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Similarities and differentiations at the level of the industries in acquiring an organizational culture in innovation

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Abstract

In the literature, there is a concern to identify those dimensions that are of major importance for achieving performance in innovation and allow for a better understanding and approaching of the innovation within the firm. Among these dimensions, the organizational culture is found in all specialized researches and standards.

The research is conducted on a representative sample of managers and employees within the organizations of two representative industries from Romania, the IT&C industry and the machine building industry, in order to emphasize the relevant differences found in terms of the organizational culture.

The paper highlights that the companies' management attaches a greater importance to those elements underlying the formation of an organizational culture in the IT&C industry than in the automotive industry. Motivation is complex if viewed from the perspective of the innovation-oriented effort.

A number of criteria for analyzing the impact on innovation, criteria which be considered in examples of good practices is identified for the concept of the organizational culture.

A quantitative research, based on a market survey attended by managers from some companies is approached.

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Keywords: innovation management; the dimensions of the innovation management; the organizational culture; the machine building industry; IT&C industry.

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1. The concept of the organizational culture in innovation

Studies have revealed that *innovation improve the performance*, therefore *many organizations have included the innovation in their culture*, especially the high-tech companies [1].

In 2014, looking at Google how created an innovative culture, it could be seen the *eight principles of the innovation* that drove to the wellbeing of the company. Those are the following :

1. *Thinking 10 times than with 10%* means to reimage the product beyond the all it is known at that moment (models, materials, methods etc.), thus it was appeared the *Google Glass* useful for new applications to access technical data in the medical services field, the guard and fire protection services.
2. *Launch, then listening* is an approach that represents to launch a product then to look carefully for the users' feedback to find out what the market wants. An example is *Android*, the mobile operating system of Google.
3. *Share everything you can* means to share information openly for a very good collaboration. An example is *Google Drive for Work* which uses a cloud where is stored content as documents, spreadsheets, presentations, video, etc. available for the employees wherever and whenever they need it.
4. *Hire the right people* is looking for the talented people who have abilities in four main areas: knowledge, leadership, cognitive and personality. Which means find out the persons to do specific tasks, to know when to follow the great ideas and persons, to identify and solve problems, to see the potential of the development of each person. *gHire* is a Google tool used to manage the entire workflow of employing people.
5. *Use the 70/20/10 model* is a concept introduced at the foundation of Google representing the weight of the projects *dedicated (70%), related (20%)* and *unrelated (10%)* to the core business of Google.
6. *Look for ideas everywhere*, for example *Google+* converts the corporate directory into a social network in order to help people to create their own groups of work to communicate easily and to share information on variety topics.
7. *Use data, not opinions* in order to improve the performance of the managers, for example, since 2009 Google used the *Project Oxygen*, a training program for the executives. They want to share best practices used into a Google company from one part of the world into the Google companies from another parts of the world when things need to be improved.
8. *Focus on users, not competition* in order to make life even better for the users, for example, in 2004, Google introduced *Gmail* to extent the storage capacity of the emails from 2-4 megabytes to a gigabyte.

According to a bibliographic research achieved by Parveen et al., 2015, an innovation-oriented culture can be assessed through the following value dimensions [2]:

- *Success* - to respond to the highest performance standards starting from achieving challenging objectives and sustaining the development of the employees,
- *Openness and flexibility* - to new ideas and to solving problems,
- *Internal communication* - to facilitate the information flow within the organization,
- *Competence and professionalism* - to valorize the knowledge and skills, and to sustain the ideals and beliefs of a profession,
- *Inter-functional cooperation* - to work in teams and to coordinate them,
- *Responsibility of the employees* - to appreciate the autonomy, the initiative, the responsibility of the employees for their work,
- *Appreciation of the employees* - to recognize, value and reward the employees' achievements,
- *Risk-taking* - to experiment new ideas, to encourage product innovativeness.

2. Presentation of the research

2.1. Objective and usefulness of the research

The research hypothesis: The importance given by the employees of the firms in the two industries is not different for a number of determined criteria for analyzing the organizational culture within the respective firms.

The research purposed to follow the way in which firms attach importance to the aspects below mentioned (the 11 aspects identified in the literature) in the quest to manage of the organizational culture.

