Information Technologies and Strategies in the Service Industry

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INFORMATION TECHNOLOGIES AND STRATEGIES IN THE SERVICE INDUSTRY

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Abstract: Information technologies have a deep impact on companies and their strategy especially now in so called postindustrial era. A company in sophisticated sector as service sector is strongly influenced by information technologies and must adapt to new rules or at least to new tools to not to lose its competitive advantage. In this paper we discuss the business environment of service sector. How the information technologies are used in the companies and how they influence the business strategy. This study is based on research made on Slovak companies and on modern theoretical approaches in strategy management.
Key words: service sector, strategy, information technologies, business environment

Abstrakt: Informačné technológie majú silný dopad na podniky a ich stratégiu a to hlavne teraz v takzvanej postindustriálnej ére podnikania. Podniky v sofistikovanej oblasti, akou je sektor služieb, sú silne ovplyvnené informačnými technológiami a musia sa prispôsobiť novým pravidlám, alebo aspoň novým nástrojom, aby neprišli o svoju konkurenčnú výhodu. V tejto práci preberáme podnikateľské prostredie sektoru služieb. Ako používajú podniky informačné technológie a ako ovplyvňujú podnikateľskú stratégiu. Práca je založená na výskume slovenských podnikov a na moderných teoretických prístupoch v strategickom manažmente.
Kľúčové slová: sektor služieb, stratégia, informačné technológie, podnikateľské prostredie

INTRODUCTION

Whether information technologies are just a new tool or they are a new technology bringing new rules to the business, both views have common that they have a deep impact on companies, how they compete and what they offer to their customers. Service industry is strongly influenced by these new technologies because of the customer oriented character of the industry, that have a lot of possibilities how to utilize information technologies to improve the level of offered service and so the product. The research was done on 382 companies that ware filtered to 125 companies in service industry in Slovakia. As a data gathering method was used a survey method. The companies were doing business in tourism, education, hospitality, commerce and other service.

The survey was designed based on newest theory in strategic management and information technologies. Also it was designed to prove theses like if the information technologies vanish the difference between large and small companies or if the more intense competition results in greater use of information technologies.

The intensity of competition in the service industry is middle to low. The market is growing. Important changes occur every 2 to 3 years. Stakeholders are typically from Slovakia. When negotiating they have equal position to both suppliers and buyers. As a summation the intensity of information technologies usage is middle to low although there is significant volatility caused by character of business. Three quarters of

companies have strongly integrated information technologies into their business where they use them through all business process. One third of companies realize essential portion of their income from information technologies. Nearly two thirds use the internet to acquire data when important decision is to decide. From strategy perspective almost every fourth company has a separate strategy for physical world and for the internet. More than a half has a dynamic type of strategy suited for unstable environment. The companies are competing on lower price in the first place. More than a half is willing to change the character of product due to individual customer wishes. Building a strong name is the dominant strategy in the industry.

1 Research's Fundaments

In this segment I will offer you a part of theories on which is this research based and also I will explain how was the research realized and which methods were used.

1.1 Theory Overview

Business experiments are an alternative procedure that stand in oppose to thorough research. If a company wants to make a business decision it can either make a research, analyze data, and plan a decision, or use the trial and error method. It seems that these methods are interchangeable while the more hostile the business environment is the more effective is the business experiments method. Anderson and Simester wrote in their paper Smart Business Experiments[1] that the companies should think more like a scientist. They should create a test and a control group. The focus should be on individuals and it should be done in short term. The experiment should be simple. The difference to a scientific experiment is that in business experiment you can change all variables at once to prove the complete concept how you think it is. The out of the box thinking is a premise to achieve effectiveness also measuring everything to get as much data as possible. There is also an advice that a company should be looking for a natural experiment. In the article New Business Models In Emerging Markets[2] authors Eyring, Johnson and Nair wrote that in some of their case studies in emerging markets the business experiments outperformed the best and most detailed plans done by their experts, because of the unpredictable environment.

