

Measuring the Bulgarian IT Sector Innovations Capabilities Through Company Innovative Leadership Model

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Summary:

The research aims at exploring the information technology (IT) sector in Bulgaria in terms of its innovative leadership at the company level. For this purpose the Company Innovative Leadership Model (CILM) is used. The paper examines, evaluates and indexes companies' efforts, performance and capabilities in providing and implementing innovations. The importance of measuring companies with respect to their innovation activities stems from the significance of innovations in general. Innovations are regarded as the engine of the economy. The Company Innovative Leadership Model does not evaluate the innovations already implemented in companies, as the rest of the models and statistics do. What is more, the model also measures and assesses the companies' endeavors and capacity for further innovation development. By using the Company Innovative Leadership Model, this paper exposes the potential of Bulgarian IT companies in terms of their innovation leadership, development, performance and commitment. Forty IT companies took part in the research by revealing their innovation

efforts, activities, performance and ambitions. The results provide a benchmark for the IT sector and its companies' innovative leadership capacities and practices.

Key words: innovations, leadership, company leadership, model for innovation, measurement, innovation index

JEL Classification: D90, O31, O33, M21

1. Introduction:

The study focuses on a specific industry as innovation processes differ greatly from industry to industry in terms of development, rate of technological change, connections with and access to knowledge, as well as organizational structure and institutional factors (Malerba 2005; OECD 2005). Even so, the Company Innovative Leadership Model analyzes common characteristics, features, processes and results of companies and it is applicable to any industry (Yordanova & Blagoev, 2015). The organization innovativeness measurement model was first introduced by Yordanova and Blagoev in 2015 and claims to be a universal tool for measuring company performance with regard to their abilities, efforts and capabilities to implement systematic innovations.

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All countries have come to realize that the IT industry will enhance the competitiveness and creativity of their economies and will fuel the sustainable growth of the global economy. Research has shown that the information and communication technology (ICT) industry contributes 25 percent of the European Union's growth in GDP and 40 percent of its increase in the productivity rate. Within the ICT domain, considering the value of cloud computing alone, the aggregate sum is estimated to exceed US\$1 trillion in Europe by 2020 (Dutta & Bilbao-Osorio). The Business Software Alliance revealed by their global research that a significant correlation between the development of the IT industry and global competitiveness exists - 0.88 (Business software alliance, 2011). Europe is at the forefront of developing a digital ecosystem as a key ingredient that fosters innovation and competitiveness (Bilbao-Osorio, Dutta & Lanvin). As being so significant for the global economy sector and development in general, the IT industry implies the development of a lot of innovations. This is one of the reasons for selecting exactly this industry for research.

The IT sector was selected for conducting the research also because it is generally seen as the fastest developing industry in Bulgarian economy. The Annual report on the state of the software sector in Bulgaria betrays a significant and steadily increasing growth rate in the software industry. The aggregate annual revenue from the sector (only software part of IT industry) stands at about 1.601 billion BGN for 2015 (11% yearly growth), 1.449 billion BGN for 2014 (13% yearly growth), 1.287 billion BGN for 2013 (13% yearly growth), 1.339 billion BGN for 2012 (28% yearly growth) and 0.889 billion BGN for 2011. 65% of this revenue is generated by export-orientated software businesses (Bulgarian Association of software companies, 2015). Its share of GDP is around 1.9% while for the whole IT sector

it is almost 5%. The sector is significant for the Bulgarian economy not only because of the generated income and the contribution to the GDP, but also because it is strongly export-orientated and does not require unbearably high investments and resources. Furthermore, it offers higher-than-average salaries, and outpaces other sectors in terms of growth rate, and other factors. The IT sector in Bulgaria is among the most stable industries and it is allegedly the most promising and most dynamically developing, as many researchers and practitioners argue. It accounts for the solid 5-percent share in the country's GDP (NSI, 2015).

According to the IT Industry competitiveness index, a country that seeks to develop and rely on the IT industry must have a healthy business environment plus a first-rate IT infrastructure, dynamic human capital, robust research and development, a strong legal environment and adequate public support for industry development (Business software alliance, 2011).

The first main objective of this study is to determine the innovativeness of the IT sector in Bulgaria and to create an industry benchmark as well as a tool for comparing companies' innovative abilities. The second main objective is to go deeper into good practices of companies within the main measurement categories of the Company Innovative Leadership Model. This is how the study's potential readership will get informed of the levels of innovation penetration of Bulgarian IT companies, and with some tools by which the companies develop their innovation performance.

