Methodology for Managing A Business Strategy Within High-Tech Companies

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Abstract: In today's modern era of digital economy, high-tech companies have a big challenge in achieving competitive advantage. The purpose of the paper is to describe a methodology for managing the business strategies within high-tech companies. The methodology helps to the board of the companies to identify strategic management processes in order to evaluate the existing maturity of their implementation and to define the improvements due to the desired Maturity Level (ML). The following concepts and standards have been used for this purpose: Plan Do Check Act (PDCA) concept, the Balanced Scorecard (BSC) method, CobIT 4.1, ISO/IEC 33004 standard.
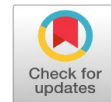
INTRODUCTION

The global business environment in which today's modern high-tech companies operate are determined by mega processes such as scientific and technology development, globalization, computerization, post-industrial society (knowledge society) etc. These processes bring a lot of changes both in the technological as well as in the economic, organizational and social context (Rijal, 2016; Selig, 2015). The high-tech companies have a big challenge in achieving competitive advantage.

The main research questions is how to efficiently manage the businesses strategy within the companies and examine their business, organizational and technological capabilities for the purpose of successfully executing the business strategies.

The purpose of the paper is to describe a methodology for managing the business strategy within high-tech companies. The methodology enables companies to identify necessary strategic management processes as well as other support processes (organizational, project, measurement processes, etc.). It supports the evaluation of their capability and implementation for the purpose of improvement. Different tools are used for this purpose: PDCA concept, the BSC method, CobIT 4.1, ISO/IEC 33004. With this contribution, the paper can help to practitioners and researchers on how the business strategy can be adequately and successfully implemented in the practice. Moreover, the methodology was applied on the example of a specific high-tech company from the Croatian business practice.

PDCA concept

Generic model of the continual improvement of companys ML for managing the business strategy is shown in Figure 1. It includes the following activities (De Haes & Van Grembergen, 2015):

a) Definition of the desired ML for managing the business strategy.

b) Evaluation of the existing ML for managing the business strategy.

c) Analysis of identified gaps.

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d) PLAN the necessary improvements in order to achieve the desired ML.

e) Implementation (DO) of the improvements.

f) Control and revision (CHECK) of the planned improvements.
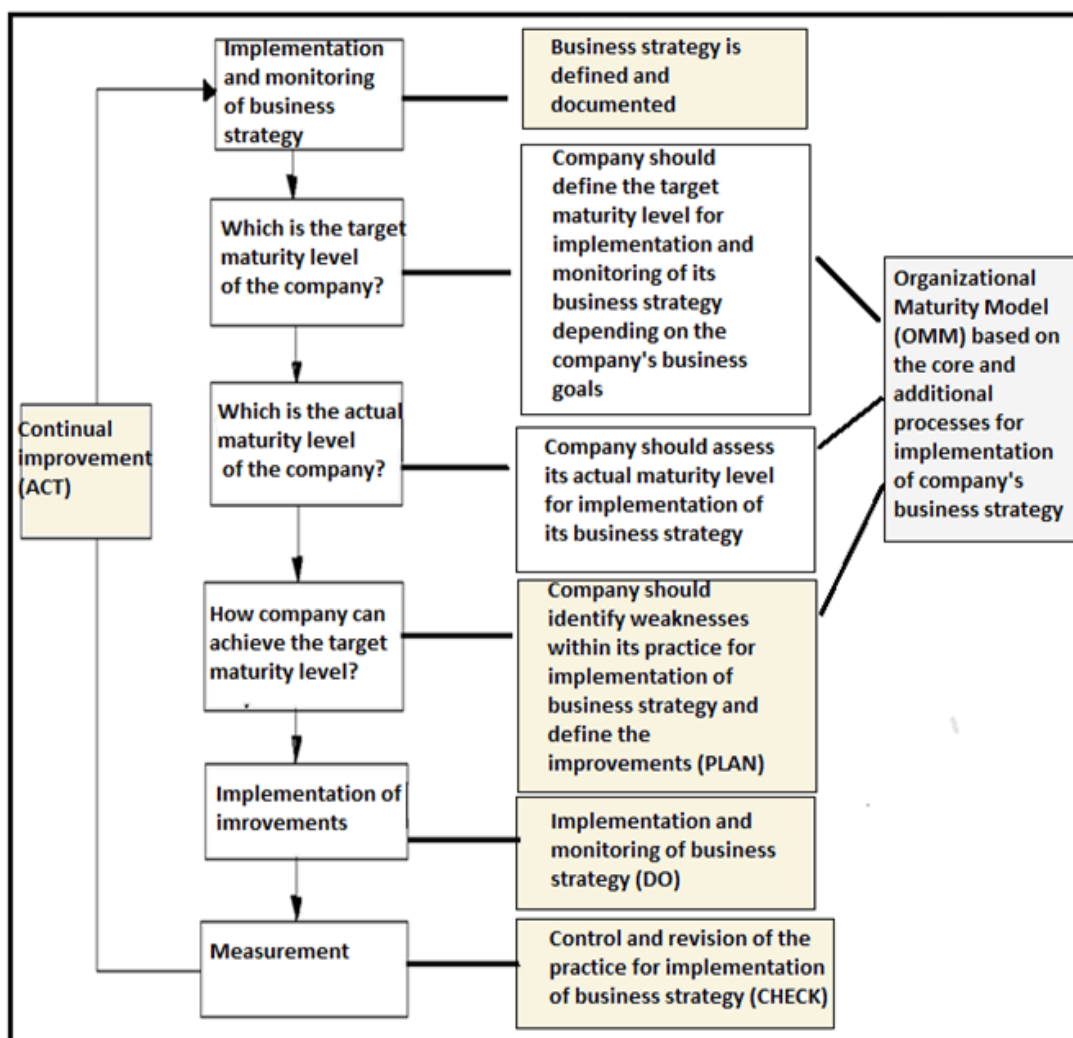
g) Performing further corrections (ACT).

