

A Case Study of the Agile Enterprise Regarding the External Business Environment

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Abstract: *The unstable business conditions, the international antagonism, inconsistent demand as well as the growing expectations of possible clientele put to the challenge the enterprises globally. The enterprises' agility proposes possibilities to assist companies foresee the new international economic trends. It utilizes critical circumstances of the environment as new prospects for expansion. The enterprises' agility benefits from endogenous and exogenous alternations in the ecosystem to enhance its capabilities and so to provide constant as well as lucrative presence in the ecosystem. This paper first depicts the state of being agile in an enterprise. Then it explains how agility contributes to the effectiveness of the enterprises. The scientific literature is not abundant with only a few leading scholars on this topic. A methodology is used to assess the existing turbulent business environment in order to explore the forces that stimulate the enterprises to enhance their agility. This research obtains data from a survey conducted in enterprises operating in the textile industry in one geographical region. The questionnaire that was used is only partially analyzed in this paper in order to evaluate the tested enterprises in respect to their agility to the external business environment. The outcome of this analysis shows that some of the enterprises are performing relatively agile whereas others have deficiencies. The contribution brought by this paper is approbation of a scientific methodology in practice and the interpretations of the results supplied by the questionnaire.*

Keywords: agile, agility, case study, enterprise, ecosystem, external business environment

Introduction

Recent scientific papers show that contemporary production tends to be in dynamic alteration and it needs a new business philosophy (Zhang, 2003). A new attitude is needed that will demolish the shell of the existing business patterns. (Holweg, 2005). The outcomes of the research point to that production necessitates a positive response to the turbulent business environment and moreover, it should take advantage of them. This can be accomplished by changing the attitude of the production management to consumers and supply-chain structures. Apart from that they are encouraged to cooperate with competitors. The mere focus on just price and quantity is not enough. Enterprises could not only live but also thrive in the dynamic environment, when they are able to perceive and comprehend the way the ecosystem in which they operate is changing. By doing so they could react adequately to any unanticipated alteration (Kosuliev, 2015). In addition to that, the successful enterprise in the contemporary turbulent ecosystem needs to acquire supplementary market shares (Marichova, 2015). Enterprises need to act immediately and effectively to the contemporary requirements of their customers, exploit critical regional and global changes in such a way as to

enhance or at the minimum keep the existing level of market share. The most desirable outcome would be to enlarge the market presence both locally and globally.

The objective of the present paper is to find out the level of agility of ten manufacturing enterprises in Bulgaria from different sectors.

The methodology used in this paper is designed to help manufacturing enterprises formulate a strategy in pursuing agile production based on a conceptual model. It consists of three main stages: determining the enterprise's need for agility and specifying it at its current level; identifying the capabilities that an enterprise needs to become agile; identifying business practices and tools that can contribute to providing these capabilities to the enterprise. Due to the scope of the survey, the research is limited to assessing the agility of ten enterprises in relation with the external business environment.

Literature review

The enterprises are under pressure by the commotion and alternation of the business ecosystem (Hall, 1994). Changes and pressures are unidentified factors. They form agility drivers which stimulate enterprises to search for different opportunities to maintain their competitive advantage. Each enterprise has its unique drivers which are correlated to the business environment. Hence, the driving forces of each enterprise are numerous. They necessitate the formation of a detection method which could identify the alternations in the business ecosystem, no matter of their genesis.

Enterprises may experience alternations and stress created by the business environment. This necessitates a dynamic change of their agility (Drucker, 1995). The first step of the estimation of agility is described as the "needed agility level". It is a function of numerous elements. These elements can be the turbulence degree of the ecosystem and the features of the ecosystem and the enterprise. Then it is necessary to identify the level of agility needed for an enterprise. This is accomplished by estimating the existing agility level. The change between the level of anticipated and existing agility can now be investigated in order to deliver sufficient information for choosing an adequate strategy. This paper is limited to a trial of the methodology in order to find out the agility driving forces created by the external environment in which a certain enterprise operates.