2. Materials, arguments and methodology

2.1. The significance of innovations

Innovations are one of the key drivers for companies' competitiveness and success in any industry (O'Regan, Ghobadian &

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Sims, 2005). An important lesson from the past two decades has been the pivotal role of innovation in worldwide economic development. The build-up of innovation capacities has played a central role in the growth dynamics of successful developing countries. These countries have recognized that innovation is not just about high-technology products and that innovation capacity has to be built early in the development process in order to acquire the learning capacities that will allow for a “catch up” to happen. They also need innovation capacity and local innovations to address challenges specific to their local contexts. This statement is valid not only on a country level, but also on an industry level. While innovation is important at all stages of development, different types of innovation play different roles at the various stages. In earlier stages, incremental innovation is often associated with the adoption of foreign technology, and social innovation can improve the effectiveness of business and public services. High-technology R&D-based innovation matters at later stages of development, when it is both a factor for competitiveness and for learning. Especially in the IT sector, innovations and innovativeness in general is the main factor for further development and success (OECD, 2012).

Information and communication technologies (ICTs) offer many opportunities for innovation. Moreover, since the dissemination of knowledge plays a pivotal role for innovation, ICTs could among other contributions make a substantial difference to companies' technology uptake and innovation performance. In fact, ICTs could be a powerful means for helping lower- and middle-income groups and their respective businesses overcome barriers to technology uptake and innovation performance by broadening the scope of potential innovators (OECD, 2012).

One important question is how to assess innovativeness ability of a company. Currently, most of the assessing models calculate only the successful results from innovation efforts and activities. Innovations, however, are not tangible, as they are highly dependent on employees' abilities and the company's environment (Daduraa & Jiun-Shen, 2011).

Therefore, this paper aims at applying a suitable measurement method for assessing the companies' innovation efforts, results, performance and prospects. Essential for such a method that combines not only the current or 'historical' performance of a company but also its potentials is including the impact of leadership. Leadership is the ability of a superior to influence the behavior of subordinates and persuade them to follow a particular course of action (Barnard 1938). Nowadays, leadership is related to personalities, but also to organizations. Understanding the concept of organizational leadership and how it is put to use is essential for organizations' success, especially for those that are still in the process of striving to become industry leaders. This is because organizational leadership is an overall orientation of an organization in terms of its position in the context of local and/or global markets (Chathoth & Olsen, 2002). Organizational leadership refers to the potential of a company, not to its results.

Why it is important to focus on innovation leadership even more than on current market leadership and what innovation leadership will bring to us? This question aims to challenge the view of those readers that regard results as the only measurement they could rely on, and believe achievements are tangible only in terms of output. While company market leadership usually gives us information about company performance and the consequences of its operational and market performance, innovation leadership focuses on future development of the

business, business potentials, prospective growth, course direction and progress.

That is why indexing of companies with respect to their innovative leadership is much more important than current company market leadership, which measures and explores only the current business performance and results. Company innovation leadership gives us information in perspective. It could be used for partnership decision-making, investment decisions, capital-raising decisions, venture-capital decisions, and the benefit of entering into long-term contractor business partnership, etc.

This research aims at setting a benchmark level for the IT industry, not at indexing participators in the research. The research also seeks to identify and define some common correlations based on the data collected.

2.2. Innovative company leadership model – methodical frame

The company innovative leadership model (CILM) aims at evaluating the companies' innovative capability and performance. It leads to an evaluation model for measuring companies' innovative leadership. CILM (or "the model") contains twelve main criteria (indicators). The indicators measure a company's innovation activity, innovation potential and innovation competences. They do not measure the innovation environment, government support, investments access, educational support, etc., which are factors that are external to the evaluated companies. The company innovative leadership model measures the innovative leadership on a company level. Herein the model is described as it serves as a methodological frame of the research.

2.3. Innovation competences

Competency is a persistent pattern of behavior resulting from a cluster of

knowledge, skills, abilities, and motivations (Boyd et al., 2011). Prahalad and Hamel (Prahalad and Hamel, 2006, pp. 79-91) define it as "a harmonized combination of multiple resources and skills that distinguish a firm in the marketplace". In their research both scholars generalize that it is ambition and desire for building competences that characterize global winners. The concept of competences was developed by McClelland (McClelland, 1973, pp. 1-24) first in 1973 and later was clarified by Boyatzis (Boyatzis, 1982, p. 21) in 1982. The main concept of competences, which could be taken into consideration for the purposes of this study, is that no criterion on its own is significant enough to indicate successfulness or innovativeness of a company; significant enough could only be a set of criteria such as skills, knowledge, abilities and motivations. This 'group of criteria' contains organizational experience, business motivation, staff's and management's behavioral characteristics. Some of the innovative competences are: creativity (ability to generate ideas, critical thinking, and creative problem solving), managing change (sensitivity to situations, challenging the status quo, intelligent risk-taking, reinforcing change), integrating perspectives (openness to ideas, research orientation, collaborating), enterprising (identifying problems, seeking improvement, gathering information, independent thinking, technological savvy, result orientation), etc. (Boyd, 2011).