Figure 1. Generic concept of the continual improvement of high-tech companys ML for managing the business strategy (PDCA concept)

Organization Maturity Model (OMM)

OMM according to the requirements of the (ISO/IEC, 2015) standard is based on the two dimensional matrix. One dimension defines the processes that are aligned with the company's business goals. These are core business processes and other support processes. Second dimension defines the measurement framework for evaluating the ML of the company through the following MLs (ML0 = immature; ML1 = basic; ML2 = managed; ML3 = established; ML4 = predictable; ML5 = innovating). This reference model is shown in Figure 2 (ISO/IEC, 2015).

The core business processes include:

a) minimum processes defining ML1.

b) additional processes required for ML1.

The supporting (extended) processes include:

a) minimum processes defining ML2, ML3, ML4 and ML5.

b) additional processes required for ML2, ML3, ML4 and ML5.

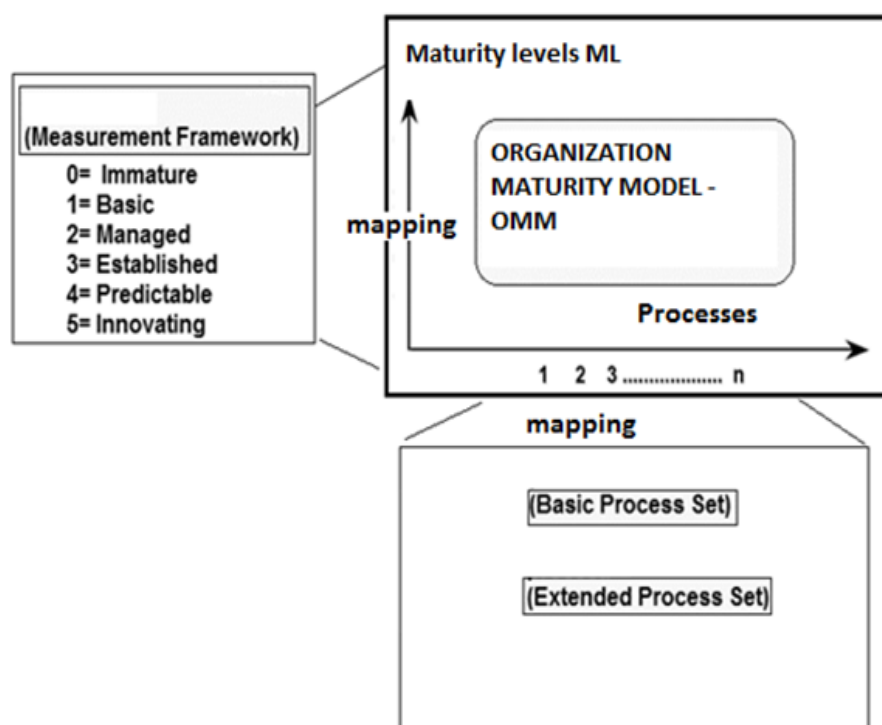ML of the whole company is derived from the evaluated process Capability Levels (CLs).