To help the management to become effective with their decisions big data seem to be a way how to accomplish that. Big data means to a company to collect as much data as possible so the analysis is precise and subsequently the decisions. Brynjolfsson and McAffe wrote in their paper Big Data: The Management Revolution[3] that collecting large amount of data allows company to be more precise. That companies do not have better algorithms then before but they have much more data. A company should test its ideas, identify opportunities based on big data, and implement them on test unit and for even greater effect share data across the internet so it can have even more opinion on it. Barton and Court wrote an article on analyzing the big data in their paper Making Advanced Analytics Work for You[4]. According

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[1]ANDERSON, E.T. – SIMESTER, D. Smart Business Experiments. In *Harward Business Review.* ISSN 0017-8012, March 2011, s.98-105.
[2] EYRING, M.J. – JOHNSON, M.W. – Nair, H. New Business Models in Emerging Markets. In *Harvard Business Review.* ISSN 0017-8012, January – February 2011, s.88-95.
[3] BRYNJOLFSSON, E. – MCAFEE, A. Big Data: The Management Revolution. In *Harvard Business Review*. ISSN 0017-8012, October 2012, s. 1-9. Reprint R1210C.
[4] BARTON, D. – COURT, D. 2012. Making Advanced Analytics Work For You. In *Harvard Business Review*. October 2012, s.1-7. Reprint R1210E.

to the study the data should be from different sources. The analytical models should be simple and the company should be transformed in the way that it can use these procedures.

In the paper Strategy and The Internet[5] Porter wrote that internet is a tool but and it does not bring new rules to business. The industries will compete only on price. The internet is no longer a competitive advantage. Not using it only means a competitive disadvantage. According to Porter there are two sustainable sources of competitive advantage, operational effectiveness and strategic positioning. Operational effectiveness means that you do the same activities as your competitors but better. Strategic positioning is the other source and it means that you do different activities as your competitors and also you offer a unique value to your customers.

What can be a proper strategy in a hostile environment is the focus of the work of Wirtz, Mathieu and Schilke Strategy in High-Velocity Environments[6]. They identified seven dimensions where a company can set their strategy. It is either product differentiation, building a strong image, narrow specialization, looking for opportunities, replication, redesign and cooperation.

1.2 The Research

The basic research was done in Slovakia on 382 companies. For purpose of this paper the sample was filtered to 125 relevant companies from service industry. The companies specifically operated in tourism, education, hospitality, commerce, health and other service. The survey was done in autumn 2011. It was designed using the newest theory in information technologies and strategic management. The objectives of the research were to prove existing theories, to prove new thesis and to inspire to new ones.

1.3 The Methods

The data were collected using a survey method with 57 opened and closed questions. Data were processed in spreadsheet editor. Methods used to process the data were correlation to quantify relation between factors, regression analysis to formulate the behavior of the relationship, and coefficient of determination to quantify the accuracy of the projection of the behavior. The synthetic indicators were created as a summation of weighed scoring. More complex ones were then put to relation to profitability or turnover.