All competences in the field of innovations are hard and difficult to evaluate and to use for the purposes of indices such as the *innovative company model*. Yet, the existence and implementation of some competences influence other factors and indicators which are prone to evaluation and thus reveal the companies' innovation capabilities and potential. That is why that section of measures of innovative leadership of a company is not included in the composition of the model.

2.4. Innovation potential and capabilities

In that section the metrics are organized in five sub-groups of indicators. The section aims at measuring the company's innovative potential as well as the company's current innovation performance. All five categories, among which the different criteria are allocated, are: flexibility, social skills and competences, platform and data, leadership, strategy, business process.

One of the factors which definitely measures the innovativeness of a company is its ability to be flexible and resilient to the environment as well as to economic, social and market requirements. The company's alignment to crisis, changes in the market, law or to customer expectations shows a high level of versatility and could help it to hold the leading line. This criterion is even more important in the context of leading innovative companies. It might be measured by using financial data of the last three years and by comparing it to the sector's financial performance. Another approach could be analyzing its consistency. If the financial data shows consistency and perseverance, a conclusion on the company's flexibility could be made. For the purpose of measurement that flexibility, some basic and common financial data should be taken into consideration. The indicator, measured by this criterion is the change in sales revenue on a year-to-year basis (1). If the trend is up, then the company's reaction to the market and its innovative capabilities are good enough.

(2) Social capabilities, communication and marketing skills, and data associated with these activities help companies to build more powerful relationships with their customers. The measured criterion which indicates the innovative capabilities of a company is how much a company benefits from using the main social interaction channels with potential customers to

predict and forecast trends. A major focus of innovation is the use of smarter data gleaned from the edge of the business, from customer behavior, from social networking activity and from social content. The particular measurement indicator is using the main channels: feedback from office/shops, questionnaires to customers, Facebook/Tweeter, LinkedIn, own company site, user-driven innovation, test customer groups in pre-sales stages, CRM, direct marketing, etc. The calculation is made by filling how many of these channels the company actually uses. If it uses 1 or 2 of the channels – then the company receives 2 points out of 10. The most innovative companies by this criterion are expected to use all possible channels for interaction with their customers.

(3) Platform and data is the combination of software, hardware, data and analytics that allows companies to develop and manage an ecosystem of customers, partners, or developers and to manage in an optimal way the interactions between all dependencies which could originate from those main factors. The measurement of this criterion is done by counting how many of these platform and data bases the company uses: customer database, product database/catalog, process system, online trade channel, automatic and smart processes, CRM, time process measurement software, etc.

(4) Leadership might be a great factor that allows companies to make dramatic entries into new markets and innovations. This indicator is measured by evaluating the company's leadership practices. If there are policies for development leaders, coaching and mentoring programs, then the company should receive the full mark by this criterion. The criterion is measured by dichotomous base depending on the existence and use of such kind of leadership practices or the

lack thereof. When a comparison among several companies is being carried out, a more intricate scale should be applied by comparing how many procedures are used and, respectively, what results they bring.

(5) Strategy, planning and policies refer to the collection of innovation methods and single out companies as pioneers. Innovation development policy, R&D departments, decision making on innovation products and processes, innovation processes development. Each policy brings one point to the total count. The scale consists of 10 points in basic measurement and might be extended when a comparison between several companies is realized.

2.5. Innovation activity

The third group of criteria is the well-known innovation metrics that uses some specific companies' practices. Such metrics is used in the Innovation Scoreboard and other innovation measurement indices.

(6) Research and development costs and investments are any expenses associated with the research and development of a company's goods or services. R&D expenses are a type of operating expense and are incurred in the process of introducing and creating new products or services. This metrics is commonly used for innovation assessment (Gamal, 2011; Yang & Li, 2011)

(7) Employees in R&D departments or teams (employees with innovative ideas in the last 12 months) – measures how many employees are assigned to innovation activities.

(8) Number of introduced new product/process/marketing/organizational innovations per year – the criterion shows directly the company's innovative activity. Hereby some comparisons could be accomplished vis-a-vis on-track innovation projects or innovative projects still 'under construction'.

(9) The ratio between the number of innovations made in-house and the number of innovations made in collaboration with third parties (academic institutions, universities, innovation companies, consultants, customers, open innovation, user-driven innovation, public sector, etc.).

