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FORMING COMMUNITIES OF PRACTICE IN HIGHER EDUCATION: A COMPARATIVE ANALYSIS

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ABSTRACT

In the light of the development of the educational process, a by this the overall system, there occurs the permanent need for its advancement. Through the realization of that aim it will be contributed to the development of the contemporary society – both regional as well as global. The quality educational process also means the achievement of quality, applicable knowledge, which is said to be power. With the thought of Francis Bacon "Knowledge is power" begins the project of the modern. René Descartes joined him as the leader of the modern with his rationalistic stance "I think, therefore I am") which opens presumptions for the later period of the postmodern. In the new times, by applying concretization of independent constructivism, creativity, independency and working on oneself, various pedagogical models open spaces to human thinking and creation and also to interactive relations indispensable for the development of pedagogical thought and work. Then we talk about the postmodern. Readiness for quality processes can be seen in the context of formatting social competences (within the social terms), which includes educational, human potentials, strategies and structures of developing politic. What do they incline to? They aspire to the realization of the system of excellence in all fields and all levels of education. The formatting of the overall ***system of excellence*** must be accompanied quality and creative processes of managing and regulation.

KEYWORDS: communities of practice, higher education, action research, knowledge sharing, online learning, survey.

1. INTRODUCTION

Communities of Practice (CoPs) are all around us. It has been in existence for a long time. Communities can be found in schools, universities, research institutes (Nistor, Baltes, & Schustek, 2012) and business organisations. Gannon-Leary and Fontainha (2007) emphasise that in view of technological developments which gave rise to improved communication and participant interactivity, academic staff and learners (students) in higher education have been functioning in virtual Communities of Practice (VCoPs). These online environments allow participants to communicate synchronously or asynchronously (Baran, 2006). According to Bolger (cited by Gormley 2012) VCoPs can advance employee development and learning while preserving crucial organisational knowledge. However, the specific guidance to form CoPs in higher educational institutions (HEIs) does not exist.

On the other hand, Nistor et al. (2012) point out that although VCoPs lead to improved academic participation and learning success, only a small number of learners and faculty participate in VCoPs on a regular basis. Participation in CoPs delivers several benefits in the form of the accumulation of experience, the stimulation of the social construction of knowledge and the development of expertise (Boylan, 2010; Nistor, Baltes, & Schustek, 2012), which makes it interesting for educational research on formal learning.

Given that knowledge as a valuable asset must be managed in a knowledge-based economy and most organizational knowledge exists in tacit form within employees' minds (Gromley, 2012), issues of knowledge management have also become more prevalent among researchers. Krishnaveni and Sujath (2012) emphasise that knowledge sharing in CoPs have not been entirely researched so far.

It is noteworthy that research on the environments of online CoPs has increased (Baran, 2006). Some remaining questions still need to be answered. To establish CoPs and keep it alive is more difficult than the blink of an eye. Unfortunately, the majority of literature on CoPs originates from outside Europe although e-learning articles have

been widely distributed around Europe. Gannon-Leary and Fontainha (2007) advocate further research on CoPs and virtual learning communities across European Union countries. Similarly Petersen (2007) cited by Gannon-Leary and Fontainha (2007) proposed that the concepts of learning in CoPs need to be further developed. Overall, more research is required about CoPs (Baran, 2006; Wubbels, 2007) to gain more insight about it.

This study has been initiated as part of a Women in Research project about CoPs that consists of six phases: developing a theoretical framework for communities of practice; exploring students' preliminary attitudes towards communities of practice; forming pilot communities of practice; evaluating pilot communities of practice groups; implementing action research to pilot communities of practice and applying the communities of practice model (CoPM) to other groups.

The aim of this paper is to highlight phase two of the study namely exploring students' preliminary attitudes towards communities of practice. The main purpose of this paper to determine to what extent are learners willing or prepared to share knowledge within learning CoPs at three institutions of higher education in order to empower learning and knowledge sharing within those institutions. The University of Johannesburg in South Africa, the University of Witwatersrand and the University of Zadar in Croatia are compared in this paper. All of them are urban universities which offer contact tuition. Furthermore, Croatia joined the European Union on 1 July 2013 (Mahony, 2013).