2 Research results

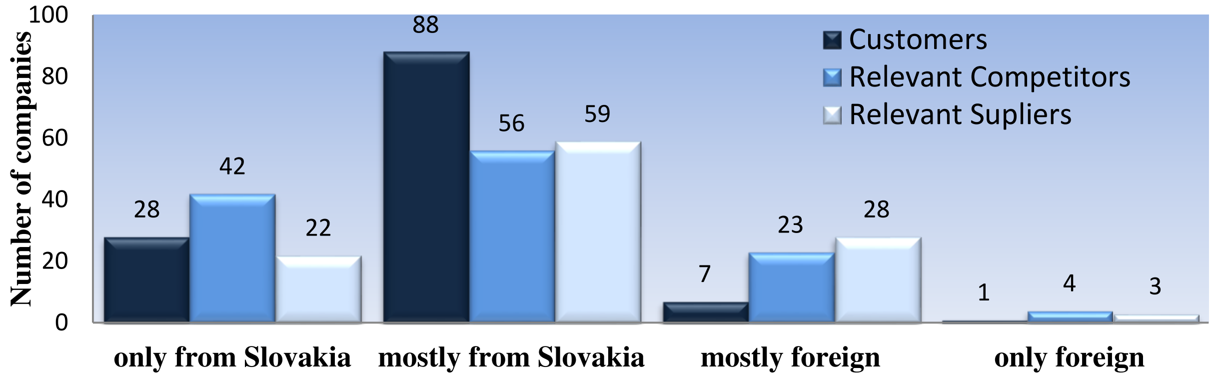
2.1 Business Environment

The average company in service industry is a small size company. Over the half has a turnover not bigger than 2 million EUR a year and nearly three quarters do not have turnover bigger than 10 million EUR. The average profitability of costs is 18.3 percents while the median is 9 percents. The industry as a whole is slightly growing. During the last three years price of the main product was growing with a tempo of 2.1 percent a year in average. The most companies experience an important change once a year, but more than a half of all companies experience a significant change less than every three years. Most companies (21.7

[5] PORTER, M.E. Strategy and the Internet. In *Harvard Business Review.* March 2001, s 1-21. Reprint 6358.
[6] WIRTZ, B.W. – MATHIEU, A. – SCHILKE, O. Strategy in High-Velocity Environments. In *Long Range Planning.* 2007, vol. 40 no.3, s.295 - 313.

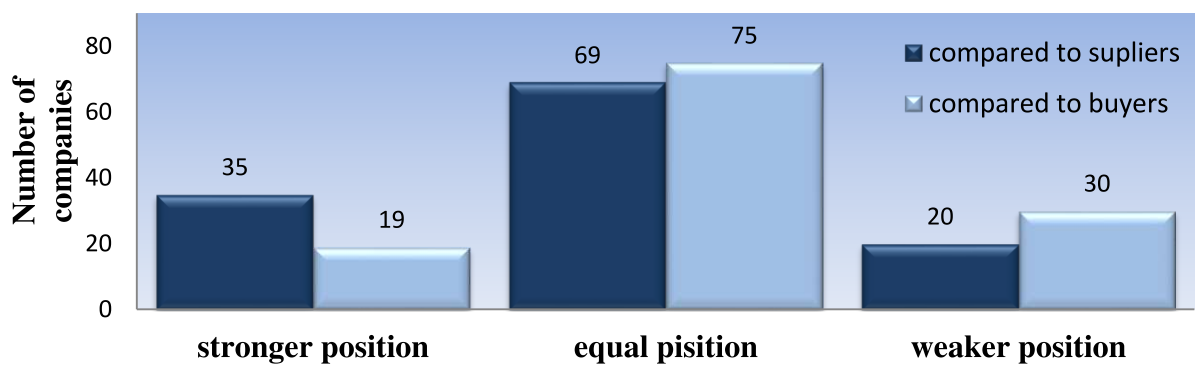
%) invest between 0.1 and 0.5 percent of turnover in innovation. This is not so significant because almost the same number of companies invest in other intervals. So it can be said, that in the service industry companies invest yearly in innovation somewhere between 0 and 6 percent of turnover. Competition is growing (63.2 %) in the most cases or at least stagnating (32.8 %). The origin of the stakeholders can tell something about the intensity of competition. The more international the stakeholders are the more intense is the competition in the industry. Customers are mostly from Slovakia (70.4%). Main competitors come mostly from Slovakia (44.8 %). Collaborating companies come also mostly from Slovakia (47.2%).