(10) R&D expenditure as percentage of the total revenue – This metric, also called R&D/Sales Ratio is useful to compare the effectiveness and efficiency of R&D expenditures between companies in the same industry. Within the meaning of the Company Innovative Leadership Model, the criterion measures not only the effectiveness but innovation efforts as well. This criteria is also used by other researchers for measuring innovativeness and as Gamal (2011) generalizes, this kind of metrics are first generation input indicators because they follow a linear conception of innovation focusing on particular inputs as R&D development, education expenditure, research personnel, university graduates, etc.

(11) Registered trademarks, patents, novel designs – that criterion provides information about legal and registration procedures which a company has undertaken during the last year with respect to its innovations. The result measures the company's ability to protect its innovations and what activities it has realized to that objective.

(12) Trainings and educational enhancement (degrees, diplomas) of the company's employees (number of activities assessed against the number of employees) –innovative companies rely on the innovativeness of their team and that is why a company should train and improve the skills, knowledge ad competences of its employees. The criterion measures the level of educational enhancement of the company's employees. This criterion is organized as an index in order to remove any size-or-industry-related dependency.

2.6. Methodology

This study is based on a questionnaire survey data collection. The questionnaire was distributed between January 4th and February 20th. 2016, by sending it via email to key companies of the IT sector in Bulgaria. In total, 40 filled-out questionnaires were returned during the data collection period. 40 IT companies took part in the research. They represent around 5% of the information and communication technology sector (ICT), based on their yearly revenue (NSI, 2013). The formulation of the questionnaire

is based on the Company Innovative Leadership Model and describes detailed characteristics and elements that can form a part of each section of the model. The model described above has been deconstructed into smaller units in order to define in detail the activities that have been accomplished within the IT companies participating in the research.

Each of the 12 modules of the model is deconstructed into elements (components). Each of the elements brings to the respondent certain grade (points) and forms the result (performance) of the company in each evaluated module.

Table 1. Components of the Company Innovative Leadership Model and contribution for final index result

| Indicator | Components | Points/weight |
|---|--|---------------|
| 1.1. Change in sales revenue from previous year (1) | 1.1.1 Decrease more than 50% | 1 |
| | 1.1.2 Decrease between 30 and 50% | 2 |
| | 1.1.3 Decrease between 15 and 30% | 3 |
| | 1.1.4 Decrease up to 15% | 4 |
| | 1.1.5 No changes (2-3% differentiation) | 5 |
| | 1.1.6 Growth up to 15% | 6 |
| | 1.1.7 Growth between 15 and 30% | 7 |
| | 1.1.8 Growth between 30 and 50% | 8 |
| | 1.1.9 Growth more than 50% | 9 |
| | 1.1.10 Growth more than 200% | 10 |
| 1.2. Social capabilities (2) | 1.2.1 Feedback from customers/offices | 1 |
| | 1.2.2 Customer questionnaires/surveys | 1 |
| | 1.2.3 Company facebook account | 1 |
| | 1.2.4 Company LinkedIn account | 1 |
| | 1.2.5 Company website | 1 |
| | 1.2.6 Using customers in innovation development | 1 |
| | 1.2.7 Using customers as testers for new products | 1 |
| | 1.2.8 CRM software | 1 |
| | 1.2.9 Direct mailing campaigns | 1 |
| | 1.2.10 Using Lean methodology | 1 |
| 1.3. Platform and data (3) | 1.3.1 Customer database | 1 |
| | 1.3.2 Product catalog | 1 |
| | 1.3.3 ERP system | 1 |
| | 1.3.4 Online sales channels | 1 |
| | 1.3.5 Automated processes | 1 |
| | 1.3.6 Analytical software (Business intelligence/aCRM) | 1 |
| | 1.3.7 Software for time and process management | 1 |