The research questions are the following:

1. What are the perceptions of undergraduate and postgraduate students at two South African universities about CoPs in terms of their willingness to share knowledge and experiences?
2. What are the perceptions of undergraduate and postgraduate students at a European university about CoPs in terms of their willingness to share knowledge and experiences?
3. In which way does CoP influence the study methods of undergraduate and postgraduate students at all universities?

2. DEFINING COMMUNITIES OF PRACTICE

Wenger and Snyder (2000: 139) define CoPs as "groups of people informally bound together by shared expertise and passion for a joint enterprise". Lave and Wenger (1991) and Wenger (1998) view CoPs as groups of people who share "goals, activities and experiences in the frame of a given practice". Barab, Makinster and Scheckler (2004) regard a CoP as a "persistent, sustained social network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history, and experience focused on a common practice and/or mutual enterprise". The improvement of knowledge of the members in the community is the result of the communication.

Online CoPs differ from co-located CoPs. Gannon-Leary and Fontainha (2007) describe virtual communities of practice (VCoPs) as a "network of individuals who share a domain of interest about which they communicate online". Lai, Pratt Anderson and Stigter (2006) point out some differences. It takes longer to develop online CoPs than co-located CoPs. Technological support is crucial for online CoPs but not for co-located CoPs. Communication in online CoPs is mainly computer-mediated but in co-located CoPs communication is mainly face-to-face.

3. PARTICIPATION, TRUST AND KNOWLEDGE SHARING WITHIN COPs

Wenger (1998) focuses on participation as an "encompassing process of being active participants in the practices of social communities and constructing identities in relation to these communities". Interactions do not have to be long (Krishnaveni & Sujatha, 2012). Knowledge sharing occurs via reflection and story telling and CoP members communicate among themselves. CoPs ultimately serve as a platform to question and explore the topics of interest. In order to learn through social interactions, the members produce and reuse resources e.g. the artefacts and its memory. The resources support the tacit knowledge of CoP members and those members share their knowledge and competencies.

To communicate with others in a community, creates a social presence. The social presence influences the likelihood of individuals to participate in CoPs, especially in online environments. The degree of participation in CoPs differs depending on the individual expertise of the members. Those who display more expertise become involved in more activities which include activities with a higher degree of difficulty and responsibility.

In CoPs the expert status relates to the identity of the members in that community. Members can be full and peripheral community members according to Lave and Wenger (1991). Experts with their exceptional knowledge and skills are full members of CoPs and members recognise them socially as such. It follows then that expert identity results from "the interaction with and recognition of other members" in CoPs which takes place in the context of participation. The impact of "expertise participation on expert status is mediated by participation" (Nistor et al., 2012).

Furthermore, Krishnaveni and Sujatha (2012) report that members address issues with the assistance of other experts within the CoPs. Gradually mentors come to the forefront in view of their long-term association and they start to assist newcomers. It is easy for new members to join if they have the particular interest. In passing of time they

associate with senior members and more experts which opens the way for transfer of knowledge from the experts to the learners. After a while the members know which part of the knowledge can be codified and which part must be shared by means of storytelling or other means (Krishnaveni & Sujatha, 2012).

The Oxford English Dictionary (2013) describes trust as a 'firm belief in the reliability, truth, or ability of someone or something'. Members will use CoPs once they trust it to have reliable and objective information. For CoPs to be successful, the members must highly trust the integrity and competence of its members (Krishnaveni & Sujatha, 2012). If the community includes a number of known people, the CoP members will feel more comfortable, but they will also be inclined to participate in CoPs consisting of entirely new members if they have great levels of trust in the institution.

Usoro, Sharratt, Tsui and Shekhar (2007) conclude that trust in VCoPs contains three elements: competence, integrity and benevolence. Usoro et al. (2007) found trust in the integrity of the community to be the most important predictor to share knowledge. Competence-based trust refers to the confidence of the members in the particular expertise of others. Integrity/benevolence-based trust involves the expectation of the trustees that others will treat them in an honest and kind manner. Ardichvili (2008) cited by Gormley (2012) further added institution-based trust, which refers to moderators who ensure the trustworthy behaviour of members through organisational structures. In an earlier study, Ardichvili (2003) identified integrity/benevolence-based trust and competence-based trust as important barriers to participation in VCoPs, due to the fear of misuse by others of information posted, for example, facing a personal attack by others. Often members of CoPs come across several barriers that hinder them to participate and exchange knowledge.

