

DO BETTER PERFORMING COMPANIES POSSESS MORE INTANGIBLE ASSETS: CASE OF SLOVENIA*

GORDANA LALOVIĆ¹
MATJAZ KOMAN²

ABSTRACT: *Drawing on the intangible resource-based view of the firm, we investigate the difference between high and low performing companies regarding their profile of core intangible resources. The results obtained indicate that on average better performing companies hold higher share of intangible capital on majority of analysed intangible resources and thus may have developed more core competences and capabilities needed for superior performance. The paper contributes to the previous literature as it highlights the existence of intangible resources within the population of firms with common characteristics, which favourably distinguish superior firms from less successful one. For the managers and policy makers gaining a clear understanding of core intangible resources with potential of sustainable competitive advantage that determine high performing firms and their tendency to invest in intangible assets can be of crucial importance as it offers some insights for policy design.*

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INTRODUCTION

Historical roots of research on intellectual capital (IC) starts in 1990s. Initial work mainly focused on raising awareness about the existence of intangible assets and their value within the organizations (Itami, 1991; Brooking, 1996; Roos, Roos, Dragonetti and Edvinsson, 1997; Stewart, 1997) followed by the first classification models (Marr, Gray and Neely, 2003). A change in investment structure with the increased investment in intangible capital indicated a transition of industrial economy towards knowledge-based economy. Further research, thus, formulated the concept of knowledge-based organization (Nonaka, 1991; Spender and Grant, 1996; Teece, 1998; Teece, 2000) and focused on the management of knowledge assets, which are often referred to as IC or

1 University of Ljubljana, Faculty of Economics, PhD Candidate, Ljubljana, Slovenia, e-mail: gordanalalovic@gmail.com

2 Corresponding author, University of Ljubljana, Faculty of Economics, Ljubljana, Slovenia, e-mail: matjaz.koman@ef.uni-lj.si

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intangible/invisible assets (Alcaniz, Gomez-Bezares and Roslender, 2011). They are considered a key driver of business' growth, profitability and competitiveness (Bose and Oh, 2003; Kaufmann and Schneider, 2004; Cohen and Kaimenakis, 2007; Zeghal and Maaloul, 2011; Sydler, Haefliger, and Pruksa, 2014). Canals (2001) emphasized that with the development of knowledge-based society intangible resources increasingly came in the forefront exceeding the contribution of tangible assets in the process of value creation (Guthrie, 2001)³.

The notion of IC is linked to the firms' ability to generate and apply potential of the knowledge embedded in many of IC definitions (Kaufmann and Schneider, 2004). Galbraith (1969), who first used the term, described IC as "a bundle of assets in a process of value creation". In order to better understand how IC contributes to the value creation many scholars tried to give the definition of IC and shed light on its measurement and management process (Boj et al., 2014). Even though many authors tried to define the term in accurate manner the literature review revealed that there is no broadly accepted definition. According to Brooking (1997) IC refers to intangible assets that can potentially enhance corporate performance in case that appropriate combination of intangible assets, financial resources, and good relationship with stakeholders exists (Abdullah and Sofian, 2012).

The notion that IC has the impact on business performance is consistent with the resource-based view (RBV) theory, which advocates that a company should identify and manage its intangible resources effectively in order to achieve the above average performance (Penrose, 1959, 1980; Kristandl and Bontis, 2007; Raja Adzrin, Abu Thahir, and Maisarah, 2009; Lewicka, 2011)⁴. In order to maintain above average profitability, firm needs to build sustainable competitive advantages (SCA) by creation of intangible strategic resources (Ahmad and Mushraf, 2011; Sydler et al., 2014). Therefore, firms should analyse the resources and competences they possess in order to discover which of them can be considered superior and distinctive (Camelo-Ordaz et al., 2003). In identification of their core intangible resources and consequently in conceptualization of strategically significant competences and capabilities of the firm, IC components can be helpful.

In this paper we analyse the correlation between the size and different sources of intangible capital and performance of Slovenian manufacturing companies using the cluster analysis. Obtained results show than on average better performing companies hold

3 Corrado, Charles, Hulten, and Sichel (2005) estimated that investment in intangibles averaged US\$1.1 trillion between 1998 and 2000 (1.2 times tangible capital investment) or 12% of GDP, and showed that an important part of the US productivity acceleration since the mid-1990s can be attributed to growth in intangible assets. Other country studies estimated the contribution of previously unmeasured intangible capital to multifactor productivity (MFP) growth of 14% in UK (Marrano, Haskel and Wallis, 2009) and 3% in Finland (Jalava et al., 2007) over a period between the mid-1990s and early 2000s. Estimated contribution of all intangibles to MFP growth in Japan and in France is 19% (Fukao et al., 2008), 18% in Germany, and 9% in Spain (Hao et al., 2008).

4 Nevertheless many companies are still facing a lot of difficulties with the IC management (Dzinkowski, 2000) due to intangible nature of IC. Therefore its identification and measurement becomes difficult as it is hard to measure IC by financial figures. As a result, only 20% of firm's knowledge is actually used because firms lack appropriate IC measurement system (Chen, Zhu and Xie, 2004).

higher share of intangible capital on almost all analysed intangible resources and thus may have developed more competences and capabilities needed for superior performance. By comparing the resource profile of superior firm performers we highlight their tendency to invest in intangible assets of the firm and the existence of those intangible resources that favourably distinguish them from less successful firms.

For the managers and policy makers gaining a clear understanding of core intangible resources that determine superior firm performers and their tendency to invest in intangible assets can be of crucial importance as it offers some insights for policy design. Understanding companies' core intangible resources with SCA potential allows firms to define appropriate corporate strategies that offer them the best economic returns. The paper contributes to the previous literature as it highlights the existence of intangible resources within the population of firms with common characteristics, which favourably distinguish superior firms from less successful one. In general, the findings of the study evinced different profiles in the core intangible resources of high- and low-performance firms contributing to the theoretical insights of the resource-based view of the firm. A comparative analysis, which shows the resource differential between the studied firms, is one of the learning experiences in organization science and strategic management.

The structure of the paper is as follows. The study begins with brief presentation of IC definitions and its classifications. The next section introduces RBV of the firm as the basis for hypothesis development. Given the high importance of core intangible resources in their contribution to superior performance by development of strategic capabilities and creation of sustainable competitive advantages, the resource profile of Slovenian superior companies is examined and compared to less successful firms. Discussion and conclusion are presented in final section.

1. INTANGIBLE RESOURCES AND THEIR ROLE IN IMPROVING BUSINESS PERFORMANCE

1.1. What is intangible resource and where it comes from - definition and the origins of IC

The Kaufmann and Schneider (2004) and Choong (2008) reviewed main definitions of IC and intangibles in general, and pointed to the use of different terms by different scholars from different economic fields, which refer to the same subject. Invisible assets (Itami, 1991), intellectual capital (Brooking, 1997; Stewart, 1997), immaterial capital (Sveiby, 1997), intangibles (Lev, 2001) are the most recurrent terms, with intangible assets being the most often used term by accountants and accounting standards. Today the term IC is usually used in management and legal literature, intangible asset in accounting literature field, while the term knowledge asset by economists. The difference exists mainly in different perspective adopted referring to the immateriality of IC elements, their "invisibility", their relation to knowledge and/or information, and to the role of intangibles as generative resources (Moldaschl and Fischer, 2004).



Finally, due to different viewpoints of various interest groups different approaches on IC classification exist and consequently different ways of categorisation and different lists of intangibles are offered. A three-categorization model of Edvinsson and Malone (1997) is often presented where IC is identified at the level of individuals, the organizational level and the level of relationship that the firm has with its suppliers, customers and other stakeholders in general (Marzo, 2013)⁵. Beside Edvinsson and Malone's classification commonly known as pioneering one is also classification of Sveiby (1997), who divided IC competences into internal capital (patents, concepts, computer and administrative systems) and external capital (customer segmentation, market growth, efficiency and stability).

What seems to be shared by all authors is that IC is non-tangible (and non-financial) asset based on the knowledge, which span human, intra-organizational and inter-organizational level of the firm. In our study we will refer to the definition of Turk (2000) who defines IC as firms' knowledge included in its operations; it could be capitalized or not (like intellectual property); it impacts firms' operating profit and its value; and it exists as human, relational and organizational capital. In his definition Turk also follows the Edvinsson and Malone's IC classification where human capital is defined as combined knowledge, skill, innovativeness and ability of employees to meet the task at hand; organizational (structural) capital refers to organizational capability that supports employee's productivity like hardware, software, databases, organizational structure, patents, trademarks; and relational (customer) capital consists of relationships developed with the key customers (Bronzetti, Mazzotta, Puntillo, Silvestri and Veltri, 2011). In the study we will use IC term interchangeably with the term intangible assets or intangible capital.

1.2. IC elements and their contribution to organizational efficiency

Due to the IC role in reduction of companies operating costs we provide description of individual IC elements and their contribution to organizational efficiency.

Human capital is considered the most important resource of the company especially in relation to firm's future value creation (Gadau, 2012). It is also a foundation of IC and the basic element in performing other functions of IC (Chen, Zhu and Xie, 2004). Several authors suggested that in order to effectively generate and derive benefits from intangible capital a firm has to possess high quality human resources (Galor and Moav, 2004), which represent the collection of employees' skills and abilities (Bontis and Fitz-enz, 2002) that can be leveraged to further extend intangible asset base of the firm (Arrighetti, Landini and Lasagni, 2014).

