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THE STATE OF BEING AGILE – A CASE STUDY[34]

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Abstract: *The turbulent external environment, the global competition, fragile demand and the increasing requirements of potential customers place a big challenge to the enterprises worldwide. The agility of enterprises offers a way to help the businesses predict the new global economic trends and makes use of crucial moments as new opportunities for development. The agility of the enterprise uses internal and external change in the environment to increase its competitiveness and thus ensures stable and profitable existence of the enterprise. One objective of this paper is to define what an agile enterprise is and how the state of agility helps enterprises be more successful. The main objective is to use a methodology to evaluate the current conditions of the dynamic business ecosystem to find out what are the driving forces pushing the enterprises to be agile. The data used in the paper is derived through a questionnaire filled by the managers of ten randomly selected industrial enterprises in Bulgaria. Analysed is that part of the questionnaire which deals with the turbulence of the external environment of the enterprises. The results show that most of the tested enterprises have challenges given by the ecosystem in which they operate.*

Keywords: *Agile, Enterprise, Industry, External Environment*
JEL Codes: *M21*

INTRODUCTION

The scientific works published in recent years point to the trend of a rapid change in production, the need for a new mind-set and a review of the traditional philosophy in the organization of enterprises (Zhang, 2003). They encourage a different approach that goes beyond the conventional models (Holweg, 2005) and (Doneva, 2019). The results of the research show that production should be able to respond positively to changing circumstances and should be able to benefit from them. This can only be achieved by changing the way manufacturers perceive their business relationships with customers and suppliers, as well as their cooperation with competitors. The current mind-set must support the new strategic vision beyond conventional systems. We need to move on to new dimensions of competitiveness, and not merely focus on price and quality. Enterprises can survive and prosper in these turbulent conditions, if they have the basic ability to recognize and understand the changing environment in which they are located and to respond appropriately to any unexpected change (Kosuliev, 2015). Another important feature, that is necessary for success in the modern form of the business environment, is the opportunistic action to attract new markets (Marichova, 2015). Enterprises should respond fast and adequately to the new customer requirements, use crises on a regional and global scale by increasing or at least maintaining the same level of market share, and extend the number of markets in which they operate.

The methodology presented 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.

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EXPOSITION

The business environment is a source of turmoil and change that puts pressure on the business of the enterprise (Hall, 1994). These unknown factors, changes and pressures, i.e. the so-called drivers of agility make businesses look for ways to retain their competitive advantage. The drivers are specific to each enterprise and are dependent on the business environment. Therefore, the way in which driving forces influence an enterprise may be quite different. This requires the creation of a method for detecting and recognizing changes in the business environment, regardless of its specifics.

Just as the changes and pressures experienced by enterprises may be different, the degree of agility required by individual enterprises will also be different (Drucker, 1995). This level is defined as the "level of agility needed" and is a function of various factors. Such factors are the degree of turbulence of the business environment, the characteristics of the environment in which the enterprise competes, and the characteristics of the enterprise itself. Once the level of agility need is determined for an enterprise, the next step is to evaluate the current level of agility of the enterprise, i.e. how agile the enterprise is at the moment. The difference between the level of desired and current agility can now be analyzed to provide a basis for further decision making. This study is limited to a pilot study of the conceptual model in its part to identify the driving forces for agility.

There is no clear and precise definition of agility in the scientific literature, but the prevailing opinions are that agility is the ability for a fundamental change in enterprises in order to quickly deal with unforeseeable circumstances. It is not the ability to absorb the changes within the established parameters of the enterprise and the ability to reorganize quickly and smoothly in the presence of uncertainty in the environment (Bernardes, 2009). In our view, the agility of the enterprise can be formulated as follows (Penchev, 2015):

Agility of the enterprise is a state in which it responds quickly and adequately to the turmoil of the external increasingly turbulent business environment, predicts the new global business trends and uses critical moments as new opportunities for development. It can overcome freely the abrupt internal problems. The agility of the enterprise uses internal and external change in the environment to increase its competitiveness and thus ensures stable and profitable existence of the enterprise.