Figure 2. Concept of the OMM

A description of some levels of maturity follows below:

a) Level ML0 (Immature): the core business processes do not achieve their purpose.

b) Level ML1 (Basic): the core business processes achieve their purpose, but these processes are not defined.

c) Level ML2 (Managed): The company shows the maturity of managing and coordinating the execution of the processes. At this level, the business processes achieve the CL2 (and more).

d) Level ML3 (Established): The company has implemented processes that are defined and achieve the CL3 (and more).

e) Level ML4 (Predictable): All processes assigned to the levels ML1, ML2, ML3 and ML4 achieve the CL3 (and more).

However, at least one of the core processes within the level of ML1 must achieve the CL4 (and more).

f) Level ML5 (Innovating): The company shows maturity to change, optimize, and innovate the performance of a process that will support its business goals. All processes assigned to the levels ML1, ML2, ML3, ML4 and ML5 achieve the CL3 (and more). However, at least one of the core processes within the level of ML1 must achieve the CL5 (and more).

The levels of process capabilities, adapted according to COBIT 4.1, are shown on Figure 3 (De Haes & Van Grembergen,, 2005; ISACA, 2007).

Generic attributes for process capability evaluation (adapted according to CobIT 4.1)

ML of the whole company is derived from the process CLs evaluated for each process. For the evaluation of the capability of each process identified and allocated within the OMM, the following generic attributes, based on the Cobit 4.1 standard, were used (ISACA, 2007): 1. Awareness and Communication (AC).

2. Policies, Plans and Procedures (PPP).

3. Tools and Automation (TA).

4. Skills and Expertise (SE).

5. Responsibility and Accountability (RA).

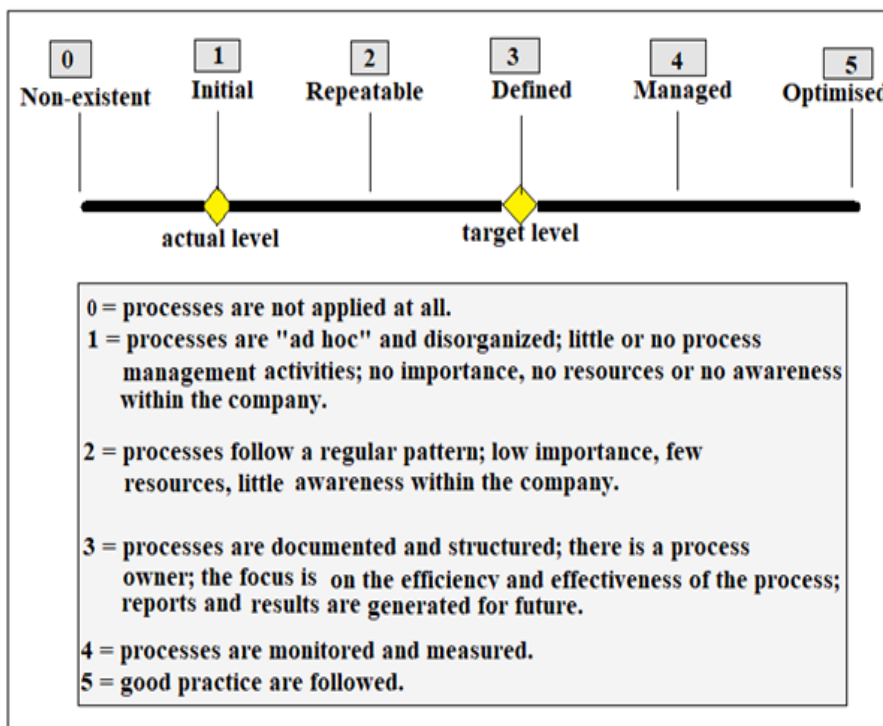6. Goal Setting and Measurement (GM).
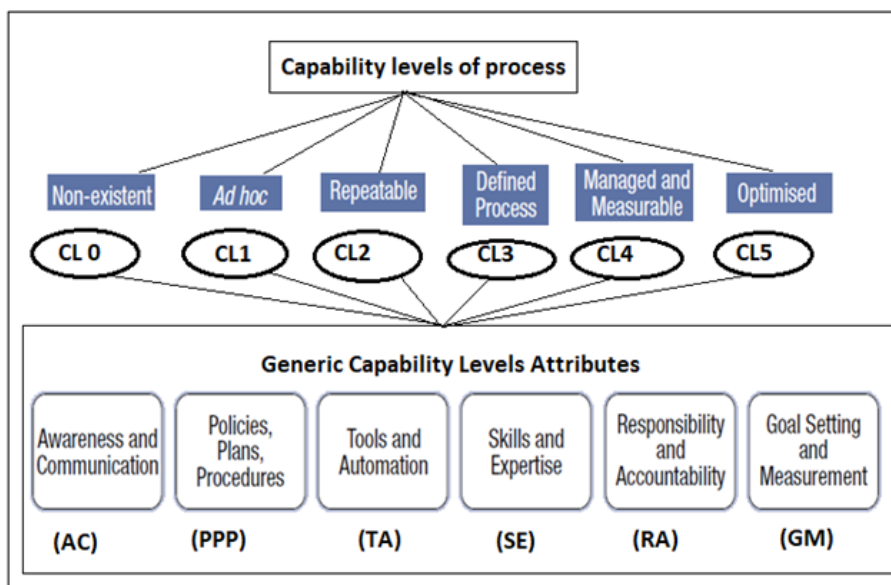
Figure 3. Process CLs