⁵ Due to different approaches in IC measurement accountant tried to establish accounting standards to provide stakeholders with a more comprehensive picture of firms' IC expressed in terms of traditional monetary data (Petty and Guthrie, 2000). Therefore, accounting literature uses classification of intellectual capital into four categories of assets (Gadau, 2012): market assets, substructure assets, assets as intellectual property, human values. Intangibles can be also classified according to the degree of how difficult is to establish ownership or control rights over intangible assets (Blair and Wallman, 2000).

Basically human capital refers to individual abilities, know-how, skills, expertise, experience, and leadership abilities of employees and managers which increase their professional qualification and contribution to the firm (Edvinsson and Malone, 1997; Fernandez, Montes and Vazquez, 2000). Together with teamwork and learning capacity, loyalty, training and education, these attributes comprise employees' competences (Chen et al., 2004); whereas employees' attitude includes the motivation of the employees for the work and satisfaction from work (Sydler et al., 2014; Inkinen, 2015). Creativity of employees enables them to be innovative and is one of the most important factors in developing IC of the firm (Chen et al., 2004). The competences, attitude and creativity of employees can result in outstanding products and in improvement of production efficiency. Employees' competences are transformed into capital through HRM practices like annual performance appraisals, work-life balance programs or health improvement programs, which can effect and enhance not only organizational performance (e.g. productivity, quality and innovation) of the firm but also social performance in terms of lower employee turnover and absenteeism or an increase of job satisfaction (Abhayawansa and Abeysekera, 2008).

Human capital is people dependent knowledge which is not a property of the firm. Thus it is very important for the company to establish and to enforce the relationship with its workers in order to keep this value within the company (Bronzetti et al., 2011). In this respect knowledge transfer among employees is important factor of knowledge keeping within the firm⁶.

Organizational (structural) capital, also called internal capital, refers mainly to the internal organization that supports human capital to perform and create value or wealth for the firm (Edvinsson and Malone, 1997; Sveiby, 1997; Bollen, Vergauwen and Schnieders, 2005). It represents the human capital substructure (Gadau, 2012) and could also be defined as human resource supportive infrastructure (Benevene and Cortini, 2010) as it allows efficient operation of a firm, which helps adaptation to novel situations (Youndt and Snell, 2004).

It is people independent intangible resource that remains when employees leave the company. Thus, one of its functions is to reduce firm's dependence on a particular individual or group of individuals, and easing incorporation and coordination of new employees (Fernandez et al., 2000). It includes corporate culture, policies, distribution networks, and other "organisational capabilities" developed to meet requirements of the market, such as patents, trademarks, licences, quality and improvement processes, organizational processes, IT systems, or R&D activities that have been or will be implemented in order to improve the effectiveness and profitability of the firm (Dzinkowski, 2000; Moon and Kym, 2006; St-Pierre and Audet, 2011; Sydler et al., 2014).

⁶ Fernandez, Montes and Vazquez, (2000) offer some of possible solutions how to keep knowledge of individual employees within the firm by limiting the freedom of personel movement for a certain period of time in case that worker received a specialized training needed for specific job performance or rewarding the employees for the remaining in the firm in the form of compensations for long service to the firm or high pensions which the employees lose in case that they leave the firm.

Among others, database of clients, suppliers and competitors also provides competitive advantage as it is important information source which reflects firms' internal structure of relations.

Most of organizational knowledge is not formally written in any of companies' documents but resides in organizational routines, principles and values that make up firm's corporate culture, which is a product of employees' interaction and collective learning - assets that enable productivity and enhance human capital (Fernandez et al., 2000). Organizational capital is supporting infrastructure of human and relational capital in their contribution to firm performance since it enables creative and innovative activities within the firm (Bozbura, 2004). Together with human capital organizational capital enables companies to generate and utilize relational capital in a coordinated way (Chen et al., 2004).

Relational (customer) capital, also called external capital, represents ability of the firm to relate with various stakeholders, such as customers, suppliers, investors, members of the community, society, and the knowledge embedded in and derived from these relationships (Canibano, Garcia-Ayuso, and Sanchez, 2000; Grasenick and Low, 2004; Green and Ryan, 2005; Abdullah and Sofian, 2012). It includes the perceptions of external stakeholders of the firm itself, such as corporate image, brand recognition, and similar (Przysuski, Lalapet and Swaneveld, 2004).

Relational capital not only that incorporates the network of relations with its stakeholders but it also integrates potential assets obtained through these networks (Burt, 1992; Wang, Yen and Liu, 2014) such as: customer and brand loyalties (Park and Luo, 2001), access to quality raw materials, better service, faster and more reliable suppliers' delivery (Peng and Luo, 2000), reduced possibility of opportunistic behaviour of business partners (Pisano, 1989), and development of new knowledge and competences with greater exchange of information, skills and know-how (Walker, Kogut and Shan, 1997; Kale, Singh and Perlmutter, 2000) due to enhanced evolution of partner's relationships (Gulati, 1995). Cooperation with customers, suppliers and competitors not only provide the access to their knowledge and resources but also enables the sharing of risks and provides necessary flexibility needed in changing environment (Fernandez et al., 2000). A good relationship with company's stakeholders implies improvement in firm's trust and reputation and consequently an increase of relational capital (Bronzetti et al., 2011).

Relational capital facilitates cooperation among team members and shapes collective actions (Chua, Lim, Soh, and Sia, 2012). Therefore, it can help employees to collaborate with others, leading to better individual performance. The higher level of relational capital induces better planning and problem solving, enhances customer benefits by better identification and satisfaction of their needs, which in turn increases production and efficiency of service delivery and thus reduces organizational costs (Youndt and Snell, 2004; Kijek and Kijek, 2008). Relational capital is among all components of IC the most directly related to firm's performance but cannot be developed without the support of human and structural capital (Chen et al., 2004).

Therefore, intangible capital is the knowledge of the firm embedded in the skills and experience of its employees, its policies, procedures and routines, and its relationships with its customers, suppliers, and other stakeholders of the firm (Bharadwaj, 2000; Grant, 1996).

2. RESEARCH ANALYSIS

2.1. Literature review and hypothesis development

Resource based theory (Barney, 1991) and competence-based theory (Hamel and Prahalad, 1990) recognize the resources and competences as a source of competitive advantage of the firm (Bowman and Toms, 2010; Bronzzeti et al., 2011). In order to be the source of sustainable competitive advantage resources must be rare, unique, inimitable, durable, idiosyncratic, and non-substitutable, i.e. not easily replaceable by another resource (Peng, 2001; Fahy, 2002). Such resources are considered to be core or strategic as they distinguish a firm from a strategic point of view (Leonard-Barton, 1992). Since intangible capital is the only source that fulfil all conditions required to be considered the source of firms' sustainable competitive advantage (Sanchez, Chaminade and Olea, 2000), many authors used RBV in analysing firms' intangible capital (e.g. Fernandez et al., 2000; Sveiby, 2001; Riahi-Belkaoui, 2003; Herremans and Isaac, 2004; Marr, Schiuma and Neely, 2004; Reed, Lubatkin and Srinivasan, 2006).

In general, development of firms' intangible capital is closely linked to the firm's history (path-dependency) and causal ambiguity (making it hard for other firms to imitate or to recreate due to unique historical evolution of each company). Many of firms' intangible resources are externalities derived from their activities (Arrow, 1974). Due to their complex relations of complementarity and causal connections among intangibles themselves and among intangibles and other resources of the firm, intangible resources are hard to understand and replicate. Thus availability of intangible resources in organized market is lowered precisely because of their co-specialization with other resources of the firm, which reduces their value outside the firm and impedes the knowledge of its individual creation (Grant, 1991). The more numerous and more complex these connections are, harder it is to understand and imitate intangible resources of the firm (Reed and DeFillippi, 1990; Fernandez et al., 2000)⁷. This idiosyncratic character of intangible resources makes them an important factor of firms' differentiation.

Compared to tangible assets intangibles contribute significantly more to firm's success (Galbreath, 2005) as they have more potential for creation of firm's sustainable competitive advantage and to enable the firm to sustain higher levels of profit (Bowmana and Toms,

⁷ Among the reasons why resorces and competences might be difficult to imitate we can find: complexity of core competences because of the ability of company to internally and externally link activities and processes in such a way that they deliver value to the customer; path dependency of competence development, which are culturally embedded; causal ambiguity where competitors cannot comprehend the significance of firm's characteristics that may be based on tacit knowledge or the linkage of processes and activities that create core competences (Foundations of strategic capability, 2015).

2010). From the perspective of RBV, sustainable competitive advantage of the firm depends on the exploitation of relationships between different complementary intangible resources that generate value synergies (Powell and Dent-Micallef, 1997). The synergy effect is obtained with the use of intangible resources that are accumulated in one part of the firm and are simultaneously used in other parts without additional expense or at low cost. This simultaneous use of intangibles is possible due to their knowledge nature, which enables synergies: it can be used at the same time in different forms, it doesn't deteriorate with the use but its value increases with the use as opposed to tangible material resources which depreciate with the use, and it is possible to obtain even more knowledge with the combination of its parts. Because of their capability to generate synergies, the possession of intangible resources is of great importance for firms' growth (Fernandez et al., 2000). Companies that are able to generate superior core resources may be capable to use them in order to develop sustainable competitive advantages of the firm (Srivastava et al., 1998; Lippman and Rumelt, 2003).