The analysis period was January-February 2016, and the population sample consisted of 82 respondents, managers and staffs from IT&C companies, most of them are foreign-owned and 56 respondents, managers and staffs from machine building companies. The population's sample participating in the study was located in the South and South - East of our country.

2.2. Defining the framework of the analysis - bibliographic research

In this research, it is wished to be identified a number of aspects from the literature which have impact on the organizational culture.

A1. Searching for and accepting the diversity of opinions and perspectives inside the firm.

The management of the diversity of the workforce and, implicitly, of the opinions and the prospects constitute the great challenge, but also the opportunity of the 21st century organizations. Among the arguments put forward are the following three [3]:

- *Individual talents from different cultures* who know the customs, traditions of the customers in certain areas of the world and, in addition, speak in languages of international circulation,
- *Different customer needs* are better understood,
- *Globalization*, due to the tendency of the organizations to operate on an international scale in search of the most suitable place for low operating costs.

Among the major *benefits of the workforce diversity* within organizations include: high levels of work productivity, sharing of diverse ideas and teamwork, learning and personal growth of the employees, effective external communication, and diverse experience.

As *disadvantages* can be mentioned: unjustified negative attitude towards a person, due to his/her belonging to a certain group; ethnocentrism - the tendency to consider the own group, culture or nation as superior to others; stereotypes - beliefs about a group that are universally applied to all members of that group; discrimination; harassment; and the accusation of the victim.

A2. Encouraging risk taking, trying to attract employees into projects with novelty for the firm.

Plenty of researches have revealed that the behaviours of the leaders have a significant influence on the innovation process and some have identified the leadership style as the single most important aspect of the organizational innovation [4]. These behaviours include: giving autonomy and freedom, encouragement of risk taking, an open style of communication, constructive feedback, participative and collaborative style, and support for innovation.

A3. Accepting to a great extent the mistakes made by the employees in the desire to progress and learn, the mistakes the company has to learn for the future.

In 2010, Amy Galo in an article in Harvard Business Review mentioned that [5]: "Mistakes, even big ones, don't leave a permanent mark on a career. In fact, they contribute to organizational and personal learning; they are an essential part of experimentation and a prerequisite for innovation. It is important to use those experiences to learn and grow."

A4. Reward successes in various ways (financial and nonfinancial).

The results of a global survey of 1,047 executives, managers, and employees from a range of sectors conducted by McKinsey in June 2009 revealed that the first three positions of the financial incentives were been occupied by: the performance based - cash bonuses, the increase in base pay, the stock or the stock options, meanwhile, for the non - financial incentives there were mentioned: the praise and commendation from the immediate manager, the attention from leaders and the opportunities to lead projects or task forces[6].

A5. The belief that respect and recognition of work is the foundation of relationships between employees and compartments.

 The results of a study on 76 organizations in 11 sectors in India with the theme identifying the best practices for rewards and recognition within the companies in India revealed the following significant aspects [7]:

- the rewards program are clearly documented with objectives and evaluation criteria, shared through intranet, newsletters, dashboard etc.,
- the goals are realistic in order to motivate the people,

- the risk and reward compensation systems sustain the employees' development and the team working excellence,
- the quality tools are used to assess the performance of the team and the manager,
- the link between the reward of the team and the financial objective is emphasized beyond the profit.

A6. Cooperative attitude and leadership flexibility in problem-solving.

The problem-solving skills refer to the leader's ability to solve in a creative way the organizational problems. These skills assume to define the problems, collect information about them, understand the context they appear, and create solutions to implement. The organizational context is important to perform these skills. The problem-solving skills request that leaders use the possible solutions to the significant problems within the organizations [8, 9].

A7. Recognize individual and group performances.

The results of a study published in 2007 by three researchers from the Göteborg University, School of Business, Economics and Law, on the theme of the reward systems based on individual or team revealed that both of them are necessary because of the compensation of their advantages and disadvantages by using together within an organization [10].

A8. Managers' flexibility in terms of staff's work time without an excessive monitoring of it.

An emerging field of researching is focused on the link between innovation and workplace flexibility, although there is a connection between an organizational culture of innovation and flexibility. Also, there is a connection between the creativity of the employees and the flexibility [11]. It was demonstrated that flatter organizational structures and the innovative workplace design improve the creativity, ideas generation and collaboration.