The scientific literature does not provide a generally accepted agility definition. The predominant views suggest that being agile is the state of constant and ultimate adjustments in the enterprises which ensure their rapid response to cope with unpredictable situations. Agility is not the mere capability to just relocate resources within a persistent production organization which makes rapid rearrangements when facing unprecedented changes in the ecosystem (Bernardes, 2009). We suggest, the agility of the enterprise is most closely described in the following way (Penchev, 2015):

The agile enterprise is capable of a rapid and effective response to the commotion of the exogenous ecosystem which is progressively dynamic. Moreover, it is capable of foreseeing the contemporary production tendencies. In this way enterprises cannot just follow the pattern but be producers that utilize the coming possibilities and be prepared for them in advance in order to increase their market share. The agile enterprise can deal with the sudden endogenous problems. It can utilize the whole dynamic of the ecosystem in order to enhance its effectiveness and accomplish a continuous and lucrative way of production.

Methodology

This paper offers a methodology based on a conceptual model. This methodology is intended to assist industrial enterprises create a strategy which can help them become more agile. There are three stages connected with the methodology: the first is to evaluate the current level of agility; the second is to find out the necessary competences that are required in order to enhance the agility level of the enterprise; third is to find out what should the enterprise implement in the production process in order to improve its own capabilities. Due to the scope of the survey, the research is limited to assessing the agility of ten enterprises in relation with the external business environment.

Analysis of the general agility level

In the process of the pilot study, in-depth studies of 10 production enterprises on the territory of Bulgaria were carried out. For this purpose, a survey of 138 questions was specially adapted (Sharifi, 2001). An attempt was made to reduce the survey. After a discussion with an expert team, it was concluded that reducing the number of questions would lead to a significant reduction of the information that is so necessary to make the right decisions in improving agility. Rather, the questions should be increased even more, and some of them should be further specified.

The first part of the questionnaire, with questions 1 to 7.9 (a total of 73 questions and sub-questions), explores the external environment. This analysis allows us to discover the driving forces towards enterprise agility. The object of the research is the level of the current agility of the enterprise and the possible need for its increase. The results of this part of the questions will be analyzed. The following factors are analyzed:

Changes in the market:

- 1.1. Niche market growth
- 1.2. National and international political changes
- 1.3. Increase of the speed of changes in new products
- 1.4. Reducing the life cycle of products
2. Changes in competition
 - 2.1. Fast moving markets
 - 2.2. Increasing pressure on price
 - 2.3. Increasing the speed of innovation
 - 2.4. Increasing pressure of global competition
 - 2.5. Competitive response to the changing business environment
3. Change in customer requirements
 - 3.1. Search for non-standard products
 - 3.2. Fast delivery
 - 3.3. Increase in quality requirements
 - 3.4. A sudden change in quantity demanded
- Change in technology and introduction of:
 - 4.1. Faster and more efficient production equipment
 - 4.2. New software technologies
5. Change in social factors:
 - 5.1. Environmental pressure
 - 5.2. Workforce Expectations
 - 5.3. Political and legal pressure
 - 5.4. Cultural issues

The responses range from 0 to 10. For the questions concerning the ecosystem, the lowest commotion of the ecosystem is marked by 0 and the one with the highest is marked by 10. This paper studies merely the agility driving forces which are represented by the answers to the above-mentioned question fields. The results of the reviews of the 10 enterprises reveal the level of agility of each of these enterprises in relation to the external environment using the arithmetic.

Results and discussions

Fig. 1 presents the assessment of the overall level of agility of the enterprises:

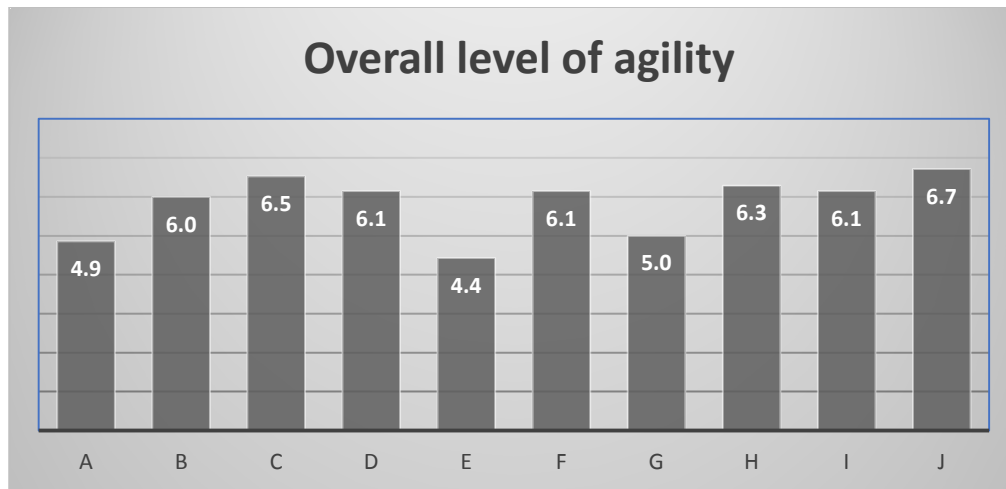


Figure 1. Agility level of the tested enterprises

Source: Self-conducted research.

The results of 10 tested enterprises show an average level of agility of 5.8. The agility level of enterprise “E” is 4.4. This result is the one with the highest deviation.

Agility driving forces analysis

Table 1. Summary of the ecosystem presents the ecosystem characteristics and the arithmetic mean values

	A	B	C	D	E	F	G	H	I	J
Market	7	6	7	7	3	5	4	4	5	9
Competition	8	8	8	5	6	8	5	5	8	9
Customer requirements	8	7	7	8	4	8	5	7	9	9
Technologies	2	5	6,7	8	5	7	5	9	5	5
Social factors	3	4	6	6	3	4	4	5	5	5
Input providers	5	4	5	2	8	6	6	7	7	5
Product or process complexity	1	8	6	7	2	5	6	7	4	5
Average	4,9	6,0	6,5	6,1	4,4	6,1	5,0	6,3	6,1	6,7
Ecosystem dynamics	3	7	6	8	4	8	6	7	6	6
Difference	-1,9	1,0	-0,5	1,9	-0,4	1,9	1,0	0,7	-0,1	-0,7

Source: Self-conducted research.

The data table reveals that most of the responses to “Ecosystem dynamics” do not show significant deviations from the "arithmetic mean". The enterprises display a range of deviation from 0.4 to 0.7. It means that half of the respondents are well aware of their own level of agility even without performing the survey. Respondents A, D and F have differences close to 2 which implies that the enterprises behind them are in need of a further investigation if the management can adequately analyze the specifics of the external environment in order to react in a way, which can eventually deliver them agility.

Figure 2 shows a diagram of the results of the questionnaire of the ten analyzed enterprises.