4. APPROPRIATE TECHNOLOGY FOR COPs

Internet technologies enabled knowledge sharing in online CoPs. Active knowledge sharing contributes to successful VCoPs. Expert knowledge can be shared by the medium of Web 2.0 tools which include blogs and wikis. Web 1.0 and Web 2.0 deal with the ways in which technologies are used. Web 1.0 consisted of static web pages that were filled with information but users could not interact with the site except for example to download a document or an application.

Web 2.0 enabled people to connect with others through the Web by using for example social networking sites like LinkedIn or Facebook (Gelin & Milusheva, 2011). It allows communication, participation, collaboration and editing of information (Gormley, 2012). Users can contribute (e.g. Wikipedia) or share content (e.g. YouTube). If anybody wanted to create CoPs, Web 2.0 would be the technology to apply. However, Web 2.0 is beneficial if members continue to use the community for knowledge sharing. Web 2.0 tools ought to decrease the time users spend to source content by improving the visibility of existing content instead of being used to offer an alternative to what exists already.

On the other hand, VCoPs is able to operate successfully without the latest high-tech tools (Gelin & Milusheva, 2011). Learners may require training to use social media or to participate in blogs, wikis and forums for knowledge sharing. They need to obtain the relevant skills and competence to use them.

Davis (1989) cited by Gormley (2012) postulates that the perceived usefulness and perceived ease of use of technology influence substantially on the users' motivation to accept and use information technology. For instance Karpinski (2008) cited by Gormley (2012) reported that people may not use Web 2.0 resources if they did not have a perceived need for the resource, thereby not viewing it as useful. Interestingly, technology itself may add to the misinterpretation of messages, due to lack of face-to-face communication (Gannon-Leary & Fontainha, 2007; Gormley 2012). Management must play a supportive role to promoting the usefulness and advantages of Web 2.0 tools for knowledge-sharing and collaboration and make the technology available to employees.

5. CULTIVATING COPS WITHIN ORGANISATIONS

For Wenger, McDermott and Snyder (2002) a successful CoP relies on the purpose and objective of the community as well as the interests and resources of the CoP members. Instead of reinventing the wheel and starting from scratch, Schenkel and Teigland (2008) as cited by Krishnaveni and Sujatha (2012) advise that one should look at the existing communities and networks first. In the absence of the latter, the recommendation is to form relationships among co-workers around common themes and interests followed by developing goals for CoPs in alignment with organisational objectives. In a strongly framed CoP, transmission of knowledge takes place closely between the members thereof. The opposite is true. When transmission of knowledge is less frequent, the CoP is weakly framed. The danger of disintegration occurs when the ability to communicate closely among the CoP members, is hindered (Schenkel and Teigland, 2008 cited by Krishnaveni and Sujatha, 2012).

Top management ought to have an awareness of networks of knowledge workers and the importance of knowledge sharing. CoPs flourish when they receive active support and the necessary resources e.g. time to participate, technical infrastructure, CoP sponsors ensure the whole support for the development and expansion of CoPs. CoP sponsors serve as a support link between CoP leaders and top management. The sponsor can further play the role

of a control agent and request the CoP leader to provide a number of best practices to be developed at specific time intervals. Sponsors should supervise the best proactive adoption process and provide appropriate technology to enable best practice exchange within the CoP (Borzillo, 2009 as cited by Krishnaveni and Sujatha, 2012).