Figure 4. Generic attributes for process capability evaluation

BSC method

The BSC is a modern method for the developing the business strategy maps (Kaplan & Norton, 1996; Van Grembergen & Van Bruggen, 1997). These strategy maps include the strategic goals and their indicators within the cause-effect relationships through the four balanced perspectives: financial, customers, internal business processes, and learning and growth, shown in Figure 5 (Van Grembergen, De Haes, & Amelinckx, 2003; Grembergen, 2000; Kaplan & Norton, 2001).
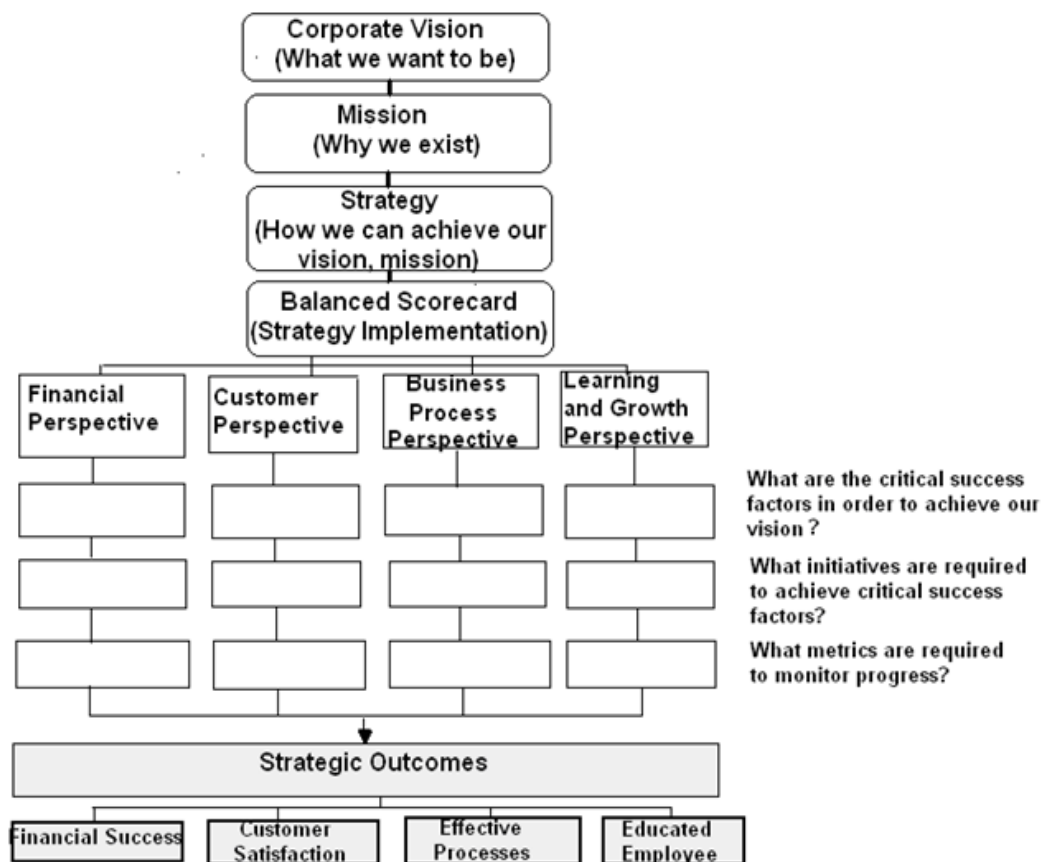
Figure 5. BSC for implementation of the business strategy