| <i>Indicator</i> | Components | Points/weight |
|--|---|----------------------|
| | 1.3.8 Software for tasks' allocation performance measurement | 1 |
| | 1.3.9 Help desks for customers | 1 |
| | 1.3.10 Training programs for customers | 1 |
| 1.4. Leadership (4) | 1.4.1 Leaders development program | 1 |
| | 1.4.2 Program for constantly improvement of employees | 1 |
| | 1.4.3 Change management policies | 1 |
| | 1.4.4 Flexible organizational structure | 1 |
| | 1.4.5 Employees feedback system | 1 |
| | 1.4.6 Promotion of leaders with management qualities instead of experts | 1 |
| | 1.4.7 Mentor programs and policies | 1 |
| | 1.4.8 Employees promotion policies and procedures | 1 |
| | 1.4.9 More than one employees who knows all the company knowledge | 1 |
| | 1.4.10 Prominent leader at each company level | 1 |
| 1.5. Strategy, planning and policies (5) | 1.5.1 Innovation strategy | 1 |
| | 1.5.2 R&D department, innovation development department | 1 |
| | 1.5.3 Innovation selection procedure | 1 |
| | 1.5.4 Innovation projects and implementation methodology | 1 |
| | 1.5.5 CIO = chief innovation officer | 1 |
| | 1.5.6 Planning of innovation projects for next 12 months | 1 |
| | 1.5.7 Innovation evaluation system | 1 |
| | 1.5.8 Innovation stimulation bonus schema | 1 |
| | 1.5.9 Competitions for innovations and ideas among employees | 1 |
| | 1.5.10 Procedure for innovation implementation | 1 |
| 2. Innovations activities | | 1 |
| 2.1. Research and development costs and investments (6) | 2.1.1 No costs | 1 |
| | 2.1.2 Up to 10 000 BGN | 2 |
| | 2.1.3 Between 10 001 and 20 000 BGN | 3 |
| | 2.1.4 Between 20 001 and 50 000 BGN | 4 |
| | 2.1.5 Between 50 001 and 150 000 BGN | 5 |
| | 2.1.6 Between 150 001 and 250 000 BGN | 6 |
| | 2.1.7 Between 250 001 and 500 000 BGN | 7 |
| | 2.1.8 Between 500 001 and 800 000 BGN | 8 |
| | 2.1.9 Between 800 001 and 1 200 000 BGN | 9 |
| | 2.1.10 Above 1 200 001 BGN | 10 |
| 2.2. Employees in R&D (7) | 2.2.1 No employees in R&D | 1 |
| | 2.2.2 1-3 employees | 2 |
| | 2.2.3 4-10 employees | 3 |
| | 2.2.4 11-20 employees | 4 |
| | 2.2.5 21-40 employees | 5 |
| | 2.2.6 41-60 employees | 6 |
| | 2.2.7 61-100 employees | 7 |
| | 2.2.8 over 1001 employees | 8 |
| | 2.2.9 every employee | 9 |
| | 2.2.10 external R&D resources | 10 |

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| Indicator | Components | Points/weight |
|---|---|----------------------|
| <i>2.3. new product /process/ marketing/ organizational innovations (8)</i> | 2.3.1 No innovations last year | 1 |
| | 2.3.2 Internal process innovations only | 2 |
| | 2.3.3 Internal innovations only (organizational and process) | 3 |
| | 2.3.4 Product innovations only | 4 |
| | 2.3.5 Up to 3 innovations | 5 |
| | 2.3.6 3-5 innovations | 6 |
| | 2.3.7 6-10 innovations | 7 |
| | 2.3.8 11-20 innovations | 8 |
| | 2.3.9 21-50 innovations | 9 |
| | 2.3.10 above 50 innovations | 10 |
| <i>2.4. innovations made in-house (9)</i> | 2.4.1 No innovations at all | 1 |
| | 2.4.2 The internal process innovations only | 2 |
| | 2.4.3 The internal innovations only (both organizational and process) | 3 |
| | 2.4.4 For all innovations we collaborate with partners (0%) | 4 |
| | 2.4.5 up to 10% | 5 |
| | 2.4.6 between 10 and 25% | 6 |
| | 2.4.7 between 25 and 50% | 7 |
| | 2.4.8 between 50 and 90% | 8 |
| | 2.4.9 All innovations are made in-house (100%) | 9 |
| | 2.4.10 We are third party for innovation development for other companies (above 100%) | 10 |
| <i>2.5. R&D expenditure as % of total revenue (10)</i> | 2.5.1 No R&D expenditures at all | 1 |
| | 2.5.2 up to 5% | 2 |
| | 2.5.3 between 5 and 10% | 3 |
| | 2.5.4 between 10 and 25% | 4 |
| | 2.5.5 between 25 and 50% | 5 |
| | 2.5.6 between 50 and 75% | 6 |
| | 2.5.7 between 75 and 100% | 7 |
| | 2.5.8 between 100 and 150% | 8 |
| | 2.5.9 between 150 and 200% | 9 |
| | 2.5.10 above 200% | 10 |
| <i>2.6. Trademarks, patents, new designs (11)</i> | 2.6.1 No registered trademarks, patents, new design | 1 |
| | 2.6.2 In process of registration | 2 |
| | 2.6.3 In collaboration with partners | 3 |
| | 2.6.4 1 only | 4 |
| | 2.6.5 Between 1 and 3 | 5 |
| | 2.6.6 between 4 and 6 | 6 |
| | 2.6.7 between 7 and 10 | 7 |
| | 2.6.8 between 10 and 15 | 8 |
| | 2.6.9 between 16 and 20 | 9 |
| | 2.6.10 above 20 | 10 |