Analysis of the general level of agility

The technology for the implementation of the conceptual model is presented through a questionnaire survey done in 10 manufacturing enterprises in Bulgaria. Businesses are randomly assembled for demonstrational purposes only. All of them are in the sphere of production, from different branches and with different size (among them are only SMEs, without representatives of large businesses). An adapted questionnaire of 138 questions (Sharifi, 2001) is used. The practical application of the model is carried out by means of a questionnaire in which questions are raised, revealing in depth the specificity of the studied enterprise in relation to one of its product. The range of responses is between 0 and 10. For the business environment questions, 0 indicates the lowest environmental turbulence and 10 is the highest. With respect to the surveyed enterprises, 0 indicates the lowest level of agility of the enterprise to the environment, and 10 indicates the highest level of agility of the enterprise with respect to the environment. The present work will be limited to the analysis of the first part of the survey, which examines only the driving forces for agility. The results of the surveys of the 10 enterprises make it possible to produce a summary assessment of the agility of each enterprise by calculating the arithmetic mean of the marks for the agility of the enterprises.

In Fig. 1 the estimates of individual enterprises and the line of arithmetic mean of all studies are presented.

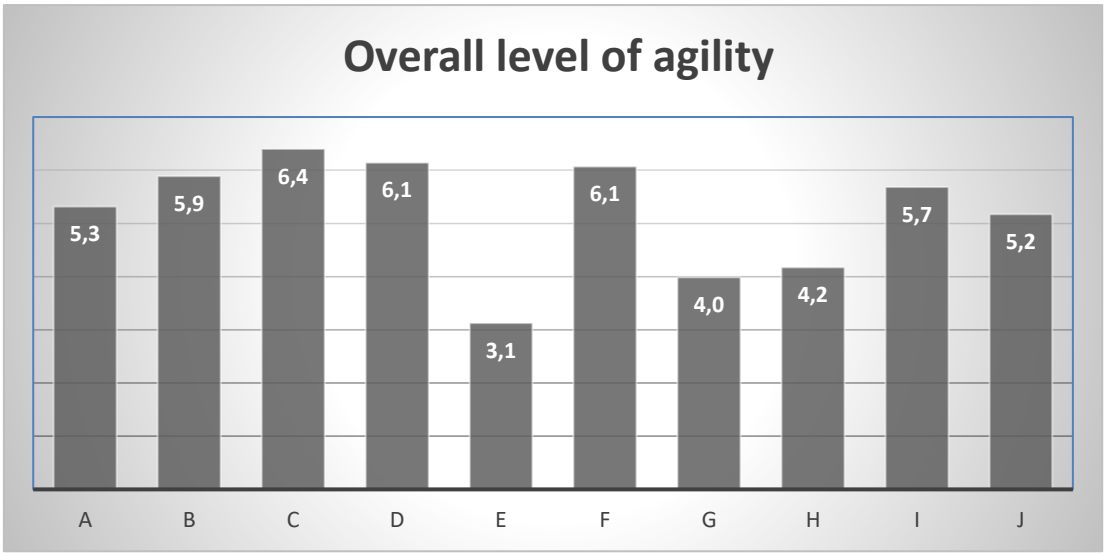

Figure 1. Overall level of agility

Source: *author's own study*

The average agility level for the 10 enterprises which were surveyed is 5.2. Enterprise "E" shows an agility level of 3.1 being the only one that shows a significant difference from the other enterprises.

Analysis of the driving forces towards agility

The general characteristics of the business environment and their calculated averages are presented in Table 1.