Successful CoPs are able to generate sufficient excitement, relevance and value to attract and engage members, a sense of aliveness in other words. How can one design CoPs for this aliveness? Wenger, McDermott and Snyder (2002) postulate that CoPs must invite the interaction that makes them alive. Well-structured CoPs enable group discussion, one-on-one conversations, observing experts tackle cutting-edge issues. Despite the voluntary nature of CoPs, well-structured community design can invite aliveness. Wenger, McDermott and Snyder (2002) identified seven principles or actions in order to cultivate CoPs so that they will become "alive":

1. *Design CoPs to evolve naturally.* Since CoPs are dynamic, in the sense that the interests, goals and members may change, CoP forums need to be designed to support these shifts in focus.
2. *Create opportunities for open dialogue between inside and outside perspectives.* Although the CoP members and their knowledge are a valuable resource, it is to the advantage of the CoPs to look outside of the CoPs to gain understanding and insight in the different possibilities to accomplish their learning goals.
3. *Invite different levels of participation.* The first level is the core group that participates intensively in the community through discussions and projects. They fulfill leadership roles to guide the group. The active group, second level of participation, participate regularly but not to the same extent as the level of the leaders. The third level, the peripheral group, although being passive members in the community are still learning from their involvement. The majority members resort to this third group.
4. *Develop public and private community spaces.* CoP members in public spaces share and discuss ideas but private exchanges must be made possible. Different CoP members could coordinate relationships among the members and resources by adopting an individualised approach based on particular needs.
5. *Focus on the value of the community.* Members ought to have opportunities to discuss the value and productivity of their participation.
6. *Combine familiarity and excitement.* As part of the CoP structure learning opportunities must be provided to shape their learning experiences in a brainstorming session and investigating the traditional and radical wisdom with regard to their topic.
7. *Create a rhythm or pace for the community.* Members need to meet, reflect and evolve on a regular basis. The pace should maintain an engagement level that will sustain the vibrant CoP but at the same time not become so fast-paced that it becomes unwieldy and overwhelming.

5.1 Principles for cultivating CoPs

Lai et al. (2006) argue that online CoPs or VCoPs involve more than merely transferring a CoP to an online environment. Technology infrastructures must enable the online CoPs to address barriers that are not applicable in co-located CoPs: time to meet and communicate; members may be large and involve many locations; members are dispersed across organisations and experience different organisational cultures. It is debatable whether trust can be developed online. Lai et al. (2006) provide the following design principles for online CoPs:

1. *Online CoPs must be cultivated to grow naturally*. Although these online CoPs "can be built in terms of the technology", the members themselves must take rersponsibility to grow the community. Online CoPs must allow development.
2. *Developing online CoPs by considering sociability (interaction of members) and usability (interaction of members with the technology).* Several strategies are provided to promote sociability and participation. Allow different levels of participation; allow time to participate; ensure that there is ease of use of technologies and build social relationships and trust.
3. *Attract diverse members so that a critical mass of people are members of the online CoPs*. Structure the online CoPs to take into account geographical and contextual diversity.
4. *Provide for different roles in the online CoPs.* The types of roles are: leadership roles, core members, support persons and community members. Defined roles deliver the benefits of reassurance, continuity and structure.
5. *Incorporate technology designed with functionality to support sociability and knowledge sharing.* To choose appropriate technology, the following must be considered: the needs of the community, access; level to technology and the level of available funds.
6. *Adopt a blended approach to development where online activities are supported by offline activities.*

5.2 Strategies for empowering CoPs

Au, Reiner and Urbanowski (2009) suggest five additional strategies that can be applied in CoPs:

1. *Create an equal environment*. Members must be at ease to participate and intimidation should be discouraged. To develop a common understanding of the value of the community requires intensive preparation. All members must be engaged and they need to find a way to work together to accomplish goals together.
2. *Keep material and activities engaging*. In order to prevent boredom, excitement can be created by examining or discussing different activities that everyone will

be interested which will motivate members to return for more. Wenger et al. (2002) concurs that successful CoPs supply sufficient structured activities to build a pace of participation and opportunities to share innovative ideas.