Figure 1: Origin of the Stakeholders



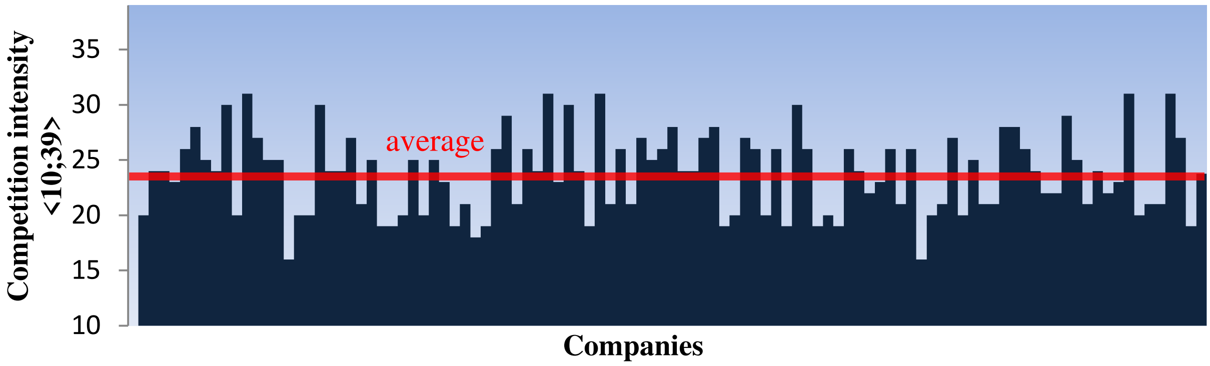
In 67.2 % of cases the companies perceive as competitors the competitors from their own industry, 29.6 % competitors from their own industry and related industries. The companies are split in a half when answering the question about the point when the company brings a product on the market. 42.2 % of the put the product on the market as soon as possible and they make further adjustment while the product is already on the market. However 46.6% of the companies in the research put the product on the market only if it is completely ready. Almost all companies are influenced by a competitor's decision. 55.2% slightly and 37.6% strongly. The typical change in industry has a character of an incremental change. When negotiating with a supplier most companies have an equal position (55.6%), so they try to find a consensus or compromise. In a negotiation with buyers even greater majority has an equal position (60.5%).

Figure 2: Comparison of Negotiation Power



A synthetic indicator of competition intensity for the service industry in this research reached the value of 23.75 on a scale between 10 and 39. That means that the intensity of competition has reached 47.4 % of the possible maximal value so the perceived intensity is middle low.