Table 1. Business environment summary

	A	B	C	D	E	F	G	H	I	J
Market	5.7	5	6	8	4.3	6	5	5	7.1	3.9
Competition	7	9	9	6	4.2	7	6	3	4.5	6.6
Customer requirements	3	6	6	7	2.5	5	4	6	6.3	6.4
Technologies	4	6	7	5	4	6	2	2	6	7
Social factors	5	3	4	4	4.5	5	5	3	5.1	5.4
Input providers	9	5	8	5	1	8	3	4	5.7	2.7
Product or process complexity	3.5	7	5	8	1.4	6	3	5	5.1	4.2
Average	5.3	5.9	6.4	6.1	3.1	6.1	4.0	4.2	5.7	5.2
Dynamics of the business environment	5	9	7	7	1	7	7	7	5	4
Difference	**-0.3**	**3.1**	**0.6**	**0.9**	**-2.1**	**0.9**	**3.0**	**2.8**	**-0.7**	**-1.2**

Source: *author's own study*

The data in the table shows that one part of the answers to the last question on "business environment dynamics" does not differ significantly from the calculated "arithmetic mean" estimates of the detailed answers, with 6 enterprises showing a difference of 0.3 to 1.2. This shows

consistency in the completion of the survey and / or accuracy in the judgment of enterprises regarding the turbulence of the environment in which they operate. The remaining 4 enterprises show estimates from 2.1 to 3.1. These results imply inaccuracy in completing the survey and / or lack of adequate comprehension of the dynamics of the environment in which these businesses operate. In subsequent surveys, it is advisable to screen out respondents with significant differences and / or examine the reasons for these differences by specifying the answers in the survey.

For the graphical representation of the results of the survey of the 10 enterprises, a radar type diagram of Fig. 2 is presented.