Hamel and Prahalad (1990) argue that superiority of better performing companies over their competitors stems from their core competences and the way they are deployed, which implies that firms possess different profiles of resources (Carmeli, 2001). Intangible resources decisively contribute to the heterogeneity of resources with their unique characteristics (lasting, specialised and non-marketable) and superiority (scarce and difficult to imitate). They may exist at different levels within the firm: employees, teams, functions, processes, or the organization as a whole (Villalonga, 2004). Type, nature and magnitude of these resources determine a company's profitability (Amit and Schoemaker, 1993). Thus, in explaining why some firms are more competitive and perform better than others resource based theorists (Wernerfelt, 1984; Barney, 1991; Grant, 1991; Peteraf, 1993; Amit and Schoemaker, 1993; Collis, 1994) emphasize the role of internal, firm-specific factors and their effect on performance.

Many authors investigated link between *different measures of performance and intangible capital* like: sales (Lev, Radhakrishnan and Zhang, 2009), return on equity (Appuhami, 2007), sales variation, productivity and return on assets (St-Pierre and Audet, 2011), cash flows (Herremans, Isaac and Bays, 2008), business profitability and productivity (Kamath, 2008), efficiency and the net value added over total asset (Riahi-Belkaoui, 2003). Authors often show significant contribution of intangible capital to firms' market value (Sougiannis, 1994; Lev and Sougiannis, 1996; Al-Horani, Pope and Stark, 2003; Eberhart, Maxwell and Siddique, 2004; Hall, Jaffe and Trajtenberg, 2005; Greenhalgh and Rogers, 2006; Anagnostopoulou and Levis, 2008; Sandner and Block, 2011). Some authors also found a positive contribution of intangible capital to both firm- and industry-level productivity (Oliner, Sichel and Stiroh, 2007; and O'Mahony and Vecchi, 2009; Marrocu, Paci and Pontis, 2012). Carmeli and Tishler (2004) and Riahi-Belkaoui (2003) showed the positive relationship between intangible capital and firm's future performance. St-Pierre and Audet (2011) listed some of the studies where we can find a positive relationship between intangible capital and firm performance as well as between the growth rate of intangible capital and firm performance (Cohen and Kaimenakis, 2007; Tan, Plowman and Hancock, 2007; and Tovstiga and Tulugurova, 2009).

Some authors investigated relationship between *firm's performance and certain type of intangible capital* finding significant positive correlation between: human capital and profitability and productivity of firms (Kamath, 2008), human and organizational capital and investors' capital gains on shares (Appuhami, 2007), organizational and relational capital and firm performance, reflected through reduction of operational costs and new product development (Bontis, 1998; Bontis, Keow and Richardson, 2000). Others showed significant positive correlation between firm performance and certain elements of organizational and relational capital like: R&D and innovation (Capon, Farley and Hoenig, 1990; Lev and Sougiannis, 1996; Deng, Lev and Narin, 1999), advertising (Chan, Lakonishok and Sougiannis, 2001), customer satisfaction (Luo, 2007; Aksoy, Cooil, Groening, Keiningham and Yalcin, 2008) and companies' image (Deephouse, 2000; Roberts and Dowling, 2002).

But authors also showed that no single intangible capital can create value on its own (Gupta and Roos, 2001) but the *combination and interaction between different types of intangible capital* is the one that yields a sustainable competitive advantage and enhance firm performance (Chen, Cheng and Hwang, 2005; Fernstrom, 2005; Cohen and Kaimenakis, 2007; Inkinen, 2015). Hence, Nazari (2010) revealed that human capital is significantly associated with organizational capital and positively influences firm's performance. Other authors showed that human capital has positive influence on relational capital, whereas both components in turn influence organizational capital (Bontis et al., 2000; Chen et al., 2004). Another study by Hsu and Fang (2009) provided evidence that combined effect of human and relational capital improves organizational learning and new product development performance. Huang and Hsueh (2007) found that interaction of human and relational capital, especially employees' training, has a strong impact on firm performance. Later on Inkinen (2015) confirmed that employees, the organisational supporting structures or the established relations that the firms possess has only little value separately but combined they represent a strong performance driver. Other studies also documented the support of human capital to other dimensions of intangible capital which in turn directly influence firm performance (Cabrita and Bontis, 2008; Kim, Kim, Park, Lee and Jee, 2012). Wang and Chang (2005) observed that the influence of human capital on performance is indirect as it influences innovation capital, process capital and customer capital, which in turn are the main determinants of firm performance.

In accordance with the resource based view of the firm and above stated empirical arguments concerning the relationship between different dimensions of intangible capital and firm performance we believe that better performing companies possess more beneficial intangible resources that help them to be more competitive and to perform better than others. Thus, we hypothesize that better performing companies possess higher share of human, relational and organizational capital.

H1: Better performing companies possess higher share of human capital.

H2: Better performing companies possess higher share of relational capital.

H2: Better performing companies possess higher share of organizational capital.



2.2. Methodology and data

In our research we have focused on larger Slovenian manufacturing firms with more than 100 employees due to the lack of record keeping regarding some of intangible assets in smaller Slovenian firms since they do not have established organizational structure to collect these data. Therefore, in many cases smaller companies could not provide requested data. In contrast to smaller companies, large firms are more capable to exploit economies of scale in intangible asset accumulation, can be more effective in protection of their intangible assets and thus have a greater incentive to invest. They are also more capable to support the uncertainty related with investment in intangible asset compared to small firms (Arrighetti et al., 2014). In addition, large firms are also more inclined to a more thorough disclosure of information on intangible assets (Bozzolan, Favotto, and Ricceri, 2003).

The surveyed companies run businesses in different industries. As the resource-based theory is concerned with resource-based advantages rather than monopoly-based the use of a sample with a variety of industries is appropriate (Fahy, 2002).

Primary data were collected within the basic research project »Analysis of firm-level investment in tangible and intangible capital from the perspective of future competitive advantages of Slovene firms, code J5-4169«. To collect data on various resource constructs we used questionnaires, which focus on broader classification of intangibles and address different aspects of intangibles (HRM, interest groups in the company, information technology, innovation, relational capital, branding and brand capital)⁸. Instead of investigating single aspects, we used a comprehensive framework covering different aspects of intangible capital in order to capture the entire intangible capital structure of the firm and to provide better understanding of its “immaterial” parts by investigating their relative importance. The respondents were asked to evaluate different intangible resources by answering the set of “yes/no” questions, where each set covers one field of study. Affirmative answers to the questions reflect increased complexity of specific category and the tendency of a firm to achieve higher level of productivity. In the questionnaires we used cascade type of questions based on the work of Miyagawa et al. (2010). The use of cascade technique ensured data quality and reliability. Questionnaires comprised also some Likert scale questions using a 1 to 4 scale. In the questionnaires we also included some standard questions asking for specific piece of information like market share, number of competitors, patents, sales, expenditure for employees’ training, IT, R&D activities, and marketing activities. With the following questionnaires we identified the type of intangible resources that companies possess as well as the processes run in the companies:

⁸ Project was performed at the Faculty of Economics University of Ljubljana in the period from 2011 to 2014, by the research group led by prof. dr. Janez Prašnikar and financed by the Slovenian Research Agency. Authors of individual questionnaires are: associate professor dr. Tjaša Redek for R&D capital, assistant professor dr. Matjaž Koman and mag. Gordana Lalović for the field of relational and IT capital, associate professor dr. Nada Zupan and teaching assistant dr. Daša Farčnik for HRM capital, full professors dr. Janez Prašnikar and dr. Damjan Voje for social capital, full professor dr. Vesna Žabkar for the field of marketing. Results of the study are published in the book edited by prof. dr. Janez Prašnikar with the title *The role of intangible assets in exiting the crisis* (2010).

- HRM questionnaire focused on different aspects of human capital, like: training and transfer of knowledge within an organization; HRM practices like performance feedback, programs for work-life balance, employee health improvement programs, employee motivation and satisfaction; and organizational flexibility in respect to teamwork, process of continuous improvements, internal communication of employees and implementation of new business practices and methods.
- With the social capital questionnaire we investigated ownership structure of the firms as well as the process of negotiations between managers and employees in terms of their bargaining power, the role of unions within the process along with the employees' participation in decision making, risk and profit sharing.
- With IT questionnaire we measured different IT dimensions, from investment in and development of IT system, its use for customers' central database, sales analysis, or sales projections, and the role of informatics in current activities, business reorganization, or for achieving competitive advantage.
- With R&D questionnaire we focused primarily on: R&D activity in companies, characteristics of product and process innovation, and company competences and capabilities relative to competition.
- Marketing questionnaire investigated the level of development of brand management based on the existence of three aspects: brand development, brand measurement, and brand investments.
- We measured relational capital using a questionnaire that focus on firm's customers, competitors and suppliers, analysing different dimensions of relational capital like: relationship with customers and suppliers, their impact on business decisions and product development, monitoring of customers and acquiring new one as well as acquiring information on competitors and their influence on business operations.