METHODOLOGY FOR MANAGING THE BUSINESS STRATEGY WITHIN HIGH-TECH COMPANIES

It includes the several steps:

A. Definition of companys OMM. It is necessary to

1. identify the core strategy management processes.
2. identify other supported processes.

This model is shown in Figure 6.

B. Maturity evaluation of the business strategy management according to defined companys OMM. It includes the following :

1. Company has to determine its desired ML.
2. Company has to evaluate its existing ML.
3. Company should analyse the obtained results and define how to achieve the desired ML.

C. Planning improvements for business strategy management

In order to create own OMM, a company shoud first identify the core business strategy management processes (assigned to the lowest level, ML1) (shown in Figure 6).

Furthermore, it is necessary identify additional supported processes for managing the strategy (assigned to ML2; ML3; ML4 and ML5) (shown in Figure 6).

For the purposes of the research conducted in the paper, specific high-tech company from Croatian business practice has been selected and described OMM (shown in Figure 5) has been used in this company.

Maturity evaluation is the next important step within the methodology for managing the business strategies within high-tech companies.

According to the PDCA concept (shown in Figure 1), a company first should define its desired ML for managing the business strategy. It is depending on the companys business goals. Selected high-

tech company from Croatian business practice has defined its desired ML for implementation of the business strategy. It was ML2 (Managed). At this level, according to the companys OMM, the core processes should achieve the CL2. In addition, a company should implement the additional supported processes which should also achieve the CL2. These are the following processes: project planning; project assessment and control; configuration management; decision management;information management and risk management.

Figure 6. General OMM for managing the business strategy within high-tech company

The company should evaluate its existing ML for managing the business strategy. Accordingly, the author has developed the relevant evaluation indicators based on the generic attributes (shown in Figure 4) for each process within the OMM and conducted an interview with the managers in order to determine the process CL (ISACA, 2007).

The questionnaire, based on the evaluation indicators for each CL of the Human Resource Management process, is desribed in the Table 1. The possible answers are mapped to the following values: 0 (not at all), 0.33 (a little), 0.66 (quite a lot), 1 (completely).

Furthermore, the company has to evaluate the capabilities of all other processes. The applied algorithm is described below and is shown in the Table 2 (Pederiva, 2003).

Overall CL for the process of human resource management, as shown in the Table 2, has the value between CL3 and CL4. Generally, we can conclude that this process achieves the CL3 (defined).

Table 1: Human resource management process

Level	General Attributes GA	Indicators (statements)	Not at all	A little	Quite a lot	Completely
CL0	(AC)	There is no awareness of human resources management.	0			
	(PPP)	The human resource management process is undefined.	0			
Number of statements: 2 $\sum$(CL 0):						
CL1	(AC)	The companys board recognizes the need to manage human resources and its importance for the implementation of the business strategy.			0.66	
	(PPP)	The human resource management process is informal.		0.33		
	(PPP)	The human resources management process is operationally focused on the employment and managing personnel.		0.33		
Number of statements: 3	$\sum$(CL 1):			0.66	0.66	
CL2	(AC)	Awareness of the importance of the human resource management process exists within the company.			0.66	
	(SE)	Informal training takes place for new personnel.			0.66	
	(PPP)	There is an intuitive approach to employment and managing personnel, driven by project-specific needs.		0.33		
	(RA)	There are no formally defined roles and responsibilities within the human resource management process.		0.33		
Number of statements:	4	$\sum$(CL 2):		0.66	1.32	