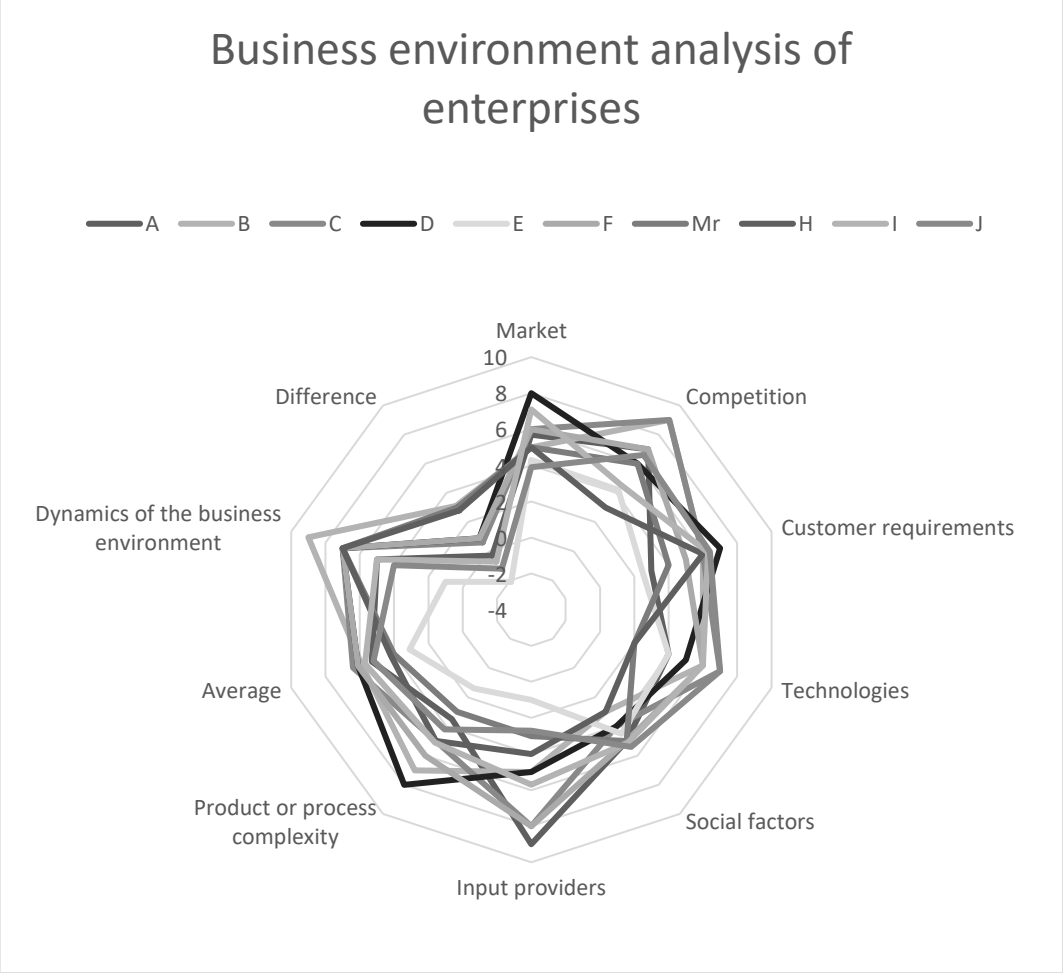

Figure 2. Business environment analysis of enterprises

Source: *Author's own study*

Figure 2 shows the diversity of answers of different respondents regarding the environmental parameters. More typical results can be noted for the "Providers of inputs" and "Competition", which have relatively high response rates for some of the enterprises, for example with regard to "Social factors "they have an even distribution of responses between 3 and 6.

Table 2 presents the results of the calculations of the average values of the business environment estimates of all enterprises. The data shows that the maximum score is 6.3, i.e. "Competition" is most important to businesses, and "Product / process complexity" is relatively of least importance.

Table 2. Mean values of environmental factors

Market	5.8
Competition	6.3
Customer requirements	5.1
Technologies	4.8
Social factors	4.5
Providers of inputs	5.2
Product / process complexity	4.7
Average arithmetic	5.2
Business environment dynamics	5.9
Difference	**0. 7**

Source: *Author's own study*

Comparison of the calculated arithmetic mean of the estimate for the environment is 5.2 and the summary estimate for the dynamics of the business environment is 5.9. This means that the difference - 0.7 is negligible. One could assume the objectivity of the answers of the respondents. The overall result of the assessments is presented in Figure 3.

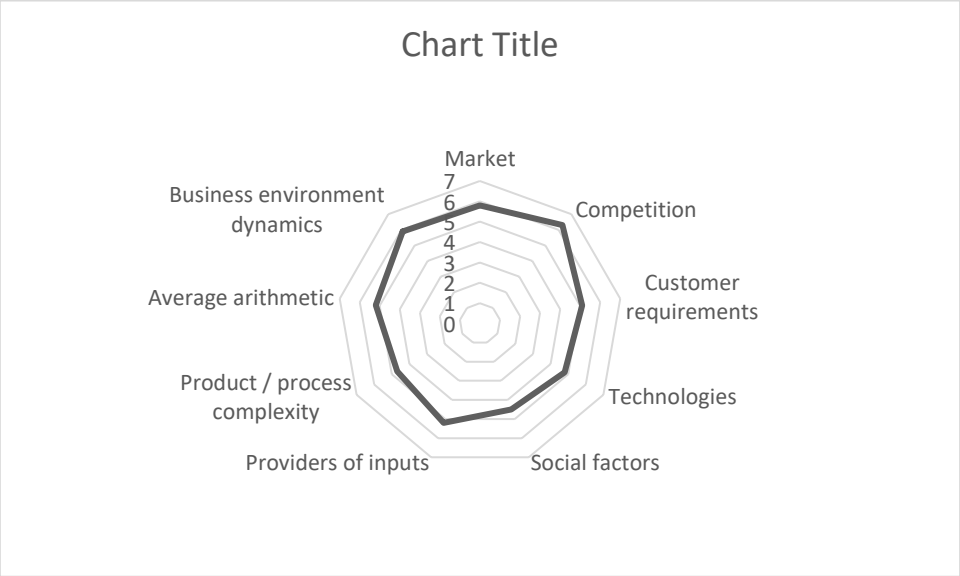

Figure 3. Business environment analysis

Source: *Author's own study*

Here it can be concluded that on the one hand it is necessary to expand the sample size and on the other hand the enterprises should be grouped according to a pre-selected criterion (e.g. size, type of business, participation in clusters, etc.).

Another approach to the research is to calculate the mean values and standard deviations of all respondents' answers. Questions are ranked, with the ones that have the least standard deviation at the top. We can filter only those results where the mean values are greater than or equal to 7, as shown in 4. The choice falls on 7 because the mean value of the answers is 6.58.