Based on the review of the literature we defined categories of intangibles according to Edvinsson and Malone's categorisation of organizational, relational and human capital with related intangible items that are most frequently discussed in literature and investigated within respective questionnaires. Therefore, in the **HRM capital category** we included intangible constructs, like: employees' co-operation and teamwork capacity, knowledge transfer, system for employees' motivation, HRM practices, like: annual performance appraisals, work-life balance, health and occupation programmes. We included union activity within the human capital category as it is reflection of employees' relations. **Organizational capital category** comprises intangible constructs: corporate culture, board and ownership structure, customer/supplier support, R&D activities, quality and improvement process, patents. **Relational capital category** consists of next intangible constructs: corporate image, brand recognition, brand value, new customers, customers' loyalty and long-term relationship with customers, their impact on product development and business decisions, customers' grievances, customers' share of sales, suppliers'

relationship and their influence on product development, competition and competitors' influence on business decisions. We also examined investment of Slovenian companies in human resource management (HRM), marketing activities, information technology (IT) and research and development (R&D) as investment in these areas is considered to be most important for companies to increase their intellectual base as suggested by Youndt et al. (2004). Table 1 in Appendix shows detailed classification of intangible capital in human, organizational and relational categories with related intangible items.

We sent the questionnaires to 364 Slovenian manufacturing companies. In order to encourage companies to participate in the study, we guaranteed complete confidentiality of data. The questionnaires were answered by CEOs, marketing and sales managers as well as HRM managers who were able to adequately assess the firm's resource base with respect to its performance. All participants held high-level managerial positions, thus the potential for significant data biases was diminished.

We received 102 questionnaires, a response rate of 28 per cent. In the research study we included 93 manufacturing companies that had fulfilled most of the questionnaires on different type of intangible capital. Hierarchical cluster analysis excluded 5 companies as potential outliers, so our results are based on 88 companies. Twenty six firms were identified as high performing companies based on their financial indicators, while sixty two of them as low performing companies. Secondary data was retrieved from annual financial reports for a year 2009, composed by The Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES).

2.3. Results and discussion

2.3.1. Firm performance and intangible core resources of the companies

Literature review indicates that there is no widely accepted consensus about definition, dimensionality and measurement of the firm performance concept. Many studies measure firm performance with a single indicator representing this concept as unidimensional (Glick, Washburn and Miller, 2005). Others suggest that in case of several dimensions, those most relevant to the research should be chosen (Richard, Devinney, Yip and Johnson, 2009). Thus, we measured firm performance based on accounting information contained in financial statements. In order to define high performing companies we used performance indicators useful in predicting the capacity of the firm to generate profit, productivity and growth from the use of its current resources. We measured profitability by using ROA, ROE, EBIT, and EBITDA financial indicators. Since size of the company and profitability are interdependent, we used sales indicators as a measure of size most closely related to profitability and growth while we used value added per employee as a measure of productivity. These indicators have been identified also as factors for which empirical studies found to be important drivers of firm's disclosure policy⁹. A widely held

9 See Alsaeed (2006) for an extensive summary of studies examining relationship between information

view is that indebted firms have an incentive to voluntarily increase the level of corporate disclosure in order to fulfil information needs of investors (Al-Shammari, 2007; Alsaeed, 2006). Therefore, we also included other measures of financial performance like indicators of indebtedness and liquidity.

Size of a company is a trait that is related to the tendency of firm to invest in intangible assets (Arrighetti et al., 2014) and to disclose information on intangible investments. In our analysis company size was measured by total assets, as has been done in other studies on voluntary disclosure (Depoers, 2000; Ho and Wong, 2001). Additionally, we used a measure of company's size with respect to the number of employees. Therefore, we divided companies into 5 groups: size 1 (from 0 to 50), size 2 (from 50 to 250), size 3 (from 250 to 500), size 4 (from 500 to 1000), size 5 (above 1000). Therefore, the full set of performance measures that we used is: ROA, ROE, EBIT, EBITDA, value added per employee, ROS, sales growth, sales profit, leverage, net debt, liquidity, size with respect to total assets and to employees' number.

To identify high performing companies, we performed an agglomerative hierarchical cluster analysis in SPSS 15. In order to identify eventual outliers we first used hierarchical cluster analysis with nearest neighbour method. After excluding identified outliers we used two step cluster analysis for classification of firms into groups based on their financial indicators calculated from firms' accounting data. We used t-test to find differences between groups.

The cluster analysis revealed two distinct clusters of companies with different performance indicators. The differences between the groups of firms are statistically significant at 5% level (t-test). Compared to companies in cluster 2 (low performing companies), companies in cluster 1 (high performing companies) are characterised as being more successful as they show better performance based on identified financial indicators. Results presented in Table 1 show that high performing companies are bigger regarding the size of total assets and characterized by negative debt, high profitability and productivity, with better operational efficiency and growth potential¹⁰. Sales growth, liquidity and size of the company regarding the number of employees are not of significant difference¹¹.

disclosure and performance.

¹⁰ For more accurate explanation of financial indicators it would be needed to compare them over time in order to see their trend, and compare them to other companies in the industry.

¹¹ We also performed cluster analysis based only on financial indicators (EBIT, EBITDA, TOTAL ASSETS, and ROE) and got very similar results.



Table 1: *Clusters of companies based on identified financial indicators*

Financial indicators	Cluster 1 (n=26) High performing companies		Cluster 2 (n=62) Low performing companies		P-value
	mean	SD	mean	SD	
ROA	0.05	0,038	0.02	0.020	0.000
ROE	0.07	0.062	0.02	0.067	0.002
EBIT	3,299,936	3,055,350	329,891	436,864	0.000
EBITDA	7,622,810	6,210,806	2,063,429	1,610,871	0.000
VALUE ADDED PER EMPLOYEE	98,901	138,160	28,228	20,208	0.000
ROS (%)	7.42	11,13	0.98	1.719	0.000
SALES GROWTH (%)	-18.69	14.74	-18.53	22.98	0.974
SALES PROFIT	77,420,077	75,988,908	31,536,585	24,025,388	0.000
LEVERAGE	0.38	0.193	0.57	0.206	0.000
NETO DEBT	-0.10	0.268	0.17	0.262	0.000
LIQUIDITY	1.92	2.05	1.36	0.84	0.075
SIZE WITH RESPECT TO TOTAL ASSET	115,985,341	124,535,457	36,659,710	33,321,828	0.000
SIZE WITH RESPECT TO EMPLOYEES' NUMBER	2,65	1,093	3,00	1,215	0.213

Note. SD stands for Standard Deviation.

Source: APJES (2015) and own calculations.

2.3.2. *Companies' characteristics by company clusters and type of intangible capital*

To reveal the difference between the groups of companies regarding their internal organizational characteristics and corresponding share of intangible capital we applied questions from the questionnaires on identified clusters of firms. For each of the two clusters, mean values or the share of positive answers to each individual question and standard deviations are provided with data on the statistical significance of differences between the clusters. Results presented in Table A1 in Appendix show that in most cases the share of intangible capital is higher for high performing companies.

When we explore these two groups in more detail we found significant differences regarding their internal organizational characteristics mainly with respect to the level of investment in human and relational capital, which is higher for high performing firms. In relation to human capital most of differences occur regarding the perceptions about training and knowledge transfer, teamwork and implementation of some HRM practices, which are all elements associated with better performance (Capelli and Neumark, 2001; Siebers

et al., 2008; Bloom and Van Reenen, 2010). As regards relational capital of firms, high performing companies have more developed CRM and brand management capabilities¹² as well as corporate image, which also contribute to better firm performance according to previous research evidence (Srivastava et al., 1998; Sulait, 2007; Morgan, Slotegraaf, and Vorhies, 2009). High performing companies also invest more in IT maintenance, which enables the creation of knowledge and its better utilization (Youndt, Subramaniam and Snell, 2004). Below we report and discuss mainly the results which are statistically significant between two clusters.

2.3.2.1. *Human capital*

The statistically significant results for two clusters with respect to human capital are presented in Table 2, which shows that the group of high performing companies possesses higher share of human capital primarily in terms of developing of employees' core competences like teamwork skills and employees' abilities to share their knowledge with others, as well as in terms of employing HRM practices, which transfer employees' competences into capital.

Within the group of high performing companies *teamwork*, is considered to be a common form of employee cooperation on different levels of organization. All of more successful companies state that there is a great need for employees to work in work groups and in different teams in individual department while majority of them (84.6 percent) claims that there is a strong presence of forming interdepartmental teams reflecting increased organizational flexibility. This is in line with the research done in Slovenia by Zupan, Farčnik, Fišer, Kodarin and Valenčič (2010) who found a significant correlation between organizational flexibility¹³ and productivity of 66 Slovenian manufacturing companies. In addition, the result is in line with other studies showing the importance of employee co-operation and department integration for development of intangible capital (Nahapiet and Goshal, 1998; Van den Bossche et al., 2006; Wang et al., 2014) and in prevention of its loss in case that employee leaves the company. This is achieved with the transformation of individual knowledge into shared cognition and "know-how" embodied within the team (Fernandez et al., 2000; Wang et al., 2014). Important factor of knowledge keeping within the firm in majority of high performing companies (71.4 percent versus 24.3 percent of low performers) is also *knowledge transfer*, which high performing companies systematically promote among their employees as they believe they would have no problem finding skilled replacement in case of employee departure. Teamwork and

¹² Brand management capabilities concern the processes and activities that enable a firm to develop, support, and maintain strong brands (Aaker, 1994; Hulland, Wade and Antia, 2007) while CRM capabilities underlie a firm's ability to create and manage close and strong relationships with customers (Rust, Ambler, Carpenter, Kumar and Srivastava, 2004).