Level	General Attributes GA	Indicators (statements)	Not at all	A little	Quite a lot	Completely
CL3	(PPP)	There is a defined and documented process for managing human resources.			0.66	
	(PPP)	A human resources management plan exists.			0.66	
	(PPP)	There is a strategic approach to employment and managing personnel.			0.66	
	(RA)	Roles and responsibilities are defined for the human resource management process.			0.66	
	(SE)	The human resource management process has defined necessary skills.			0.66	
	(SE)	A training plan is designed to meet the needs of human resources.			0.66	
	(TA)	The tools for support of the human resource management process are used.				
Number of statements: 7	$\sum$(CL 3):				3.96	
CL4	(PPP)	The human resource management process is proactive, taking into account career path development.			0.66	
	(PPP)	The human resource management process is executed according to the standardized procedure.			0.66	
	(TA)	The human resource management process uses various IT tools to support its execution.			0.66	
	(PPP)	The process of developing and managing the human resource management plan is responsive to change.			0.66	
	(RA)	Responsibility for the development and maintenance of the human resource management plan is assigned to a specific individual or group with the relevant expertise and skills.			0.66	

Level	General Attributes GA	Indicators (statements)	Not at all	A little	Quite a lot	Completely
	(GM)	The company's board regularly monitors the effectiveness of the human resource management process.			0.66	
	(PPP)	The process is closer to the best practice.			0.66	
Number of statements: 7	$\sum$(CL 4):				4.62	
CL5	(PPP)	The human resource management plan is continuously being updated to meet changing business requirements.		0.33		
	(PPP)	The human resource management process follows a standardized procedure during execution.		0.33		
	(TA)	IT tools are used to implement the process changes.	0			
	(SE)	The human resource management is integrated with technology planning, ensuring optimum development and use of available skills.		0.33		
	(SE)	Training programmes are developed for all new technology standards and products prior to their deployment in the organisation.			0.66	
	(GM)	Modern evaluation methods are used for the optimization of the human resource management process.		0.33		
	(RA)	All accepted responsibilities are cascaded throughout the institution.			0.66	
Number of statements: 7	$\sum$(CL 5):	0	1,32	1,32		

Table 2: Evaluation of the process capability

CLs	Sum of Statements Compliance Values	Number Statements Related to CL	CL Compliance Value	Normalized Compliance Value	Contribution of each CL to the overall CL
(CL)	(A)	(B)	C = (A/B)	D = (C/Sum C)	E = (CL*D)
0	0.00	2	0. 000	0. 000	0. 000
1	1.32	3	0.440	0. 173	0. 173
2	1.98	4	0. 495	0. 195	0. 390
3	3.96	7	0. 566	0. 223	0. 669
4	4.62	7	0. 660	0. 260	1.040
5	2.64	7	0. 377	0.149	0.745
	$\sum$	30	2. 538 1	3.017	
Overall CL for Human Resource Management process					3.017

RESEARCH RESULTS

After conducted evaluation for all the processes shown in Figure 6, it is necessary to analyze the obtained results. All core processes achieve the CL1 - initial (shown on Figure 7).

The configuration management process and the risk management process achieve the CL1initial. Other processes such as project planning, project assessment and control, decision management and information management achieve the CL2 -repeatable (shown on Figure 7).

Quality management, organization management and project portfolio management achieve the CL1 - initial. The infrastructure management and measurement achieve the CL2-repeatable. Human reosurce management achieves the CL3-defined (shown in Figure 7).

The observed company has no implemented the processes such as quantitative performance management and process innovation. Knowledge management is implemented within the company. However, this process achieves its purpose in ad hoc manner and achieves CL1 - initial (shown in Figure 7).

To achieve desired ML2 (Managed), all processes assigned to level ML1 and ML2 should achieve the CL2 (according to the standard ISO/IEC 33004:2015). Most processes, assigned to level ML1 and ML2, achieve the CL1 (initial). Company doesnt achieve the desired ML2 (Managed).

Planning improvements for business strategy management

The company has to identify all weaknesses (gaps) in the practice of the business strategy management and define how to achieve the desired ML. Company should make the priority plan in order to achive the desired ML2 (managed). First, it is necessary to improve the Strategic Plan Development process according to the BSC principles and institutionalize this process as well managed process (CL2) or defined process (CL3). What does it mean? Strategic Plan Development process should have a documented procedure, defined responsibilities, relevant knowledge and skills, a policy for developing a strategy plan, risk evaluation. The process should be aligned with other processes within the company. Additionally, it is necessary to improve the process of defining the action plans and programs and to implement better communication within the company with regard to the development of the strategic plans. Risk management requires additional improvements and application of methods for risk evaluation within the implementation of the business strategy.