Figure 3: Synthetic Indicator of Competition Intensity

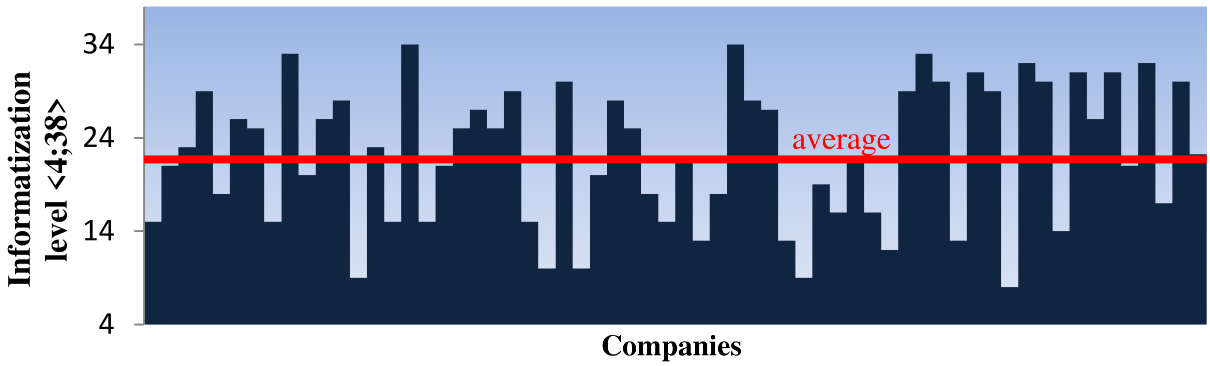


2.2 Information Technologies

Most companies believe (81.6%) that information technologies brought new tools and opportunities not new rules and fundamental changes. In the service industry 74.4 % of companies have strongly integrated information technologies into the company's processes. They use it for emailing, surfing and both internal process management and supplier-customer process management. A company spends in average 26.27 percents on internet promotion of total spending on promotion. However the median value is 11 percent what means that in the sample there are some companies that spend significantly more than the others. The product has changed due to information technologies in 30 percent of the companies and the organization has changed in 13 percent. In 30 percent the company's main source or at least a significant source of income comes from information technologies. In 14 percent is it the side income and 56 percent of companies in the sample do not realize income from information technologies, or the income is irrelevant. Expenses on information technologies are in average 7.7 percent on turnover with a median of 3 percent. 44.3 percent of the companies in the sample actualize the content of their website nonstop. 59 percent of the companies are employing an internal worker who takes care of information technologies. In 81 percent it is a worker with information technologies qualification. The analysis of internet activities of their customers is utilized by 44.8 % of companies. And the internet is used as a research instrument in 60.8 percent of the cases. One third is segmenting their customers due to internet analysis. The website is primary intended for objective oriented customers (46.3 %), a little more the a third (37.2 %) do not use this type of differentiation. The biggest share of companies (46.3%) does not see an impact of information technologies on their expenditure. More than a third (37.4%) is experiencing an increase of the costs and only in a small share of companies (16.3%) is experiencing decrease of their costs.

Due to synthetic informatization indicator reached the average intensity level of information technology utilization on the scale between 4 and 38 in the sample the value of 22.3 that means that the intensity of utilization of information technologies is 48.2 percent of possible maximum. However there is a significant volatility between the companies and the intensity depends strongly on what kind of business is a company is in.

Figure 4: Synthetic Indicator of Informatization Intensity



2.3 Strategies

A separate strategy for the physical world and for the internet has 22.4 percents of companies. Separate strategy indicates that a company senses a fundamental difference in the environment and business rules of physical and virtual world. Most companies (48.8%) are followers following market trends, then nearly even share have market leaders (23.2%) and companies that are directly competing to market leader (20.8%).

Traditional view of a rigidly set objective type of strategy, have 46.8 percent of the companies. More than a half (52.8%) of companies have a more dynamic type of strategy that is better suited to unpredictable environment. From those, more conservative form of modern approach have 56.7 percents. Their strategy has a form of a floating objective with a possibility of correction. 43.3 percent have even more untraditional form of strategy. It is strategy of simple rules that allows to react promptly to changes and to delegate decisions down the decision chain.

The source of competitive advantage using the two dimensions the operational effectiveness (same activities as competitors that are executed with greater effectiveness) and the strategic positioning (offering unique value achieved with different activities) splits at half. As the technologies are very fast available to all the companies the competitive advantage vanishes very fast and companies competing in this kind of environment need to compete on effectiveness. Companies can also compete on offering a unique value but this is hard to maintain because of the information dissemination.

As the key source of competitive advantage is viewed the price (lower product price than competitors) in the first place, in the second place is personnel, third is unique product, next is communication, lower costs, distribution and the management. This is consistent with a view that companies on the internet would start to compete on price because a big amount of companies are offering nearly the same product and the consumers have as much information as never before.

How sophisticated the marketing is can be shown on the broadness of internet marketing segmentation. There is no segmentation in 66 percent of cases, so the companies are using universal marketing. 26 percent use either broad or narrow form of marketing segmentation. Micromarketing as an individual form of marketing is used by 7 percent of companies in the sample. Companies using marketing segmentation can address their customers more precisely when using the information technologies to analyze their behavior.

They have more information about what their customers like, do not like and what is their typical behavior to stimuli.

The strategy is rarely changed or never changed in 59 percent of the companies. 41 percent of them change their strategy regularly every 2-3 years or often. This indicates an unstable business environment with a lot of changes.

Interesting is the type of relationship between competitors. In 13.6 percents a company needs to have a good relationship with its competitors to succeed in the business. This could be an indication of an environment where one company alone is not able to fill all the requirements of consumers so it must build a kind of collaboration network even with its competitors.