¹³ measured as a sum of scores for qualitative questions regarding teamwork, organizational change implementation, process of continuous improvements, specificity of job descriptions, internal communication, informal means of communication, flexibility as a company value, and implementation of new business practices and methods



department integration contribute not only to increased productivity and performance (Maranno and Haskel, 2006; Boning, Ichniowski and Shaw, 2007; Bloom and Van Reenen, 2010; Berg, Appelbaum, Bailey and Kalleberg, 2000; Dunlop and Weil, 2000; Hamilton, Nickerson, and Owan, 2003; Bartel, 2004) but also to increased disclosure of information and building loyalty to the firm (Starbuck, 1992).

Majority of more successful firms employ a range of *HRM practices like* annual performance appraisals, work-life balance programs and health improvement programs. They are using annual performance appraisals to provide employees with targeted feedback on their past performance and guidance to the achievement of work-related objectives, which facilitate employee learning and development (78.5 percent) and lead to higher operating performances (Forzza and Salvador, 2000). Special programs and policies aimed at improvement of work-life balance of employees (38.4 percent) and health improvement (76.9 percent) can increase job satisfaction and employees' commitment to the company leading to increased productivity and reduction in absenteeism, presenteeism and employee turnover (Center for organizational excellence of American psychological Association, 2015). A multidisciplinary literature review on the relationship between HRM practices and performance reveals that studies predominantly reported positive effect of individual HRM practices on performance or productivity (Siebers et al., 2008; Bloom and Van Reenen, 2010).

In relation to human capital, group of low performing companies significantly differ from high performing companies regarding employees' organization in unions. Our results show that higher degree of employees in less successful firms (74.5%) is organized in unions¹⁴. This result is in line with the view that organizing employees in unions could lead to decreased productivity because of misallocation of work, restrictive work practices, the threat of adversarial industrial relations, which lowers trust and cooperation and causes the firm to invest less (Metcalf, 2002; Ehrenberg and Smith, 2012)¹⁵.

High performing companies also invest more in human capital by providing employee training, which is confirmed by their significantly higher yearly costs of training per employee (in average 135.971 EUR compared to 46.484 EUR of low performing group of companies). According to results of Koch and McGrath's research (1996) firms that systematically train and develop their workers are more likely to enjoy the rewards of a more productive workforce than those that do not. As shown by Nerdrum and Erikson (2001) investment in education and training increases professional skills and competences of employees, which results in better individual and organizational performance and leads to higher performance rates and human and organizational capital increase (Youndt et al., 2004).

14 Similar result is obtained in the study done by Prašnikar, Voje, Dolžan Lesjak, Gjibexhi and Raičević (2010), which show that mainly less productive companies have employees organized in one union.

15 Literature provide also an alternative view, which states that organized unions could increase productivity because employees are more satisfied as they have bigger role in decision making process, higher wage and are more eager to work (Voje, 2010). Unions may play a monitoring role on behalf of employer, make managers less lethargic and stop exploitation of labour (Metcalf, 2003).

Table 2: *The share of human capital in high and low performing Slovenian manufacturing companies*

HUMAN CAPITAL	Cluster 1 (26)			Cluster 2 (62)			Sign.
	N	* share of companies in %	SD	N	* share of companies in %	SD	
1. TEAMWORK							
Cooperation in different teams in individual department (not exclusively performing tasks in the same workplace) is a common form of employees' operation.	26	100	0.000	59	69.4	0.464	0.001
There is a strong presence of employees' cooperation between different departments and forming of interdepartmental teams.	26	84.6	0.368	59	61.0	0.492	0.031
2. KNOWLEDGE TRANSFER							
Successors for most of key employees exist.	14	71.4	0.469	41	24.3	0.435	0.001
3. HRM PRACTICES:							
3.1. ANNUAL PERFORMANCE APPRAISALS							
Annual performance-review meetings are conducted effectively and thus significantly contribute to improved performance.	14	78.5	0.426	41	39.0	0.494	0.010
3.2. WORK-LIFE BALANCE							
Special programs aimed at improving work-life balance of employees exist in the company.	13	38.4	0.506	40	12.5	0.335	0.038
3.3. HEALTH AND OCCUPATION PROGRAMMS							
Special programs for improving employee health (other than those required by law) exist in the company.	13	76.9	0.439	41	46.3	0.505	0.055
4. UNION ACTIVITY							
Exactly one union organization exists in the firm.	26	50.0	0.510	59	74.5	0.439	0.026
* In the table we replaced mean values of binary data by the share of companies as an incidence of a specific intangible capital aspect/practice.							
	N	mean	SD	N	mean	SD	Sign.
5. INVESTMENT IN EMPLOYEE TRAINING							
Total costs for employees' training per year in EUR.	6	135.971	159.910	25	46.484	40.712	0.015

Source: FELU (2011-2014) and own calculations.



2.3.2.2. Organizational capital

Groups of firms significantly differ regarding their ownership structure (see Table 3). On average, higher share of firms within the group of high performing companies (34.6 percent) are firms with foreign ownership. This result is in line with a range of international studies which show that firms with foreign ownership perform better than domestic-owned firms (Doms and Jensen, 1995; Chhibber and Majumdar, 1999; Barbosa and Louri, 2005). Superior group of companies also invest more in IT maintenance, salaries of IT personnel or IT licence costs.

Table 3: *The share of organizational capital in high and low performing Slovenian manufacturing companies*

ORGANIZATIONAL CAPITAL	Cluster 1 (26)			Cluster 2 (62)			Sign.
	N	share of companies in %	SD	N	share of companies in %	SD	
1. OWNERSHIP STRUCTURE							
The dominant ownership share is in possession of foreign owners.	26	34.6	0.485	59	13.5	0.345	0.025
* In the table we replaced mean values of binary data by the share of companies as an incidence of a specific intangible capital aspect/practice.							
2. IT INVESTMENT							
Percentage of total IT cost not used for software or hardware investment but for other things like licence costs, IT personnel salaries, IT maintenance,...	11	30.518	27.816	37	8.307	15.895	0.001

Source: FELU (2011-2014) and own calculations.

When examining *R&D activities* in companies focusing on the characteristics of product and process innovation, even though the difference between the groups is *not statistically significant*, results show that intensity of R&D activities is higher for high performing companies as they show slightly better performance regarding introduction of new products (94% introduced new products in last five years versus 90% of low performers). Both groups gave the highest relevance to improvement of existing products as the most important type of innovation followed by introducing new product lines, expending existing product lines, repositioning and introducing globally new products. Low performing companies gave higher importance to repositioning in front of introducing new product lines. High performers gave higher loadings on importance to all of individual innovation types.

In average higher share of high performers (81% versus 73% of low performers) introduced *process innovation* in terms of production process improvement (81% versus 67%) and improvement of support services like maintenance, sales, IT, accounting and



other processes in the company (69% versus 67%)¹⁶. Though, low performers show better performance regarding average number of introduced *patents* even though the group of superior companies increases the number of introduced patents every year as well as investment in R&D in contrast to low performing companies whose *R&D investments* decreases by years. Investment in R&D is considered to be fundamental in creation of new knowledge. As shown by Youndt et al. (2004) history of greater R&D investments leads to greater capacity to absorb new knowledge, which should in turn lead to higher level of human capital. In order to protect new knowledge companies create integrated knowledge embodied in their processes, routines and products, which in turn increase the level of organizational capital.

2.3.2.3. Relational capital

Based on our results the group of high performing companies possesses higher share of relational capital in terms of the firms' ability to relate with its customers and manage their perceptions regarding brand recognition and corporate image (see Table 4).

Firms from this group appear to be more developed in terms of marketing capabilities particularly *customer relationship management capabilities*, which underlie a firm's ability to create and manage close and strong relationships with customers in order to improve long-term customers' loyalty, which directly contribute to firm performance (Srivastava et al., 1998, 2001; Morgan et al., 2009) *as well as brand management and measurement capabilities* in terms of processes and activities that enable a firm to develop, support, and maintain strong brands and corporate image. According to Žabkar, Dimitrieska, Dimitrova, and Ivanovska (2010) brand management activities are considered to contribute to companies' productivity as they proved an association between the level of brand management and the productivity level with the empirical data in the study of fifty-nine medium-sized and large manufacturing companies in Slovenia.

Our results show that 63.1 percent of high performing companies claim they have developed brand architecture (i.e. organized system of brands) while a customer loyalty program exists in 25% of more successful companies. Latter is in accordance with the study of Fernandez et al. (2000) who showed that firms with former loyal customers achieve superior results in relation to their competitors with lower unit costs and a higher market share. Our results also show that 50% of more successful companies evaluate corporate image by measuring perceptions of the company among different publics in terms of quality of management, product or service quality, innovativeness and financial position, compared to only 21% of less successful companies. This is in line with the research of many marketing scholars who emphasized the impact of reputation on firm success

16 Similar results can be found in the study done by Redek, Kopriva, Mihelič and Simič (2010) on the sample of 61 companies operating in 23 industries, which showed that companies as the most important types of innovation reported: improving existing products, introducing new product lines, expanding existing product lines, and repositioning products. Also three quarters of the studied companies improved their processes in terms of improved production processes, logistics and distribution, and supporting processes.