3. *Establish a routine*. Members of CoPs need to know what will be accomplished during each meeting and when. Since all participants have different schedules for all their commitments, a routine is necessary so that members can work around their commitments (Au, Reiner & Urbanowski, 2009; Wenger et al., 2002).
4. *Support third party opinions*. Apart from professional opinions, third party opinions of people who do not form part of the practice serve as a neutral opinion on what the CoP is looking for, what is lacking, what has been overdone or tried previously. For Wenger et al. (2002) insider and outsider perspectives are necessary. While insiders understand the issues and barriers to problem-solving and may possess the knowledge required to assist the CoP, outsiders who are non-experts and neutral facilitators on the issue may help open up new possibilities.
5. *Design for growth and expansion.* With the passing of time, new information, new ideas and techniques could be incorporated. Changes in the organisation also place new demands on the CoP and the community must prepare for the growth and expansion.
6. *Adhering to the preceding will contribute to CoPs being successful*. The next section deals with the empirical part of the study.

6. RESEARCH DESIGN

6.1 Research approach

This research can be described as a quantitative case study as the learning experience of students is investigated relating to a specific event in a bounded context (Creswell, 1994; Yin, 1994; Merriam, 1998). The quantitative research approach allows researchers to collect quantifiable data in challenge to deliver neutral results (Creswell, 1998).

6.2 Sampling and data gathering method

A non-probability sampling approach was used through convenience sampling. Participants from the three groups of students (Department of Economics, University of Zadar, Croatia, Department of Mining, University of the Witwatersrand and Department of Applied Information Systems, University of Johannesburg) presented a purposive convenient sample, as they were available and inexpensive to this study (Patton, 1980:104).
A survey was undertaken with 500 students registered for undergraduate and postgraduate diplomas and degrees at three Universities. Lectures conducted an off-line questionnaire using existing database of undergraduate and postgraduate students at three universities.

6.3 Assessment of trustworthiness

Participation was strictly voluntary and students were free to decline to participate in this research study, or they could withdraw their participation from the study at any time. Students were informed that anonymity will be protected in any reports, research papers, thesis documents, and presentations that result from this work.
The students completed a questionnaire, which they returned to the researchers electronically. The issues of credibility and reliability in the questionnaire design were considered (Creswell, 1994,1998; Patton, 1980).

6.4 Questionnaire design

The questionnaire was divided into sections A - demographic information (gender, age, year of study, nationality) and B - 5 categories/measures, namely: willingness; team preparedness; communication modes; and perceived benefits. In total the questionnaire consisted of 20 questions and the variety of questions contributed to the richness of the preliminary data by revealing students' perceptions, opinions with respect to CoPs.

7. DATA ANALYSIS

7.1 Cross-tabulation and Chi-Square testing

Inferential statistics (a cross-tabulation and Chi-Square testing) were used to analyse students' responses that are considered as variables. A cross-tabulation is a technique that is based on joint frequency distribution of cases based on two or more categorical variables. Categorical variables should contain integer value, which would indicate membership in one of several possible categories. The range of potential values for such variables is limited. Due to the low number of possible values of categorical variables it is not possible to make any assumptions regarding the distribution (e.g. whether it is normal distribution) (Crossman, 2013).

Chi-Square test can be utilized in this study to investigate whether the results of the sample analysis are representative of the larger population (Crossman, 2013).

The Chi-Square test of statistical significance assumes that the variables are measured at the nominal level. This means that should there be any information regarding the order of, or distances between categories, it is ignored. A critical assumption for the Chi-Square is independence of observations. Moreover large frequencies are expected (Michael, 2002). The Chi-Square test helps us to determine whether two discrete (categorical) variables are associated.

The Chi-Square test computes the sum of the squares of the differences between actual and expected values of variables and assigns a probability value to that number

depending on the size of the difference and the number of rows and columns of the crosstabs table. If the probability value p computed by the Chi-Square test is very small it means that the differences between actual and expected values are significantly large. This means that the assumption of the independence between variables is not met and that there is a relationship between the variables. Should the value p be large, differences between the actual and expected values are not statistically significant and therefore variables are indeed independent. The Chi-Square test is only reliable if all expected values are 5 or more. Figure 1 presents the results of the cross-tab and Chi-Square analysis for the variable measuring the willingness to share knowledge in the same field.

Figure 1: Willingness to share knowledge in the same field (Cross-tab and Chi-Square test).