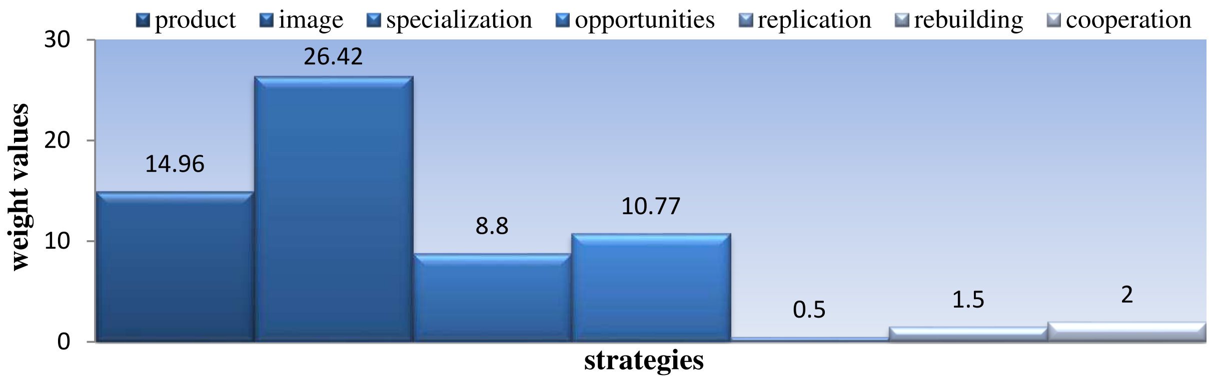
When making decisions about company's product 64.6 percent do thorough research before doing so. 35.4 percent use the form of business experiment to decide. An unstable environment is determined by too many variables and does not offer required stability to make thorough plans. Solution is offered by business experiments where a company can either experiment how the customers react to different changes and so optimize the product or it can throw the product on the market and make modification while the product is on the market.

Full customization, where the product is exactly customized to customer's wishes, is used by the largest group (32%) of companies in the service industry research. Partial customization of the character of the product is used in the second largest group of companies (25.6%). Next group of companies (20.8%) are willing to customize their product only to the degree where it does not change the character of it. The rest of the group (21.6%) do either small changes that do not change the character of the product or the do not customize the product at all. Customization is characteristic for service industry where usually no mass production is used and a customer can be viewed as a stand-alone unit.

How much of the customization can be done without raising the costs of product? The most of the companies (28%) can partially change the character of product without raising costs. Customization without the change of character that does not raise cost is possible in 24.8 percent of companies. 29 percent can do only small changes and 10.4 percent cannot do any changes without raising the costs. 13.6 percent of companies can fully customize the product without changing the costs.

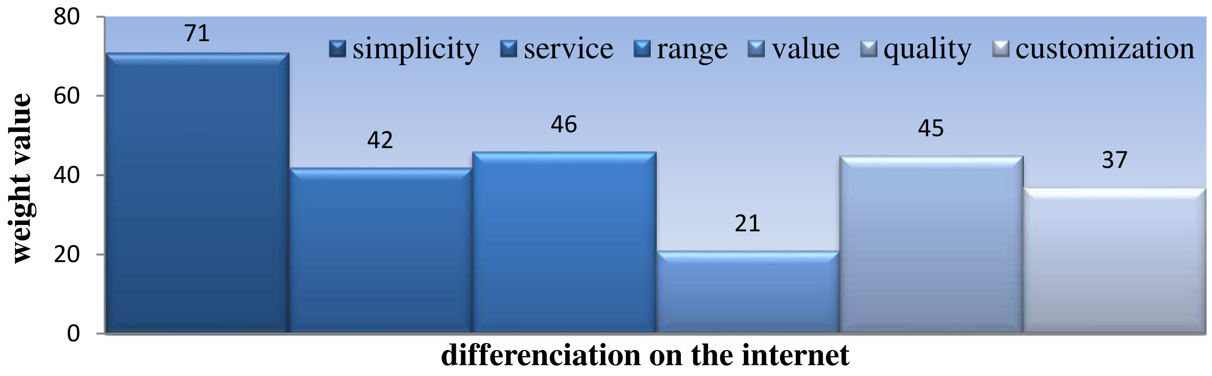
Using the profitability of costs as an effectiveness criterion and frequency of occurrence, the most successful strategy in service industry is building a strong name (company tries to build a better reputation than competitors). Second is having a different and unique product. The next successful strategies in a row are looking for opportunities and narrow specialization. As history has shown building a strong image can be a long distance race. However information technologies have tools like social network that can influence the image very fast but the threat is that it can function both ways.