(Aaker, 1991; Keller, 1993; Srivastava et al., 1998, 2001). Namely by developing corporate image high performing companies also send signals about their key characteristics, future actions and behaviour. They inform external stakeholders about the firm's trustworthiness, credibility and quality (Galbreath, 2005) and shape the response of customers, suppliers and competitors (Teece, Pisano and Shuen, 1997). Schwaiger (2004) displays many positive effects of strong corporate image which helps firms in acquiring and retention of best employees and customers because of increased confidence in their products and services. Also companies with strong corporate image have better access to capital markets, which decreases capital costs and lowers procurement rates. Thus a firms' profitability increases with better reputation.

The group of high performing companies also invest significantly more in marketing activities. In average marketing investment increases with the years in contrast to low performing group whose investment in marketing activities decreases.

Table 4: *The share of relational capital in high and low performing Slovenian manufacturing companies*

RELATIONAL CAPITAL	Cluster 1 (26)			Cluster 2 (62)			Sign.
	N	share of companies in %	SD	N	share of companies in %	SD	
1. CUSTOMERS' RELATIONSHIP MANAGEMENT							
Customer loyalty program exists in the company.	4	25.0	0.500	19	0	0.000	0.025
2. BRAND MANAGEMENT							
Company has developed brand architecture (organized system of brands, e.g. monolithic/unitary, endorsed/hybrid, freestanding/diversified).	19	63.1	0.496	46	32.6	0.474	0.023
3. CORPORATE IMAGE							
Company measures perceptions of the company among different publics in terms of quality of management, product or service quality, innovativeness and financial position.	18	50.0	0.514	47	21.2	0.414	0.023
* In the table we replaced mean values of binary data by the share of companies as an incidence of a specific intangible capital aspect/practice.							
4. MARKETING EXPENDITURES							
The share of sales in 2007 set aside for activities to increase the value of brands (including external costs of advertising and marketing activities of advertising agencies, media).	17	0.046	0.072	35	0.011	0.015	0.008

The share of sales in 2008 set aside for activities to increase the value of brands (including external costs of advertising and marketing activities of advertising agencies, media).	17	0.051	0.095	37	0.010	0.014	0.012
The share of sales in 2009 set aside for activities to increase the value of brands (including external costs of advertising and marketing activities of advertising agencies, media).	16	0.055	0.097	37	0.008	0.010	0.005

Source: FELU (2011-2014) and own calculations.

Based on the answers provided in the questionnaires we can also reveal some of the firms' characteristics regarding the business environment in which group of firms operate as well as their relationship with customers and suppliers even though the difference between the groups is *not statistically significant*.

High performing companies operate in more competitive business environment since they have, on average, larger number of major competitors compared to the group of low performing companies (11 versus 6.79). Some authors stress that sharpening the competition in markets leads to the accumulation of intangible resources as firms in such environment resort to less imitable intangible assets in order to enhance their distinctive know-how and product differentiation (Petrick, Scherer, Brodzinski, Quinn and Ainina, 1999; Arrighetti et al., 2014). However, from 2008 to 2009 they faced higher increase in market share (10% versus 1% in average) with the decrease in number of competitors (for 1.33 in average).

Results imply that high performers have more developed supply-chain relational capabilities, which in turn may improve customer service and firm performance. Supply-chain relational capabilities include adoption of long-term relationship with suppliers, collaborative communication, supplier involvement in development of new product, and use of cross-functional teams, which in turn foster knowledge development and exchange, facilitate joint problem solving, promote cooperation, and reduce transaction costs (Lado, Paulraj and Chen, 2011). Regarding the relationship with suppliers we can see that both groups of companies exchange information with their suppliers. While all of high performing companies regularly visit their major suppliers this applies to 82% of low performers. Also higher share of high performing companies have relations with suppliers that influenced development of new products (83% compared to 76% of low performers).

Regarding low performing companies results show on bigger customers' impact on their business decisions. A higher share of low performing companies stated that customers directly influenced the fundamental companies' business decisions (43% compared to 33% of high performers) and dictated the choice of their suppliers (17% versus 8% among high performers). The higher share of low performers also have a long-term contract with most important customers (22% versus 17% of high performing companies) and make long-

term contracts with their new customers (43% versus 17%). Also, low performers inform top management about opinions, comments and complaints from their customers and take them into accounts when making decisions in greater extend compared to high performers (84% versus 75% respectively). These results imply that low performing companies are more customer responsive, which is mainly a characteristics of market driven companies (Barlow Hills and Shikhar, 2003), that collect information on their customers to assess their future needs but do not attempt to create or change customers' behaviour¹⁷. Similar result was also gained by Koman, Filić, Flerin, and Jurišević (2010) who confirmed that less productive companies closely monitor their customers and engage them in product development. However, our results show that higher share of high performing companies is more successful in obtaining new customers since 58% of them succeed to obtain at least 10 percent of new customers each year (versus 43% of low performers).

3. CONCLUSION

The aim of the study was to investigate how firms' human, relational and organizational capital form distinct profile of resources in order to better understand core resources (i.e., most valuable, rare, inimitable and non-substitutable) that may generate sustainable competitive advantages and lead to superior performance. Therefore, the resource profile of Slovenian better performing companies was examined and compared to low performing manufacturing companies. We also examined whether investment in human resource management (HRM), marketing activities, information technology (IT) and research and development (R&D) differs between identified resource profiles of Slovenian companies as investment in these areas is considered to be most important for companies to increase their intangible asset base as suggested by Youndt et al. (2004).

In particular, we find that relatively smaller group of superior performing companies hold significantly more intangible capital resources that provide them with the base for constructing their respective and different competitive advantages. This group of companies invest significantly more in development of human, relational and organizational capabilities in terms of employees' training, marketing activities and maintenance of IT system.

For the companies in the studied sample following core intangible resources that favourably differentiate better performing companies from lower performing companies stand out:

1. Human capital capabilities like: development of employees' co-operation and teamwork capacity with promotion of knowledge sharing, as well as employing HRM practices supported by investment in employees, which are fundamental drivers of knowledge development and development of firms' enhanced relationship with their employees in order to keep this knowledge within the company. They are all factors that increase intangible asset base and hence positively influence firm performance.

¹⁷ In contrast market-driving firms set the needs and desires of their customers and thus change their behaviour and attitudes (Narver, Slater and MacLachlan, 2000; Kumar, Scheer and Kotler, 2000).

2. Organizational capabilities like investment in IT enable companies to increase the use of their knowledge resources and enhance cooperation and knowledge sharing among employees.
3. From the resource-based view, relational capabilities like development of customer relationship management and brand management as well as corporate reputation building are recognized as important strategic assets capable for generating sustainable firm performance.

Based on this study, our findings suggest that high performing companies are strategically oriented towards development of those core capabilities and competences that are not dependent on individual employees' knowledge but are residing in the organization. Due to established working conditions that foster employees' cooperation and knowledge sharing companies enhance teamwork and increase interdependence among their employees and therefore keep the knowledge within the firm. Companies provide employees with targeted feedback and guidance to help them learn and develop. These HRM activities are considered to directly affect the level of human capital. At the same time as employees learn and increase their human capital they create organizational knowledge, which is foundation for organizational learning and knowledge accumulation. Intensive employees' training also contribute to the adoption and sharing of companies' common values, which consequently have a strong impact on development of organizational capital.

Essential in the management of firm resources is also building and maintaining a good reputation of the firm with strong brand and close relationships with customers. Better cooperation of firm's employees and closer relationship with firm's customers improves the efficiency and effectiveness of resource utilization while their interaction further extends intangible asset base of the firm due to the synergistic effect of intangible resources, which leads to greater success of the firm.

Therefore, findings of the study suggest that managers should put a considerable attention to the analysis and identification of companies' core intangible resources and their functions within the firm. This allows managers not only to concentrate their efforts on understanding firms' strengths and weaknesses and to allocate resources efficiently to those intangible assets that may translate into competences and capabilities on which the company builds its sustained competitive advantages but also to generate the synergies which are more capable of generating sustain economic rents. Thus, our results are in accordance with previous results which suggest that firms need to increase their overall level of intangible capital in order to improve firm performance (Chen et al., 2004) since companies with higher share of intangible capital are able to attain significantly better firm performance than less reach companies (Youndt et al., 2004).

In this study we investigated only individual dimensions of intangible capital but many authors suggest strong interdependence between these categories of intangible capital in creation, development and utilization of firms' knowledge. Therefore, firms should be aware that it is not sufficient only to possess a resource as intangible resources enhance firm

performance through their interaction with other resources. Since intangible resources exhibit complementarities and enhance firm performance through their interactions it is hard to empirically identify unique resources and attribute superior performance to specific assets. Therefore the exploration of these interactions between and among intangible resources and their contribution to the success of the firm is a challenge for future research.