| <i>Indicator</i> | <i>Components</i> | <i>Points/weight</i> |
|--------------------------------|--|----------------------|
| 2.7. Innovation trainings (12) | 2.7.1 They are not necessary | 0 |
| | 2.7.2 There are not such trainings | 1 |
| | 2.7.3 Trainings on creativeness and innovativeness | 1 |
| | 2.7.4 Training on business innovations | 1 |
| | 2.7.5 Trainings on innovation management | 1 |
| | 2.7.6 Trainings on innovation strategy | 1 |
| | 2.7.7 Trainings on innovative thinking | 1 |
| | 2.7.8 Trainings on building team innovativeness and team innovations | 1 |
| | 2.7.9 Trainings on innovation project management | 1 |
| | 2.7.10 Trainings on change management | 1 |
| | 2.7.11 Trainings on entrepreneur (serial) innovators | 1 |

3. Results

The summarized results from the research show the average levels of each criteria of the Company Innovative Leadership Model based on respondents' responses. We believe the achieved results can act as a benchmark for the IT sector.

Change in sales revenue

Results in "Change in sales revenue" section show an average level of 7, which means an average revenue growth on a yearly basis of 15-30% of IT companies. More than 80% of the companies reported a growth for the last year. Irrespective of respondents' divergence, a correlation between growth and other elements exists. Those companies who have well established innovation strategies and policies as well as an established practice of usage of management tools have better innovation performance and it is reflected in their financial results.

Social capabilities

In the aspect of social capabilities, companies fail to show sufficient ingenuity and resourcefulness. The questionnaire gives possible options for respondents as it is difficult to assess companies' effort in that criteria. The questionnaire suggests the following social tools which companies might use to improve their innovation performance with respect to that measure. The possible options are: (1)

customer surveys as main customer channel for gathering customer feedback; (2) company Facebook and Linked-in accounts activity, (3) official and updated website, as direct ways of communicating with customers; (4) involving customers in innovation development and innovation testing as one of the strongest tools for product development; (5) CRM software as the strongest analytical tool for customers' interaction (communication, sales, satisfaction, improvement of processes, products, marketing); (6) direct mailing campaigns as pro-active activities towards existing and new customers; (7) using lean methodology as one of possible methodology for innovation system development.

The results show that most of the respondents have their own company Facebook and Linked-in accounts and a company website (97,5% have a website, 75% have a Facebook account and 47,5% have a Linked-In account). 50% of the interviewed IT companies involve customers in their innovation development procedures, but mainly as a primer source of innovative ideas by offering a form for customer feed-back on their websites. No one of the respondents use Lean startup methodology. CRM software is used by barely 40% of the companies.

Platform and data

Using platforms and data actively is an advanced tool for product development

Company innovative leadership model for IT sector (benchmark)