A9. Encouraging communication of ideas between different levels of the firm and departments.

A research conducted by the consulting firm Watson Wyatt identified some significant communication aspects of the high-performance organizations, such as [12]:

- focusing on communicating with and educating their employees,
- explaining and promoting the major changes within the organization,
- providing channels for upward communication and listening to the employees' proposals and suggestions.

To invest in improving communications means to reap benefits on long term that leads to the success of the organization.

A10. Promoting team spirit at the expense of personal affirmation.

The results of a study on 835 American employees, in 2011, revealed that the teamwork included experiences of collaborative work and successfully with colleagues toward a common aim. Respondents described the completion of a difficult and complex task, also the emotional connection among them. The employees described their experiences with terms such as "team spirit", "support and camaraderie", "very satisfying", "pulling together", "it all came out wonderful", and "taking each other's needs into consideration". The feelings of affiliation were important when respondents faced tasks which required joint effort [13].

A11. Encouraging the approaches oriented problem-solving at the expense of the placement of responsibility.

Working with others to solve problems is challenging because of obtaining quick results, implying other people in a significant way. The five-step Results Process guides a group from identifying the problem to implementing an innovative or practical solution. The five steps are the following: quantify the gap, uncover the cause, create options, decide the solution, and realize results [14].

2.2. The choice of industries subject to research

In Romania, over 20,000 companies are active in the IT field, and more than 100 companies have over 200 employees. In 2016, the IT&C sector reached to 5.6% of GDP, with an added value of 9 billion euros.

According to the "Software and IT Services in Romania" study, the turnover of the software and IT services sector increased by 11.3% in 2016 compared to 2015 and will exceed the threshold of 4 billion euros, in 2017 [15].

The IT industry in Romania is made up of: hybrid companies that make outsourcing and production (46%); domestic companies that produce and sell software (11%) (Siveco, BitDefender); companies that have development centres (Intel, Adobe, Ixia); companies that sell solutions in our country (Microsoft, Oracle, SAP etc.).

According to the Romanian Automobile Manufacturers Association, the auto industry has a 13% share in Gross Domestic Product (GDP). The value of exports was about 13 billion euros in 2016, which represents 24% of Romania's total exports. On the domestic market, Dacia sells only 7% of the production, and Ford 1% [16].

2.3. The results of the research

For the issues A1-A11, the respondents had to choose among the values:
1. appearance is not important in the organizational culture,
2. appearance is less important,
3. appearance is important and
4. appearance is very important in the organizational culture.

At first view, it can be said that are given a greater importance of the assessed areas in the IT&C industry than in the machine building industry, the evidence being the sum of the averages of the analyzed aspects 32.79 than 30.54 (seen in Table 1).

Table 1. The importance of the analyzed aspects at the industry's level

	The machine building industry			The IT&C industry		
	Mean	Std. Deviation	Position	Mean	Std. Deviation	Position
A1. Searching for and accepting the diversity of opinions and perspectives inside the firm	2.48	.933	11	2.83	.717	9
A2. Encouraging risk taking, trying to attract employees into projects with novelty for the firm	2.53	.933	10	2.74	.900	10
A3. Accepting to a great extent the mistakes made by the employees in the desire to progress and learn	2.55	.904	9	2.55	.877	11
A4. Reward successes in various ways (financial and nonfinancial)	2.75	.840	7	2.98	.981	8
A5. The belief that respect and recognition of work is the foundation of relationships between employees and compartments	2.75	.840	8	3.01	.711	7
A6. Cooperative attitude and leadership flexibility in problem-solving	2.93	.572	3	3.13	.699	2
A7. Recognize individual and group performances	3.03	.660	1	3.20	.838	1
A8. Managers' flexibility in terms of staff's work time without an excessive monitoring of it	2.80	.911	6	3.09	.864	4
A9. Encouraging communication of ideas between different levels of the firm and departments	2.82	.747	5	3.09	.740	5
A10. Promoting team spirit at the expense of personal affirmation	3.00	.679	2	3.05	.879	6
A11. Encouraging the approaches oriented problem-solving at the expense of the placement of responsibility	2.90	.871	4	3.12	.792	3
The sum of the averages	30.54			32.79		