Figure 5: Strategy success



To differentiate company on the internet the most common tool that companies use is simplicity (easy access, user friendly), better range of products, better quality, customer service, customization, and value for money.

Figure 6: Differentiation on the Internet

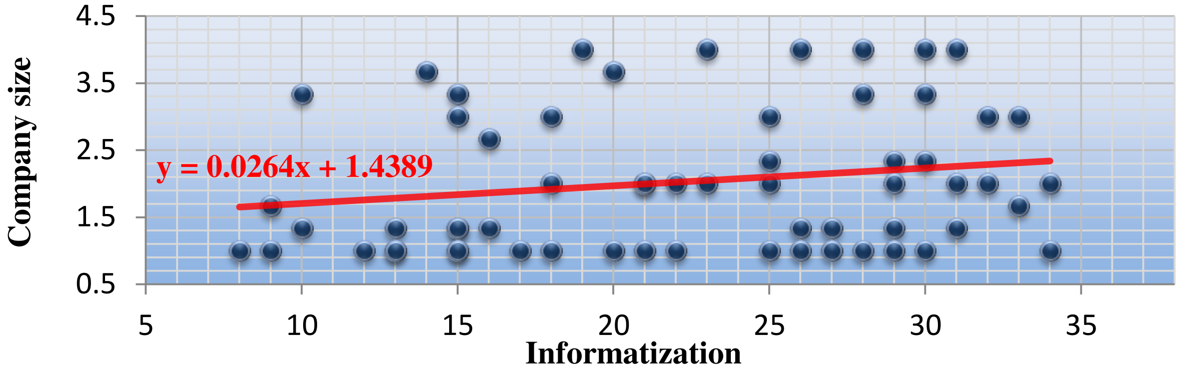


3 Theses Review

3.1 Vanishment of the company size as a factor

The thesis is that the information technologies make it possible that small companies can compete with large ones. Therefore there should be no correlation between use of information technologies (informatization) and company size because same technology should be equally available to both of them. Otherwise the negation of this thesis would be a relevant correlation that could be interpreted that the large companies have better technologies so a competitive advantage. Correlation coefficient between company size and informatization is 0.1888. This means that there exists very only weak to negligible correlation what is consistent with the thesis that company size does not matter when dealing with informatization. There are large companies with both high and low level of informatization. Also there are as many small companies that have both high and low level of informatization. The information technologies are equally available to all companies. Information and software is cheap and it is going to be even cheaper. It seems that there is no need for complex models and the simple ones can do at least the same job as complex ones. So the small companies can compete with the large companies on the same level of informatization.

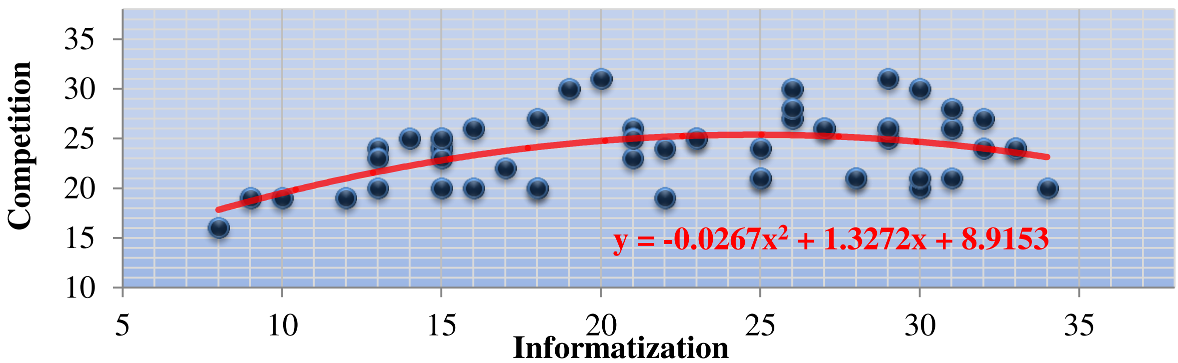
Figure 7: Informatization and company size correlation with regression equation



