465/AMR.1998.1255632
- Hodgkinson, G. P. (1997). The Cognitive Analysis of Competitive Structures: A Review and Critique. *Human Relations*, 50(6):625-654. doi:10.1177/001872679705000601S
- Huff, A. S. (1982). Industry Influences on Strategy Reformulation. *Strategic Management Journal*, 3, 119-131. doi:10.1002/smj.4250030204
- Huff, A. S. (1997). A current and future agenda for cognitive research in organizations. *Journal of Management Studies*. 34 (6), 947-952. doi: 10.1111/1467-6486.00079
- Johnson, D. R., Hoopes, D. G. (2003). Managerial cognition, sunk costs, and the evolution of industry structure. *Strategic Management Journal*, 24 (10), 1057-1068, doi: 10.1002/smj.320
- Kaplan, S., Murray, F. (2010). Entrepreneurship and the construction of value in biotechnology. In: Phillips, N.; Sewell, G.; Griffiths, D. (Eds.): *Technology and Organization: Essays in Honour of Joan Woodward* (109-149). Bingley: Emerald Group Publishing Ltd.
- Kaplan, S. (2011). Research in Cognition and Strategy: Reflections on Two Decades of Progress and a Look to the Future. *Journal of Management Studies*, 48 (3), 665-691. doi:10.1111/j.1467-6486.2010.00983.x
- Karagiannopoulos, G. D., Georgopoulos, N., Nikolopoulos, K. (2005). Fathoming Porter's five forces model model in the internet era. *Info - The journal of policy, regulation and strategy for telecommunications*, 7 (6), 66-76. doi:10.1108/14636690510628328
- McDaniel S. W., Kolari, J. W. (1987). Marketing Strategy Implications of the Miles and Snow Strategic Typology. *Journal of Marketing*, 51, 19-30. doi:10.2307/1251245
- Miles, R. E.; Snow, C. C. (1978/2003): *Organizational Strategy, Structure, and Proces (Stanford Business Classics)*. Stanford: Stanford University Press.
- Morgan, R. E., Strong, C. A., McGuinness, T. (2003). Product-market positioning and prospector strategy: An analysis of strategic patterns from the resource-based perspective. *European Journal of Marketing*, 37 (10), 1409-1439. doi:10.1108/03090560310487176
- Nadkarni, S., Narayanan, V. K. (2007). The Evolution of Collective Strategy Frames in High- and Low-Velocity Industries. *Organization Science*. 18 (4), 688-710. doi: 10.1287/orsc.1070.0268

- Nadkarni, S., Barr, P. S. (2008). Environmental Context, Managerial Cognition, and Strategic Action: An Integrated View. *Strategic Management Review*, 29 (13), 1395-1427. doi: 10.1002/smj.717
- Panagiotou, G. (2006). The impact of managerial cognitions on the structure-conduct-performance (SCP) paradigm: A strategic group perspective. *Management Decision*, 44 (3), 423-441. doi: 10.1108/00251740610656296
- Parnell, J. A., Wright, P. (1993). Generic Strategy and Performance: an Empirical Test of the Miles and Snow Typology. *British Journal of Management*, 4 (1), 29-36.
- Pecotich, A., Hattie, J., Low, L. P. (1999). Development of Industuct: A Scale for the Measurement of Perceptions of Industry Structure. *Marketing Letters*, 10 (4), 409-422. doi:10.1023/A:1008174623201
- Porac, J. F., Thomas, H., Baden-Fuller, C. (1989). Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers. *Journal of Management Studies*, 26, 397-416. doi: 10.1111/j.1467-6486.1989.tb00736.x
- Porac, J. F., Thomas, H., Wilson, F., Paton, D., Kanfer, A. (1995). Rivalry and the industry model of Scottish knitwear producers. *Administrative Science Quarterly*. 40, 203-227. doi:10.2307/2393636
- Porac, J. F., Thomas, H., Baden-Fuller, C. (2011). Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers Revisited. *Journal of Management Studies*, 48 (3), 646-664. doi: 10.1111/j.1467-6486.2010.00988.x
- Porter, M. E. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York:Free Press
- Porter, M. E. (1991). Toward a Dynamic Theory of Strategy, *Strategic Management Journal*, 17, 95-117. doi:10.1002/smj.4250121008
- Powell, T. C. (1996). How much does industry matter? An alternative empirical test. *Strategic Management Journal*, 17, 323-334. doi:10.1002/(SICI)1097-0266(199604)17:4<323::AID-SMJ803>3.3.CO;2-X
- Reger, R. K., Huff, A. S. (1993). Strategic Groups: A Cognitive Perspective. *Strategic Management Journal*. 14 (2), 103-123. doi: 10.1002/smj.4250140203
- Rindova, V. P., Fombrun, C. J. (1999). Constructing competitive advantage: the role of firm-constituent interaction. *Strategic Management Journal*. 20 (8), 691-710. doi: 10.1002/(SICI)1097-0266(199908)20:8<691::AID-SMJ48>3.0.CO;2-1
- Sheehan, N. T. (2005). Why old tools won't work in the „new“ knowledge economy. *Journal of Business Strategy*. 26 (4), 53-60. doi: 10.1108/02756660510608567
- Shortell, S. M., Zajac, E. J. (1990). Perceptual and Archival Measures of Miles and Snow's Strategic Types: A Comprehensive Assessment of Reliability and Validity. *Academy of Management Journal*, 33 (4), 817-832. doi:10.2307/256292
- Slater, S. F., Olson, E. M. (2000). Strategy type and performance: The influence of sales force management. *Strategic Management Journal*, 21, 813-829. doi:10.1002/1097-0266(200008)21:8<813::AID-SMJ122>3.3.CO;2-7
- Snow, C. C., Hrebiniak, L. G. (1980). Strategy, distinctive competence, and organizational performance. *Administrative Science Quarterly*, 25 (2), 317-336. doi:10.2307/2392457
- Spender, J. C. (1989). *Industry Recipes: An Inquiry into the Nature and Sources of Managerial Judgment*. Cambridge: Basil Blackwood.
- Stonehouse, G., Snowdon, B. (2007). Competitive Advantage Revisited: Michael Porter on Strategy and Competitiveness. *Journal of Management Inquiry*, 16 (3), 256-273. doi 10.1177/1056492607306333
- Stubbart, C. I. (1989). Managerial cognition: a missing link in strategic management research. *Journal of Management Studies*, 26 (4), 325-347. doi: 10.1111/j.1467-6486.1989.tb00732.x

- Thomas, H., Pollock, T. (1999). From I-O Economics' S-C-P Paradigm Through Strategic Groups to Competence-Based Competition: Reflections on the Puzzle of Competitive Strategy. *British Journal of Management*, 10 (2), 127-140. doi: 10.1111/1467-8551.00115
- Tikkanen, H., Lamberg, J. A., Parvinen, P., Kallunki, J. P. (2005). Managerial cognition, action and the business model of the firm. *Managerial Decision*, 43 (6), 789-809. doi:10.1108/00251740510603565
- Woodside, A. G., Sullivan, D. P., Trappey, R. J. (1999). Assessing Relationships among Strategic Types, Distinctive Marketing Competencies, and Organizational Performance. *Journal of Business Research*, 45, 135-146. doi:10.1016/S0148-2963(97)00232-4
- Yong-Kim, B.; Oh, H. (2004). How do hotel firms obtain a competitive advantage? *International Journal of Contemporary Hospitality Management*. 16 (1), 65-71. doi:10.1016/j.ijhm.2004.10.004