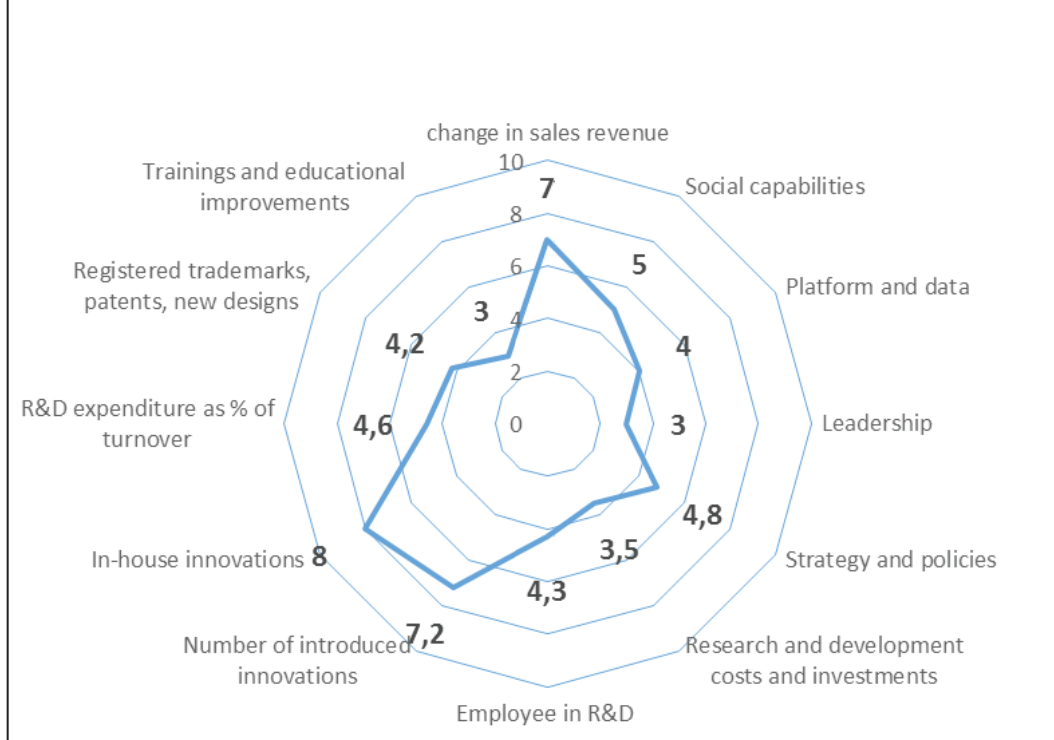


Fig.1. 1 Average levels of each criteria of the Company Innovative Leadership Model – the IT sector

and process automatization. Even as data-utilization is being recognized as the foremost asset in management in recent few years, IT companies fail to adequately utilize the benefits thereof. This is because the data software is rather expensive by domestic standards and so is its maintenance. The most widely used tools in that area are: customer database (90% of the respondents), product catalog (77,5%), ERP system (50%), online sales channels (70%), automated processes (50%), analytical software (77,5%). Only 12,5% of the IT companies use time-and-process-management software and 15% use a task-

allocation and performance-measurement software . Only the largest companies that took part in the research responded that they trained their customers outside the scope of a particular project. 50% of the companies use Customer-Help Desk. It seems to be relevant for those companies which have larger product range and/or provide services to big companies.

Leadership

Leadership efforts of companies are measured by assessing some prerequisite policies, programs or established rules and practices within companies. Their existence, or absence, respectively, provides an

important reading as to the capacity of further leadership development and growth. All of the interviewed companies stated they had established change management policies and used flexible organizational structure. These two elements of the leadership module of the Company Innovative Leadership Model are of great importance, especially for IT companies, because of the specific activities of such companies – they all use project organizational structure (flexible structure) and are constantly changing (in sync with the highly dynamic sector environment). Only 20% of the focus group have reported having leadership programs related to some policies geared through the company should build and upgrade their leaders. Employees' feedback system/process has been reported by 80% of the companies, but some of them shared that the process was just desirable and nobody actually used it. The main criteria for promotion could not achieve its purpose because no one of the companies could distinguish between the two cases – promotion based on management qualities and promotion based on expertise. Mentor programs are conducted in each of the companies, but they all are directed to current employees and usually are in the form of mentoring from head of department towards his/her subordinates. No one of the interviewed companies have operating and functioning system, process or policy for employees' promotion. The companies state that promotions are individually arranged and bear no relevance to formally established rules and policies. The survey question related to someone in the companies who is well-versed in all the policies and internal procedures was answered positively by only companies of 20 employees or fewer. This means the question is not applicable (or answerable) for larger companies which all state they do not have such an employee and all activities are left to the employees' competence. The hierarchy structure is well designed in all IT companies in the survey, as they all stated that

there is at least one employee at each of the organization's levels that performed leadership tasks and responsibilities.

Strategy planning and policies

Fourteen out of all 40 companies created some kind of innovation strategy (35%). Even though the sector is one of the most innovative ones, innovation strategies were not found to have been deeply rooted. It is obvious from the results that only companies that are subsidiaries of foreign companies have such innovation strategies in place. Most of the companies have R&D departments or at least there are many employees who perform such a role within various product development departments. Innovation selection procedure is in place in 40% of the companies. These procedures are based on criteria that the companies see as essential to assessing the need and appropriateness of developing the proposed innovations. None of the companies interviewed uses a special project management methodology for innovation projects. Just two of the 40 companies (5%) appointed a CIO (Chief Innovation Officer). Some 50% of the companies have introduced planning of innovation projects. None of the companies developed their own innovations evaluation system. All of the companies (100%) responded they had motivated their employees into generating ideas for innovations, but none had established a systematic approach in that respect. Some 25% of the companies introduced some employee competitive scheme for innovation proposals. A mere 10% of the companies developed a special procedure for innovation implementation with all the required specifications, standards or guidelines.

Research and development costs and investments

Research and development costs vary according to the size of the enterprise. From the results achieved from this study, it has become obvious that bigger companies make larger investments in R&D on a relative basis.

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Results from the focus group show average R&D investment costs of around BGN100.000 (EUR 50.000) per company. During interviews it was established that the level of efficiency of R&D activities had a direct impact on product development and sales. The paper does not focus on the possible correlation between investments made and growth in sales revenue because such research requires longer and more extensive time limit. Nevertheless, our findings from the sample interview data suggest that such correlation is highly likely.