3.2 More intense competition needs greater usage of information technologies

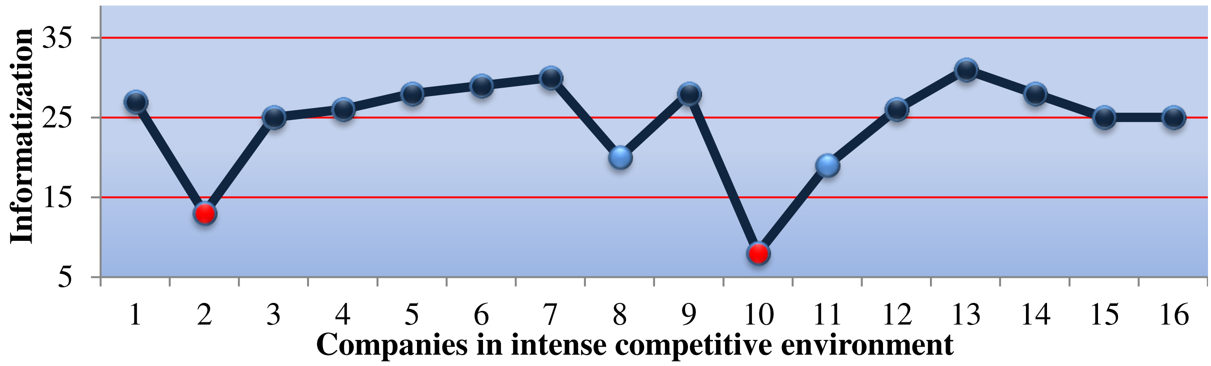
The thesis is that to be competitive in service industry a company needs to employ information technologies. Therefore the more competitive environment is, the more intense is the usage of information technologies. This would be so because it would allow companies to offer faster and more customized service and to get better information to make better decisions. The result of correlation analysis is that there is a moderate weak correlation between competition intensity and informatization of value 0.35. As a standalone fact this would be not a breakthrough but I will offer you an interpretation where this fact can matter. Business is too complex that it could be easily described. It is determined by unlimited factors with a little impact of isolated one. In this perspective any moderate to weak correlation is a strong one compared relatively to all others. So if we can determine that a company in a more intense competition needs to have more intense usage of information technologies and we have done this it would be a potential helping advice to those companies that are deciding whether to invest in information technologies or not.

Figure 8: Correlation between intensity of competition and informatization with regression



However in a closer look when we take an isolated look on data coming only from companies that are competing in an intense competitive environment we can clearly recognize that almost all of them have also an intensive usage of information technologies. This can be interpreted with combination with correlation data from informatization and turnover growth (no relevant correlation) that information technologies are a necessary condition for company to be able to compete but not a sufficient one. It is so because we cannot say that a company will be successful if using more advanced information technologies but we can see that everybody is using them. Not using these technologies is more a competitive disadvantage then using of them a competitive advantage.

Figure 9: Informatization in intense competitive environment



CONCLUSION

Companies in service industry are competing in middle to low intense competitive environment. The market is slightly growing. Companies are small in average and are influenced only a little by decisions of their competitors. All companies have access to internet and almost all have a website. Companies are using internet for customer analysis, for income and for stakeholder communication and coordination. Some products and organization structures were changed due to information technologies. More than a half of companies have a dynamic type of strategy suited for an unstable environment. Most important source of competitive advantage is lower price. Nearly a third of companies use business experiments to optimize decisions. Dominant strategy in service industry is building a strong image.

Information technologies in service industry vanishes the difference between small and large companies so the small companies can compete with large ones. They have both the same access to technologies with low costs and comparable quality. There is no relevant relation between size of company and the intensity of information technologies usage.

The one thing the informatization is related to is the intensity of competition. The more intense the competition is the more intense is the use of information technologies. If we take separately companies in intense competition almost all also use very intensively the information technologies. If we add the correlation between informatization and turnover change (not relevant value) to the equation we get a picture of an environment where the information technologies are obligatory piece in the company's equation of success but not a sufficient one to tell whether it will be successful.

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