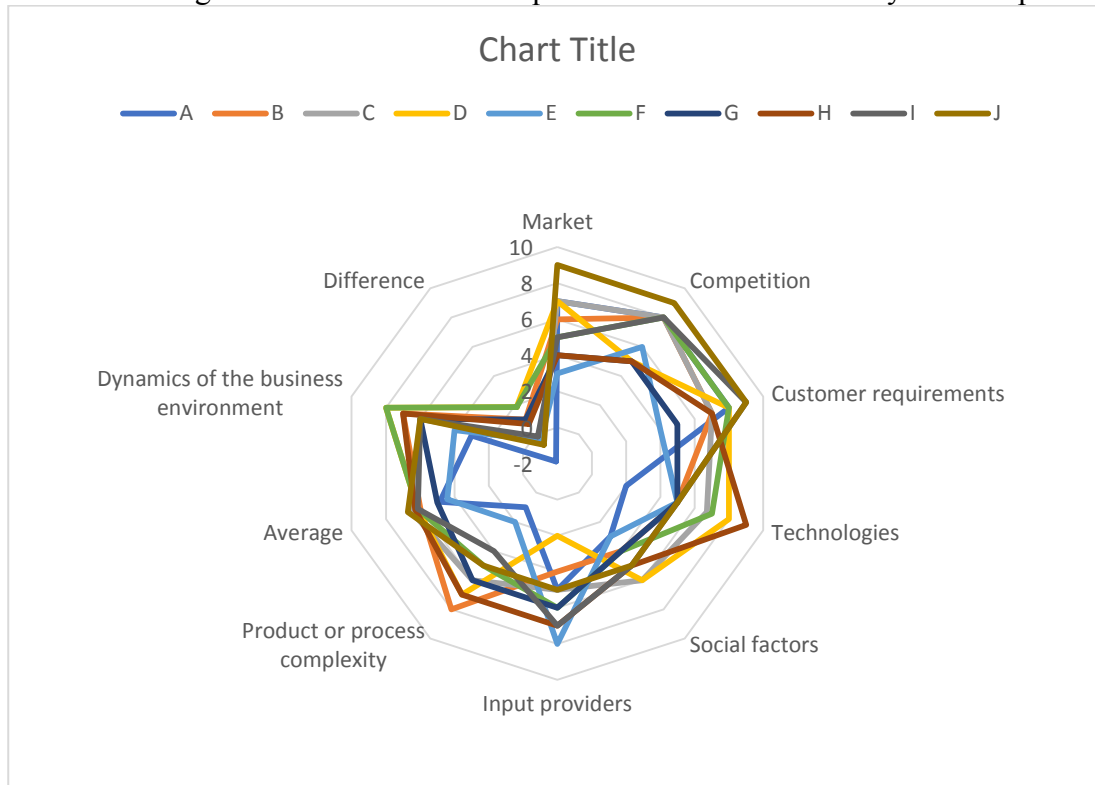


Figure 2. Analysis of the ecosystem of the enterprises

Source: Self-conducted research.

Figure 2 represents the variety of responses given by the managers. The “input providers” draw special attention with a large amplitude of differences among the respondents. The high scores giving a significant turbulence might be caused by the distorted or even broken supply chains of acquiring inputs for some of the respondents. The access to and the use of “technologies” have been an important part of contemporary manufacturing and therefore most of the respondents have rated this part of the questionnaire as moderate to highly turbulent. It is no surprise that “customer requirements” are also rated very turbulent as the transition from mass production to customer specific ones started several decades ago. We find it important to further investigate the respondent H who rates “competition” with a very low turbulence. It might be a niche manufacturer who doesn’t face significant competition on at least the local market. This respondent has given a very high rate of turbulence for “technologies”, which might mean that once the necessary technology for the production is acquired then it might be a barrier for potential competitors to enter the same market. The questions connected to “market” have also received controversial answers.

Respondent E has rated the turbulence of its market very low, which also triggers our interest in further investigation of this enterprise.

Table 2 shows the outcomes of the evaluation of the mean values of the ecosystem of all enterprises. The highest score is 7.2, i.e., “Customer requirements” appears to be of vital significance for the enterprises. “Social factors” is least significant with a score of mere 4.5.

Table 2. Average values of the factors of the ecosystem

Market	5,7
Competition	7,0
Customer requirements	7,2
Technologies	5,8
Social factors	4,5
Providers of inputs	5,5
Product / process complexity	5,1
Average arithmetic	5,8
Dynamics of the ecosystem	6,1
Difference	0,3

Source: Self-conducted research.

The calculated arithmetic mean value of the ecosystem is 5.8. The cumulative value for the “Dynamics of the ecosystem” is 6.1. The difference of 0.3 is rather small. Supposedly, the respondents have given plausible answers to the questions.