Source: SPSS processing

In the practice of the IT&C companies, the following aspects: A6, A7 and A11 are appreciated.
An average attention is given to the issues: A4, A5, A8, A9 and A10.
Somewhat less attention is observed to the issue: A1, A2, A3.
In the practice of the machine building companies there are not aspects of the analysis whose are associated a high importance.
An average attention is given to the issues: A6, A7, A10 and A11.
Somewhat less attention is observed to the issues: A1, A2, A3, A4, A5, A8 and A9.
It is considered that there is some consensus among industries when they are envisaged the issues A7 and A10 seen as important, and A1, A2, A3 and A4 seen as a less important one. Major differences arise in the case of A5, A6, A8, A9 and A11 which is seen as a more important aspect in the IT&C industry, than in the machine building industry (seen in Table 1).
As it can be seen, all the analyzed aspects are better appreciated in the IT&C industry than in the machine building industry, proving a more careful concern for an innovation-oriented organizational culture.

2.4. Statistical interpretation of the results:

By the application of the process of the Independent Samples T-Test in SPSS, the process applied to two independent samples consist of respondents from the two analyzed industries, it was tested whether the averages of the two industries are equal for each analyzed aspect (seen in Tables 2 and 3).

Table 2. Group Statistics.

	Branch of activity	N	Mean	Std. Deviation	Std. Error Mean
A1. The diversity of opinions and perspectives	The IT&C industry	82	2.83	.717	.079
	The machine building industry	40	2.48	.933	.148
A2. Encouraging risk taking	The IT&C industry	82	2.74	.900	.099
	The machine building industry	40	2.53	.933	.148
A3. Accepting the mistakes	The IT&C industry	82	2.55	.877	.097
	The machine building industry	40	2.55	.904	.143
A4. Reward successes	The IT&C industry	82	2.98	.981	.108
	The machine building industry	40	2.75	.840	.133
A5. The respect and recognition of work	The IT&C industry	82	3.01	.711	.079
	The machine building industry	40	2.75	.840	.133
A6. Leadership flexibility in problem-solving	The IT&C industry	82	3.13	.699	.077
	The machine building industry	40	2.93	.572	.090
A7. Recognize individual and group performances	The IT&C industry	82	3.20	.838	.093
	The machine building industry	40	3.03	.660	.104
A8. Managers' flexibility in terms of staff's work time	The IT&C industry	82	3.09	.864	.095
	The machine building industry	40	2.80	.911	.144
A9. Encouraging communication of ideas	The IT&C industry	82	3.09	.740	.082
	The machine building industry	40	2.83	.747	.118
A10. Promoting team spirit	The IT&C industry	81	3.05	.879	.098
	The machine building industry	40	3.00	.679	.107
A11. Encouraging the problem-solving at the expense	The IT&C industry	82	3.12	.792	.087
	The machine building industry	40	2.90	.871	.138

Source: SPSS processing

While the Sig. Values for the analyzed variables, A2, A3, A4, A6, A8, A9 and A11, are greater than 0.05 means that the variability in the two conditions (the two analyzed industries) is about the same and it can be read in the first row in the Table 3. For the variables mentioned above, the Sig (2-Tailed) values are greater than 0.05 it can be concluded that there is no statistically significant difference between the averages of the two analyzed industries.

The Sig. Values for the other variables, A1, A5, A7, and A10, are less than 0.05 means that the variability in the two conditions (the two analyzed industries) is different and it can be read in the second row in the Table 3. The Sig (2-Tailed) values for A5, A7 and A10 are greater than 0.05 it can be concluded that there is no statistically significant difference between the averages of the two analyzed industries.

The Sig (2-Tailed) value for A1 is less than 0.05 and the interval of the difference not contain zero, also, it can be concluded that for this variable exist a big difference between the averages of the two analyzed industries.

Therefore, the variable differentiated significantly at the level of the analyzed industries is: "A1. Searching for and accepting the diversity of opinions and perspectives inside the firm".

The T-Test assumes that the means of the different samples are normally distributed; it does not assume that the population is normally distributed.