Employees in R&D

The specifics of the sector lead us to the assumption that employees in IT companies can be divided into two major categories: operational and project-related experts. Almost all of the project-engaged employees are partially involved in some R&D activities. The average results with respect to this criterion are 20 employees, but the figures vary depending on the company size. As a percentage, the average result is about 18-20% of all employees. The number of R&D experts varies also with the sub-industry of IT companies. Companies that are more retail- and customer-support oriented, have a smaller number of employees that are assigned R&D functions. Conversely, those companies whose business requires product development have larger pro-rata R&D experts.

New product /process/ marketing/ organizational innovations

The introduction of a new or novel product, process, marketing approach or organizational improvement as an innovation is more or less a matter of perception, understanding and knowledge of innovations. Often, some improvements, upgrades, even new products are not categorized as innovations because of lack of innovation knowledge. As a consequence, such approach harms the following management of these 'innovations' and entities, complicates the specific development of the life cycle of such 'introductions' and embarrasses the efficiency

of these non-correct-classified innovations. The scale in the questionnaire widens the innovation competence of companies if they truly categorize innovations and do not making just improvements or develop their process and organizational processes. The results from the research show an average number of 6 to 10 innovations per each companies. The relatively high result in the number of innovations is provoked by the specifics of the researched industry which is characterized by concentration of inventions and innovations as well as its highly intensity in technology development. There is one respondent who stated more than 50 innovations for 2015 which were new mobile applications, developed according customers' requirements and improving currently existing mobile applications upgrading technology and features. The criterion of this company for categorizing a product or certain upgrade as innovation is that (according to the respondent) the product was significantly improved.

In-house Innovations Most of the innovations within the sector are realized in-house because innovations are directly related to the main activities of these companies. Sometimes innovations and more complicated products are produced in partnership between two or more companies with different expertise and that is why the average result from the research is between 50% and 90%. The innovations which are implemented and are not developed in-house usually are operational and process optimizations as well as to some marketing-related new approaches.

Trademarks, patents, new designs

Just two of the interviewed companies have ever patented their innovations. The reason for that they stated the patenting the complicated and long procedure for patenting. Other reason is the well-set software rules for copy writing and most of the companies rely on it.

Innovation trainings

The results from the research show unsatisfactory level of innovation trainings

practices among IT companies. The results show that innovation training of employees do not rise to innovation standards required for the sector. None of the 40 IT companies have trained their employees on business innovations innovation strategy and innovation management. Our findings also show that creativity-and-innovativeness, directly related to the systematic approach towards innovation creation and innovation management is largely overlooked. Some of the companies interviewed stated their possible interest in having such trainings, especially trainings on innovation projects management and building team innovativeness. Most of the companies

have trained their employees in change management training which seems to be the preferred (and only) innovative training process.

4. Conclusion

We believe the research achieved its main objectives: examination and evaluation of various companies' efforts, performance and capabilities in providing and implementing innovations. By doing so, this paper offers verifiable and objective data on innovation-related activities by IT companies in Bulgaria. The model used for evaluation of the IT sector and companies is Company Innovative Leadership Model and, as we have argued, it gives not only information on the tendencies of

These are the three lowest performed indicators based on the research in the IT sector.



Fig. 2. The lowest results from CILM' indicators

These are the three highest performed indicators based on the research in the IT sector.



Fig. 3. The lowest results from CILM' indicators

Articles

the domestic IT sector, but is also a benchmark method for innovation processes, status-quo and dynamics of the interviewed companies.

The results from the research show enhanced activity among the IT companies in the search for innovating new products, increased expenditure on R&D per product and technology development, using platform data and extending their customer and social channels for improving business efficiency. Nevertheless, field results show that, for the most part, our Company Innovative Leadership Model and its modules for evaluating different aspects of innovation activities and leadership are largely underrated, or inconsistently applied, by the majority of Bulgarian companies. Most of the IT companies underestimate creating innovation strategies, policies and planning, innovation training and patent protection, or, alternatively, if they apply some of the core CILM strategies, they are erratic, insufficiently funded or incoherent over the long term.

The paper outlines certain measures and activities that IT companies could take in order to boost their innovation potential and leadership. These can be found in the certain features of each of the examined modules and specific questions to the interviewed companies.

As a result of the research and according to the interests of the researchers, a special new research will be performed emphasizing on innovation trainings. The results of the research will be helpful for the analyzed IT sector and especially for the interviewed companies so they could be able to gain competitive advantage and improve their own company innovative leadership.

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