APPENDIX
Table A1:

	Cluster 1 (26)		Cluster 2 (62)		Sign.		
	N	mean	N	mean		SD	
HRM CAPITAL							
EMPLOYEE TRAINING							
Organized training of employees based on identified needs of the company exists.	14	1.00	0.00	41	0.95	0.218	0.409
More than half of employees is involved in training programs annually.	14	0.43	0.514	41	0.59	0.499	0.318
We measure training effectiveness also with other methods not only conducting a survey at the end of a training program.	14	0.71	0.469	41	0.49	0.506	0.147
KNOWLEDGE TRANSFER							
Company provide regular on the job training (e.g. apprenticeship, mentorship, job rotation).	14	1.00	0.000	41	0.95	0.218	0.409
Company systematically induce knowledge transfer among employees.	14	0.93	0.267	41	0.73	0.449	0.128
Successors for most of key employees exists.	14	0.714	,469	41	0.243	0.435	0.001
PERFORMANCE FEEDBACK							
Company provides regular performance feedback to its employees.	14	0.64	0.497	41	0.63	0.488	0.954
Annual performance-review meetings are conducted for at least key employees.	14	0.86	0.363	41	0.66	0.480	0.164
Annual performance-review meetings are conducted effectively and thus significantly contribute to improved performance.	14	0.785	0.426	41	0.390	0.494	0.010
MOTIVATION SYSTEM							
A system for promotions based on employee performance exists.	14	0.57	0.514	41	0.73	0.449	0.271
We use other forms of motivation apart from promotion and pay for performance.	14	0.71	0.469	41	0.68	0.471	0.830
System for motivation employees is developed in all organizational units.	14	0.71	0.469	41	0.63	0.488	0.594

TEAMWORK CAPACITY									
There is a great need for workers to work in work groups because of the nature of the work processes.	26	1.00	0.000	59	0.893	0.305	0.094		
Cooperation in different teams in individual department (not exclusively performing tasks in the same workplace) is a common form of workers' operation.	26	1.00	0.000	59	0.694	0.464	0.001		
There is a strong presence of workers' cooperation between different departments and forming of interdepartmental teams.	26	0.846	0.368	59	0.610	492	0.031		
CO-OPERATION AMONG EMPLOYEES									
There is a need for a lot of co-operation among employees to perform their tasks successfully.	13	0.92	0.277	41	0.98	0.156	0.392		
We have systematically introduced teamwork in the last five years.	13	0.69	0.480	41	0.63	0.488	0.708		
Teamwork is the dominating form of work for majority of employees.	13	0.69	0.480	41	0.49	0.506	0.205		
WORK-LIFE BALANCE									
Special programs aimed at improving work-life balance of employees exists in the company.	13	0.384	0.506	40	0.125	0.335	0.038		
More than half of employees is involved in these programs for improving work-life balance.	14	0.214	0.426	40	0.075	0.267	0.159		
Because of these programs for improving work-life balance the general level of satisfaction has increased and turnover decreased.	14	0.285	0.469	40	0.100	0.304	0.096		
HEALTH AND OCCUPATION PROGRAMMS									
Special programs for improving employee health (other than those required by law) exists in the company.	13	0.769	0.439	41	0.463	0.505	0.055		
More than half of employees is involved in these health-improvement programs.	13	0.38	0.506	41	0.29	0.461	0.543		
Because of these health-improvement programs the general level of health of our employees has improved and sick-leave hours have decreased.	13	0.54	0.519	41	0.34	0.480	0.212		
UNION ACTIVITY									
Workers in the company are organised in unions.	26	0.96	0.196	59	0.93	0.254	0.602		
Exactly one union organisation exists in the firm.	26	0.500	0.510	59	0.745	0.439	0.026		
Union leadership(s) is (are) concerned with the question of how the firm should increase productivity and therefore its competitive position.	26	0.27	0.452	59	0.15	0.363	0.209		
TRAINING COSTS									
Total costs for training per year.	6	135.971	159.910	25	46.484	40.712	0.015		
RELATIONAL CAPITAL									

BRAND AND CORPORATE IMAGE							
BRAND RECOGNITION							
Company develops its own brands (do not participate in finishing operations under foreign brand or private labels for dealers/merchants).	19	0.74	0.452	46	0.61	0.493	0.333
Company develops a corporate brand, in addition to the separate brands for your products / services.	19	0.53	0.513	47	0.70	0.462	0.180
Company has developed brand architecture (organized system of brands, e.g. monolithic/unitary, endorsed/hybrid, freestanding/diversified).	19	0.631	0.496	46	0.326	0.474	0.023
BRAND VALUE							
Company brands are legally protected (patents, trademarks).	19	0.74	0.452	46	0.85	0.363	0.302
Between 2006-9 we financed activities to increase brand value, either corporate brands or product/services brands.	19	0.68	0.478	46	0.78	0.417	0.410
We measure brand value, either corporate brands or product/services brands.	19	0.26	0.452	45	0.13	0.344	0.215
CORPORATE IMAGE							
Company manages relationships with the media (corporate management accessibility, openness with the media and support for journalists).	19	0.79	0.419	46	0.91	0.285	0.173
Company measures perceptions of the company among different publics in terms of quality of management, product or service quality, innovativeness and financial position.	18	0.500	0.514	47	0.212	0.414	0.023
Company measures perceived corporate social responsibility of the company (attitude to the community and fair play in business) among different publics.	18	0.50	0.514	47	0.36	0.486	0.316
A communication system (e.g. intranet) which provides continuous reporting and transfer of information to responsible exists in the company.	19	0.947	0.229	47	0.765	0.428	0.086
MARKETING EXPENDITURES							
The share of sales in 2006 set aside for activities to increase the value of brands (including external costs of advertising and marketing activities of advertising agencies, media).	15	0.044	0.077	35	0.018	0.051	0.170
The share of sales in 2007 set aside for activities to increase the value of brands (including external costs of advertising and marketing activities of advertising agencies, media).	17	0.046	0.072	35	0.011	0.015	0.008
The share of sales in 2008 set aside for activities to increase the value of brands (including external costs of advertising and marketing activities of advertising agencies, media).	17	0.051	0.095	37	0.010	0.014	0.012

The share of sales in 2009 set aside for activities to increase the value of brands (including external costs of advertising and marketing activities of advertising agencies, media).	16	0.055	0.097	37	0.008	0.010	0.005
CUSTOMERS							
NEW CUSTOMERS							
In the period 2006-2008, we carried out activities at all times to attract new customers.	12	1.00	0.000	37	0.92	0.277	0.319
In the period 2006-2008, we obtained (on average) at least 10% of new customers.	12	0.58	0.515	37	0.43	0.502	0.373
In the period 2006-2008, we were mainly making long-term contracts with our new customers.	12	0.17	0.389	37	0.43	0.502	0.101
In the period 2006-2008, we were monitoring the behaviour of our customers with the CRM system.	4	0.00	0.000	17	0.06	0.243	0.640
LOYALTY OF CUSTOMERS							
In the period 2006-2008, interested buyers of our products were informed via e-mail and/or other information channels.	4	0.75	0.500	19	0.74	0.452	0.959
In the period 2006-2008, interested buyers of our products were able to get access to our products through various distribution channels (Internet, catalogs ...).	4	0.75	0.500	19	0.79	0.419	0.869
Customer loyalty program exists in the company.	4	0.250	0.500	19	0.000	0.000	0.025
In the period 2006-2008, we carried out activities at all times in order to attract new customers.	4	1.00	0.000	18	0.83	0.383	0.404
In the period 2006-2008, our customer loyalty program was increasing on average at 10% (in value).	4	0.00	0.000	18	0.06	0.236	0.649
In the period 2006-2008, the majority of the new members in loyalty program were active.	4	0.00	0.000	18	0.00	0.000	-
CUSTOMERS LONGTERM RELATIONSHIP							
In the period 2006-2008, we had long-term contract with at least one of the most important customers.	12	0.92	0.289	37	0.95	0.229	0.720
In the period 2006-2008, we had long-term contract with majority of the most important customers.	12	0.58	0.515	37	0.68	0.475	0.569
In the period 2006-2008, we had long-term contract with all most important customers.	12	0.17	0.389	37	0.22	0.417	0.718

CUSTOMERS IMPACT									
In period 2006-2008, we regularly meet with our customers in order to find about their needs and to plan needed changes.	12	1.00	0.000	37	0.95	0.229	0.421		
In period 2006-2008, consumer representatives of our products were engaged in the process of the development of new product	12	0.92	0.289	37	0.78	0.417	0.312		
In the period 2006-2008, our customers were at least indirectly influencing the decisions in our company.	12	1.00	0.000	37	0.86	0.347	0.186		
In the period 2006-2008, our customers were directly influencing the fundamental decisions in our company.	12	0.33	0.492	37	0.43	0.502	0.554		
In the period 2006-2008, our customers were dictating us the choice of our suppliers.	12	0.08	0.289	36	0.17	0.378	0.489		
CUSTOMERS GRIVINCES									
In the period 2006-2008, we collected and analysed opinions, comments and complaints of our customers.	4	1.00	0.000	19	0.95	0.229	0.657		
In the period 2006-2008, the top management was informed with opinions, comments and complaints from our customers.	4	0.75	0.500	19	0.84	0.375	0.676		
In the period 2006-2008, top management was taking into accounts the opinions, comments and complaints from our customers when making decisions	4	0.75	0.500	19	0.84	0.375	0.676		
CUSTOMERS SHARE OF SALES									
The share of sales (based on the value of sales through B2B) of the largest customer in 2006	9	23.411	11.066	28	27.395	22.462	0.614		
The share of sales (based on the value of sales through B2B) of the largest customer in 2007	9	23.400	10.442	30	26.207	21.788	0.712		
The share of sales (based on the value of sales through B2B) of the largest customer in 2008	10	21.830	11.630	32	21.835	18.928	0.999		
The share of sales (based on the value of sales through B2B) of the largest customer in 2009	10	22.830	13.982	34	26.032	22.323	0.671		
The share of sales (based on the value of sales through B2B) of the second largest customer in 2009	10	9.720	4.635	35	11.821	6.789	0.365		
SUPPLIERS RELATIONSHIP AND THEIR INFLUENCE									
In the period 2006-2006, we exchange information with our suppliers.	12	1.00	0.000	38	1.00	0.000	-		
In the period 2006-2008, we regularly visited our major suppliers	12	1.00	0.000	38	0.82	0.393	0.133		
In 2006-2008, relations with suppliers promote the development of new products or services in our company.	12	0.83	0.389	38	0.76	0.431	0.618		