Table 3. Independent Samples Test.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
A1. The diversity of opinions and perspectives	Equal variances assumed	7.747	.006	2.315	120	.022	.354	.153	.051	.657
	Equal variances not assumed			2.116	62.186	.038	.354	.167	.020	.689
A2. Encouraging risk taking	Equal variances assumed	.133	.716	1.246	120	.215	.219	.176	-.129	.567
	Equal variances not assumed			1.230	74.981	.222	.219	.178	-.136	.573
A3. Accepting the mistakes	Equal variances assumed	.021	.884	-.007	120	.994	-.001	.171	-.340	.337
	Equal variances not assumed			-.007	75.353	.994	-.001	.173	-.345	.343
A4.Reward successes	Equal variances assumed	.375	.541	1.248	120	.214	.226	.181	-.132	.584
	Equal variances not assumed			1.317	89.183	.191	.226	.171	-.115	.566
A5.The respect and recognition of work	Equal variances assumed	5.393	.022	1.800	120	.074	.262	.146	-.026	.551
	Equal variances not assumed			1.700	67.124	.094	.262	.154	-.046	.570
A6. Leadership flexibility in problem-solving	Equal variances assumed	3.359	.069	1.643	120	.103	.209	.127	-.043	.461
	Equal variances not assumed			1.759	92.704	.082	.209	.119	-.027	.445
A7. Recognize individual and group performances	Equal variances assumed	5.697	.019	1.124	120	.263	.170	.151	-.129	.470
	Equal variances not assumed			1.220	95.932	.225	.170	.139	-.107	.447
A8. Managers' flexibility in terms of staff's work time	Equal variances assumed	.079	.778	1.683	120	.095	.285	.170	-.050	.621
	Equal variances not assumed			1.651	73.816	.103	.285	.173	-.059	.630
A9.Encouraging communication of ideas	Equal variances assumed	.005	.943	1.818	120	.072	.260	.143	-.023	.544
	Equal variances not assumed			1.812	76.819	.074	.260	.144	-.026	.546
A10.Promoting team spirit	Equal variances assumed	8.869	.004	.312	119	.756	.049	.158	-.264	.363
	Equal variances not assumed			.340	97.608	.734	.049	.145	-.239	.337
A11.Encouraging the problem-solving	Equal variances assumed	.732	.394	1.406	120	.162	.222	.158	-.091	.534
	Equal variances not assumed			1.360	71.195	.178	.222	.163	-.103	.547

Source: SPSS processing

3. Conclusion

Analysis of the organizational culture refers to identifying those elements that underlie the action and behaviors present in that firm.

The paper highlights that the companies' management attaches a greater importance to those elements underlying the formation of an organizational culture in the IT&C industry than in the automotive industry. Motivation is complex if viewed from the perspective of the innovation-oriented effort.

The innovation materialized in the product is much more subject to moral wear in the IT&C industry. The lower price of products and the higher number of the competitors in this industry accelerate the pace of innovation at the product level.

The organizational innovation is also becoming a necessity in the IT&C industry due to the small number of employees operating in a dynamic industry. The accelerated increase in wages in the IT industry, generated by the expansion of businesses in the sector, as well as the high deficit of candidates in this industry, require new recruitment and selection, organization and motivation methods. The net average wage in the IT industry reached

6,069 lei in December 2016, up almost 20% over the same period in 2015. Annually, it is registered about 7,000 IT graduates from the profile faculties in Romania, but the need in the market is double. The lack of personnel in the market leads to high fluctuations of the personnel with negative impact on the organizational culture, which forces the management to intervene.

The IT&C products are mainly sold through the online environment, which leads to savings in time and money. Thus, the marketing innovation by finding new markets, distribution channels, developing communication and sales techniques is vital. Through the spatial distribution of more concentrated workplaces, the IT&C companies require much smaller production and operations, the circulation of information and internal communication are gaining, and implicitly, the effort of the organizational culture is diminishing.

The aspects analyzed in the paper, regardless of the industry, do not record very high values in terms of importance given by the employees. The mentality and education of young people in Romania inherit a risk aversion, a major lack of encouragement for an entrepreneurial spirit and a lack of business education in schools, high schools and faculties. Thus, the employees in Romania often have a production-oriented mentality, more than creative, and are willing to embrace the outsourcing solution by providing services and products to foreign investors. The formation of a strong organizational culture, oriented towards innovation, is realized over time, and a management transfer between the mother company and its subsidiaries is not sufficient.

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