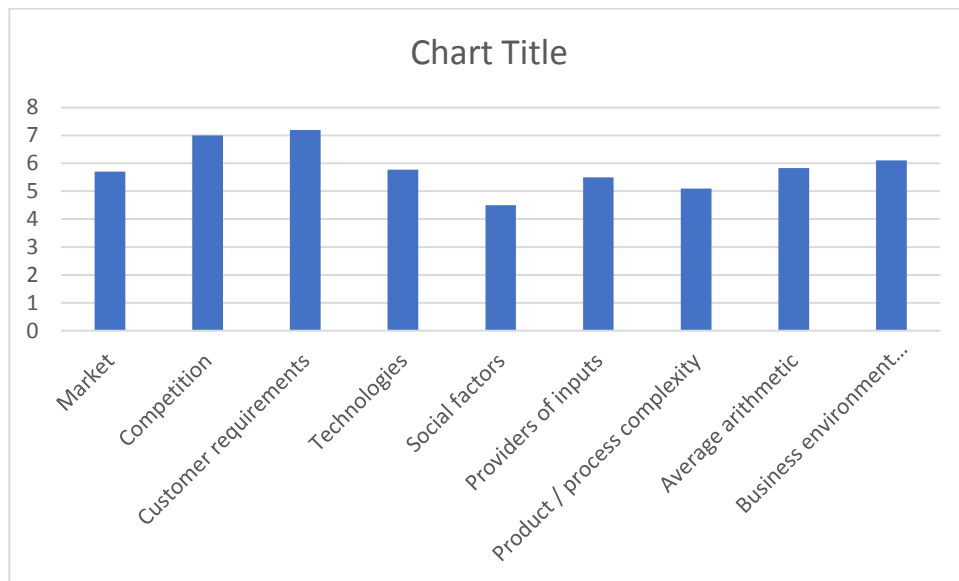


Figure 3. Analysis of the business ecosystem

Source: Self-conducted research.

Figure 3 shows that the aggregate ratings of all companies are around the average values and although some of the factors are rated higher, this is not significant for the consumers in the

sample as a whole. It might be necessary to enlarge the size of the sample, as well as to group the enterprises according to a pre-selected criterion (for example, size, industry sector, region, etc.).

Table 2. Selected questions from the survey

Factor	Question #	A	B	C	D	E	F	G	H	I	J	On average	Standard deviation
Determination of the market price by the "price leader" in the market	1.12.2	7	7	3	5	6	9	7	7	9	6	6,60	1,75
Importance / speed of delivery	3.9	9	8	8	10	7	9	8	8	9	10	8,60	0,90
Intensity of competition in the local market	2.3	4	7	8	8	9	6	10	8	9	7	7,60	1,84
Dependence of the enterprise on changes	5.7	7	7	6	7	6	7	8	8	10	7	7,30	0,64
Severe economic changes - inflation, recession and others	5.6	10	9	9	10	9	10	8	8	9	10	9,20	0,70
Difficulty in acquiring and maintaining a competitive edge	2.6	6	5	6	7	6	8	7	8	9	8	7,00	0,90
Demand for the product	1.12.1	6	8	9	8	9	8	7	7	8	6	7,60	0,99
Importance of keeping up with new market trends	1.9	6	8	9	8	6	8	7	9	8	4	7,30	1,05
Importance of quality	3.5	8	7	9	8	9	10	5	7	8	9	8,00	1,51
Intensity of competition on the global market	2.4	8	7	8	8	0	6	4	7	6	3	5,70	2,75
Average values		7,10	7,30	7,50	7,90	6,70	8,10	7,10	7,70	8,50	7,00		

Source: Self-conducted research.

The factor “Intensity of competition on the global market” shows a high standard deviation of over 2. We could assume that some of the respondents consider the global competition to be of no or little significance may be due to the specific market it supplies. The factor “Severe economic changes - inflation, recession and others” has a standard deviation of only 0,70 and the highest average score of 9.2. Bulgaria went through a few periods of high inflation and recession since

1981. The enterprises should be aware of the fact that the recession is an inevitable part of the business cycle and they should get prepared for it well in advance. Moreover recessions and crises can be used to expand the market share and even get to new markets. The phase of the diminishing GDP might be a good timing to invest as wells for accomplishing mergers and acquisitions. The government has a vital role in implementing reforms and enforcing the necessary laws which can give the chance to go through periods of great turbulence (like the Covid-19 crises). The market economies need clear rules (valid for everyone) and predictability on an institutional level. A reliable judicial system is also of ultimate importance for the business ecosystem. The contemporary inflation-stricken reality contributes to the significance of this question which is not surprising taking into consideration the inflationary processes world-wide. Another interesting factor with a relatively low standard deviation is “acquiring and maintaining a competitive edge”. Most of the enterprises are recognizing the need of using competitive advantages different from the labour cost as salaries are skyrocketing in recent years. Maybe the enterprises with or without the help of the government should further focus on expanding coaching programs, give access to qualifying courses to their employees as well accenting on, internal branding (Kenarova-Pencheva, I., Antonova, D., 2018), which can improve the overall image of the enterprises and facilitate establishing loyalty to their brands as well as improve the integrity of the personnel. The problem regarding "the firm's ability to maintain or increase its market share among its direct competitors in the world markets" (question 10 of the second part of the survey and is therefore out of discussion in the present paper) is related to the question of using inflation as a competitive advantage (question 29.2 of the second part of the survey). Thus, the increase in the market share in the world markets would help both to increase the volume of sales and to use the turbulent external environment to gain a competitive advantage (in this case, it refers to the utilization of inflation).