Except the mentioned improvements to achieve the desired ML2 (managed), the company should also analyze other processes that are assigned to ML3, ML4 and ML5 (according to companys OMM). Most processes such as project portfolio management, organization management, quality management,

knowledge management achieve the process capabiliy CL1 -initial (shown in Figure 7). These processes must also be improved.
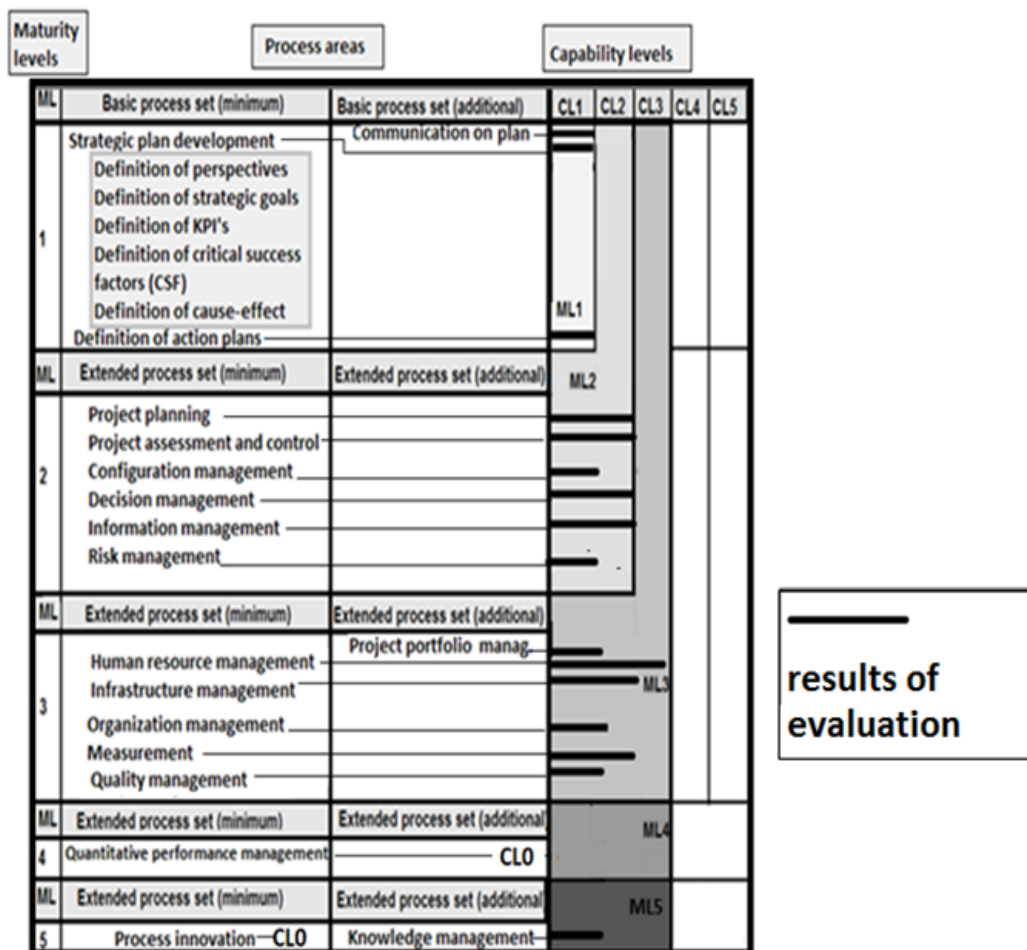

Figure 7. Results of the capability evaluation

CONCLUSION

This paper described the methodology for the business strategy management. The methodology enables companies to identify processes for managing the business strategy, to conduct the evaluation of their existing maturity within the business strategy management and to define the improvements due to the desired ML. With this contribution, this research can help practitioners and researchers on how the business strategy can be adequately and successfully managed in the practice. Future research of new companies in the context of this issue can discover how other organizations are using these practices and which are unforeseen circumstances and risks.

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