Table 3. Respondents' mean and standard deviations of answers

Factor	Ques-tion #	A	B	C	D	E	F	G	H	I	J	**On ave-rage**	**Standard deviation**
Determination of the market price by the "price leader" in the market	1.12.2	9	5	8	6	8	8	8	8	8	7	7.5	1.1785
Importance / speed of delivery	3.9	8	9	10	9	5	8	7	9	8	7	8	1.4142
Intensity of competition in the local market	2.3	10	6	10	7	10	7	9	7	10	10	8.6	1.6465
Dependence of the enterprise on changes	5.7	9	6	10	6	5	8	9	7	9	9	7.8	1.6865
Severe economic changes - inflation, recession and others	5.6	9	5	10	10	5	8	9	7	10	9	8.2	1.9322
Difficulty in acquiring and maintaining a competitive edge	2.6	10	6	10	5	5	9	9	6	7	7	7.4	1.9551
Demand for the product	1.12.1	10	9	8	7	10	7	8	4	6	5	7.4	2.0111
Importance of keeping up with new market trends	1.9	8	7	10	9	5	7	9	7	9	3	7.4	2.1187
Importance of quality	3.5	7	8	10	10	2	8	4	8	9	7	7.3	2.5408
Intensity of competition on the global market	2.4	10	5	10	0	10	9	9	7	6	10	7.6	3.2387
Average values		9	6.6	9.6	6.9	6.5	7.9	8.1	7	8.2	7.4		

Source: *Author's own study*

The factors deduced in this way (visible from Table 3) are those that have the greatest influence on the agility of the studied enterprises and deserve special attention (according to the author). These questions could be used for a simplified analysis of the enterprises.

The factor “competition intensity in the local market” received the highest rating of 8.6. Businesses value the environment in which they operate as highly competitive. This is not the case with the “Intensity of competition on the global market”. There, the standard deviation is 3.24, which can be explained with the fact that part of the enterprises export their products and the other part operates only on the local market.

Some of the specific factors for Bulgaria are connected to the relatively short history of the market economy and the immature experience of the managers regarding the direction of the development of market realities. Therefore, they have difficulty in "following the new market trends". The answers here are also heterogeneous, with a relatively high standard deviation of 2.12.

A very important factor is "gaining and maintaining a competitive edge". It brings us back to the possibility of changing the priorities of Bulgarian enterprises in terms of using other competitive advantages, different from the still relatively low level of salaries. Such could be the highly qualified specialists in various fields, low tax rates, EU projects targeting SMEs, internal branding (Kenarova-Pencheva, 2017), low rents on agricultural land, wonderful climatic conditions for many crops etc.

"Severe economic changes" are certainly a significant and characteristic factor for Bulgaria for the period from 1989 to the present. These changes are inevitable and enterprises need to take them into account. The role of the government is crucial to carry out the reforms necessary for the country but also to prepare the enterprises for possible turmoil by means of adequate measures. The aim should be to create clear rules for all actors in the Bulgarian economy. It is crucial for the functioning of a market economy that the state is able to protect the interests of enterprises with a sound judicial system through which everyone can be held responsible for their actions.

It is interesting that the factor “local market intensity” is among the leading ones in Bulgaria. It could mean that the local market began to saturate, because four of the respondents marked it with a highest score 10 and the other two others evaluated it with 9. The remaining four enterprises also prioritize it with estimates of at least 5. Undoubtedly, Bulgarian enterprises have reached a level where innovation and following the latest market trends could contribute to increasing agility in a market which is relatively saturated.

CONCLUSION

Old working models of the past (e.g. mass production) are increasingly irrelevant today. The agile enterprise uses new methods to maintain its existence and to acquire new market shares. It uses any change in the external and internal environment to increase its competitiveness and uses critical moments such as new development opportunities. The agile enterprise and the agile methods for product development still have an open capacity which can be used to meet the fast-changing and often unpredictable customers’ requirement in an insecure business environment.

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