COMPETITION AND COMPETITORS INFLUENCE							
Number of major competitors in your core activities in 2009	11	11.00	16.882	28	6.79	4.003	0.217
Your market share in your core business in 2009	11	33.55	30.566	29	21.66	18.716	0.143
Market share of three largest firms in your core business in 2009	11	45.27	26.154	28	50.96	23.549	0.704
Number of major competitors in your core activities in 2006-2008	9	12.33	21.994	23	5.00	3.908	0.126
Your market share in your core business in 2006-2008	9	23.11	32.502	24	20.21	21.553	0.767
Market share of three largest firms in your core business in 2006-2008	10	51.60	26.559	22	44.64	33.842	0.571
In the period 2006-2008, the activities of our major competitors had an impact on our business.	12	0.833	0.389	36	0.805	0.401	0.835
In period 2006-2008, our company has aggressively responded to the strategic moves of our main competitors.	13	0.538	0.519	36	0.583	0.500	0.785
In the period 2006-2008, at least one company in our core business had more than 20% market share.	12	0.833	0.389	36	0.583	0.500	0.122
ORGANIZATIONAL CAPITAL							
IT INVESTMENT							
In 2009 company invested in information technology at least 1% revenue.	13	0.384	0.506	39	0.538	0.505	0.346
In 2009 company invested in information technology at least 2% revenue.	13	0.000	0.000	39	0.339	0.347	0.181
In 2009 company invested in information technology at least 3% revenue.	13	0.000	0.000	39	0.025	0.160	0.569
Percentage of revenue invested in IT in 2009.	11	1.000	0.730	36	1.120	1.015	0.724
Percentage of total IT cost used for hardware.	11	29.418	14.311	31	35.048	20.350	0.404
Percentage of total IT cost used for software.	11	39.972	25.283	31	49.764	22.991	0.244
Percentage of total IT cost used for other things like licence costs, IT personnel salaries, IT maintenance,...	11	30.518	27.816	37	8.307	15.895	0.001
CORPORATE CULTURE							
There are formally declared values of our company	13	0.69	0.480	40	0.65	0.483	0.785
Flexibility and implementing organizational change are explicitly stated as company values	13	0.54	0.519	40	0.60	0.496	0.702
Majority of employees acts in accordance with formally declared company values	13	0.54	0.519	40	0.55	0.504	0.943

BOARD AND OWNERSHIP STRUCTURE							
The company is privately owned.	26	0.92	0.272	59	0.95	0.222	0.643
The private owner has more than 50 percent share of ownership (dominant ownership share).	26	0.73	0.452	59	0.73	0.448	0.985
The dominant ownership share is in possession of foreign owners.	26	0.346	0.485	59	0.135	0.345	0.025
Are the workers' representatives in your firm members of the governing bodies (for example the supervisory board and its committees) and are involved in the decision making process?	26	0.50	0.510	59	0.53	0.504	0.831
CUSTOMER/SUPPLIER SUPPORT							
Reduced reaction time for customer or supplier demands is important (on the scale from 1 to 4).	12	2.92	0.289	40	2.83	0.501	0.550
QUALITY PROCESS							
Improved capability for developing new products or procedures.	13	2.538	0.660	40	2.725	0.599	0.346
Improved quality of products or services.	13	2.923	0.277	40	2.825	0.446	0.460
Reduced labour costs per unit.	13	2.769	0.439	40	2.750	0.494	0.901
Improved communication or information exchange internally or with other companies or institutions.	13	2.307	0.855	40	2.450	0.639	0.524
IMPROVEMENT PROCESS							
Formal continuous improvement process exists.	14	0.785	0.426	41	0.756	0.435	0.826
Are there more than half of employees involved in a formal continuous improvement process.	15	0.600	0.507	41	0.536	0.505	0.679
Improvement as a result of this formal process significantly contributes to company performance.	14	0.571	0.514	41	0.609	0.494	0.805
R&D ACTIVITIES							
New_products_past_years	16	0.937	0.250	51	0.901	0.300	0.670
Repositioning	16	1.358	1.164	51	2.187	0.834	0.317
Improving_existing_products (from 1 to 3)	16	2.437	0.814	51	2.392	0.723	0.832
Extensions_of_lines (from 1 to 3)	16	2.125	1.025	51	1.921	0.717	0.377
New_lines (from 1 to 3)	16	2.250	1.065	51	2.176	0.932	0.791
Globally_new_products (from 1 to 3)	16	1.000	1.211	51	1.470	1.138	0.160

Introduce_process_innovatio	16	0.81	0.403	51	0.73	0.451	0.493
Improve_production_process	16	0.81	0.403	51	0.67	0.476	0.273
Improve_logistics	16	0.44	0.512	51	0.57	0.500	0.366
Improve_support_services	16	0.69	0.479	51	0.67	0.476	0.879
PATENTS							
Patents_in_2009	16	0.812	1.905	51	0.980	2.881	0.828
Patents_in_2008	16	0.687	1.580	51	0.882	2.754	0.789
Patents_in_2007	16	0.437	1.263	51	0.803	3.816	0.708
Patents_in_2006	16	0.375	1.258	51	0.980	4.292	0.581
R&D EXPENDITURES							
In 2009 R&D expenditure amounted to at least 1% of revenue.	16	0.750	0.447	51	0.882	0.325	0.201
In 2009 R&D expenditure amounted to at least 2% of revenue.	16	0.437	0.512	51	0.588	0.497	0.297
In 2009 R&D expenditure amounted to at least 3% of revenue.	16	0.312	0.479	51	0.431	0.500	0.405
R&D expenditure in 2006.	12	9,367,021,50	27,944,155,976	32	1,544,253,69	3,397,671,200	0.581
R&D expenditure in 2007.	13	8,506,338,23	25,457,239,856	33	1,397,582,00	3,391,118,038	0.708
R&D expenditure in 2008.	13	9,574,801,31	29,718,841,704	34	1,370,427,15	2,789,384,922	0.789
R&D expenditure in 2009.	14	9,771,409,93	31,481,598,431	33	1,272,009,85	2,257,518,075	0.828

Source: FELU (2011-2014) and own calculations.

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DO BETTER PERFORMING COMPANIES POSSESS MORE INTANGIBLE ASSETS: CASE OF SLOVENIA

ALI IMAJO BOLJ USPEŠNA PODJETJA VEČ NEOTIPLJIVEGA KAPITALA? PRIMER SLOVENIJE

GORDANA LALOVIĆ, MATJAŽ KOMAN

POVZETEK: V članku na podlagi teorije podjetja, ki temelji na razpolaganju z omejenimi viri, proučujemo razlike med uspešnimi in neuspešnimi podjetji v odvisnosti od velikosti neotipljivega kapitala. Dobljeni rezultati kažejo, da imajo boljša podjetja v povprečju večji delež neotipljivega kapitala na večini analiziranih neotipljivih virov. Na podlagi rezultatov ugotavljamo, da so uspešna podjetja strateško usmerjena v razvoj tistih temeljnih zmogljivosti in kompetenc, ki niso odvisne od znanja posameznikov, temveč prebivajo v organizaciji. Z vidika podjetja je torej ključno, da managerji vložijo več navora v analizo in identifikacijo ključnih neotipljivih virov v podjetju in proučijo vpliv njihovega delovanja v podjetju.

Ključne besede: neotipljiv kapital, poslovanje podjetja

THEORETICAL FRAMEWORK FOR THE STUDY OF INTANGIBLE INVESTMENT INTO INNOVATIVE CAPITAL IN RESOURCE LIMITED ENVIRONMENT: A CASE FOR SYNCHRONOUS INNOVATIONS?

TEORETIČNI OKVIR ZA PREUČEVANJE NEMATERIALNIH NALOŽB V INOVATIVNI KAPITAL V OKOLJU Z OMEJENIMI VIRI: PRIMER SINHRONIH INOVACIJ?

JOVAN TRAJKOVSKI

POVZETEK: Intenzivnost inovacij v podjetjih je odvisna od razpoložljivosti virov, predvsem finančnih in kadrovskih omejitev. V prispevku je predlagan teoretični okvir za vlaganje v inovativni kapital v primeru omejenih virov. Model temelji na razdrobljeni literaturi o inovacijah v okviru omejenih virov, ki ponujajo obsežen teoretični okvir, ki odgovarja na tri vprašanja: (1) katere vrste inovacij so bolj pomembne v okolju, omejenem z viri, in zakaj, (2) kateri viri se potrebujejo in zakaj ter na kateri stopnji inovacijskega procesa (3), katere postopke naj bi podjetja sprejela za začetek inovacijske dejavnosti (kje bi morali začeti), da bodo v celoti uspešne o vse vrste inovacij in kako sinhronske inovacije pojasnijo prehod iz ene vrste inovacij v drugo.

Ključne besede: neotipljiv kapital, inovacije, države v razvoju, omejitve virov, sinhrona inovacije



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