The factor “Importance / speed of delivery” is the one that has one of the highest average scores, namely 8.6. It may be the Covid-19 crisis that made the online market boom. Herewith the timely delivery of the goods was crucial for the traders. Apart from that, speed of delivery is associated with reliance upon subcontractors. Their role in the contemporary ecosystem is increasing. Most of the participants of the business ecosystem recognize their dependability on outsourcing agents and try to provide at least two different subcontractors for the operations which they prefer not to accomplish on their own.

The enormous role of the government in directly and indirectly stimulating the agility of enterprises in Bulgaria is also obvious. State policy could encourage the training of specialists in competitive fields with a high added value of labor input. The creation and implementation of patents could also be encouraged. Bulgaria is one of the last places in Europe in this regard. The realization of the patents would give an impetus not to "blindly" follow market trends, but to create these trends. This could take Bulgaria to a completely different level. I do not see an obstacle with a far-sighted state policy to have development in this direction.

The "implementation of new software technologies" is obviously not perceived in Bulgaria yet as a priority for increasing the efficiency, and through it, the agility of enterprises. The reason for this may lie in the relatively small scale of production, in a relatively small market like the Bulgarian one. We can expect that as the average wage rises, the share of software spending will increase, which will reduce the need for labor, which may currently at least partially compensate for the lack of widespread adoption of software products. On the other hand, the need and benefit of software that could significantly increase the quality of produced goods and services, due to the reduction of the risk of human error, is most likely not realized. Even if we assume that Bulgarian enterprises as a whole rely not so much on mass production, but on smaller series of goods tailored

to individual needs, the domestic production faces the challenge of finding the reasonable balance between manual and automated work, which could meet most of the present production needs with increasingly limited and personalized series of goods.

Conclusion

This study presented an adapted conceptual model for assessing agility of the enterprises in Bulgaria, taking into account the country's specific characteristics. An empirical study was conducted using the model and the results of 10 Bulgarian enterprises were analyzed. The results of the study are limited only to an analysis of the external environment in which the enterprises operate. A large number of factors that influence the agility of manufacturing enterprises are explored. Some of the results generated by the study demonstrate insufficient understanding of the turbulence of the external business ecosystem or improper comprehension of the intended meaning of the questions of survey. This is an important point which needs to be taken into consideration in the following research. The respondents with substantial deviations of the mean values could be taken away and be given special attention in order to find out the real cause for these discrepancies. They could be given additional information about the intent of the questions. The results of the processed questionnaire demonstrate that the maximum scores were given to "Customer requirements" and "Competition" which prove to be most important to businesses. "Competition intensity in the local market" is another factor that got a high score. Obviously, the respondents estimate the business ecosystem as very challenging. The results obtained prove the difficulty which Bulgarian managers have in "Severe economic changes - inflation, recession and others ", which could be explained with the managers' lack of adequate experience and/or with the insufficient supply of educated and skilled labor regarding the often sudden and sharp upward movement of prices of inputs and labor. Another important factor is "acquiring and maintaining a competitive edge". This result signals the need of considering what comparative advantage Bulgarian enterprises could have apart from the still relatively low flat taxes.

In order to improve accuracy of processing and analyzing the data obtained from the survey it proves to be necessary to enlarge the number of questions. Logical conclusions are made on the issues of increasing the level of agility and specific advice is given in this connection. The enhancement of the agility of enterprises can lead not only to increasing their competitiveness, but can also contribute to their viability. In the long run, this would mean more vibrant businesses with advanced immunity to the turbulent business environment, creating jobs and generating high revenue for the Government. The resources and efforts invested by the state and entrepreneurs in creating a favorable business environment both outside and inside the enterprises can be rewarded.

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