Cross- tab

			Institution			Total
			Zadar	UJ	Wits	
5.1 Are you prepared to share your knowledge and experience with others in the same field?	Strongly Disagree	Count	1	3	3	7
		% within Institution	0.5%	2.6%	1.3%	1.3%
	Disagree	Count	1	0	0	1
		% within Institution	0.5%	0.0%	0.0%	0.2%
	Neutral	Count	12	19	13	44
		% within Institution	6.0%	16.4%	5.6%	8.0%
	Agree	Count	130	50	60	240
		% within Institution	65.0%	43.1%	26.0%	43.9%
	Strongly Agree	Count	56	44	155	255
		% within Institution	28.0%	37.9%	67.1%	46.6%
Total		Count	200	116	231	547
		% within Institution	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	91.732[a]	8	.000
Likelihood Ratio	90.299	8	.000
Linear-by-Linear Association	29.318	1	.000
N of Valid Cases	547		

a: 6 cells (40.0%) have expected count less than 5. The minimum expected count is .21.

In this case there are 6 cells (about 40%) that have the expected count below 5, which makes the Chi-Square test not reliable.Figure 2 presents the results of the cross-tab and Chi-Square analysis for the variable measuring the willingness to share knowledge depending on the character or the other members of CoP.

Figure 2: Willingness to share knowledge depending on the character of the other members of CoP.

Cross- tab

			Institution			Total
			Zadar	UJ	Wits	
5.2 Would the character of the other members play a role while sharing knowledge?	Strongly Disagree	Count	0	1	4	5
		% within Institution	0.0%	0.9%	1.7%	0.9%
	Disagree	Count	1	1	6	8
		% within Institution	0.5%	0.9%	2.6%	1.5%
	Neutral	Count	29	24	36	89
		% within Institution	14.5%	20.7%	15.7%	16.3%
	Agree	Count	115	57	92	264
		% within Institution	57.5%	49.1%	40.2%	48.4%
	Strongly Agree	Count	55	33	91	179
		% within Institution	27.5%	28.4%	39.7%	32.8%
Total		Count	200	116	229	545
		% within Institution	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.371[a]	8	.006
Likelihood Ratio	22.782	8	.004
Linear-by-Linear Association	.056	1	.813
N of Valid Cases	545		

a: 6 cells (40.0%) have expected count less than 5. The minimum expected count is 1.06.

As with the data in Figure 1, there are 6 cells, which have the expected count below 5, which makes the Chi-Square invalid in this case. Similar situation to those two presented previously (cells with values below 5) occurs in the case of the following questions in the questionnare:

1. Are you a team player?
2. Which form of communication would you most use as a participant in a CoP?
3. By sharing knowledge, my knowledge base will increase
4. Sharing my personal knowledge and experiences will maintain or increase my status amongst my peer
5. Sharing my personal knowledge and experiences helps build trust among peers study methods are unique and effective like to share them with others
6. We all possess certain tacit knowledge. Sharing with others will make us more effective
7. I will learn more from peers about new developments in my field than from reading literature benefit from knowledge sharing
8. My peers benefits from knowledge sharing
9. Associating voluntarily with others to share knowledge, friendships can develop based on trust
10. Since voluntary, I can opt out any time
11. Sharing the same identity creates a strong bond amongst the members of a CoP
12. CoPs are created out of passion for one's work and they 'die' from lack of it
13. Sharing my personal knowledge and experiences will not be detrimental to my own performance (e.g. detracts from doing other work)
14. I have personal knowledge and experiences that would be important for my peers to have
15. Sharing my personal knowledge and experiences will increase my power to influence decisions

Therefore for these questions the analysis based on the Chi-Square test would yield unreliable results. In the case of these variables it is advisable to gather more data or re-investigate the scales utilized.There are only two questions in the questionnaire that meet the criterion of having all of the expected frequencies above 5:

16. Do you prefer to work alone?
17. I am frustrated with my studies and would like to feel free to discuss it with others.

In the case of these questions it is possible to proceed with the Chi-Square test as the results of it are likely to be reliable. Table 3 presents the Cross-tab and Chi-Square for the first questions, while table 4 presents the Cross-tab and Chi-Square for the second variable.

Figure 3: Preference of working alone.

Cross- tab

			Institution			Total
			Zadar	UJ	Wits	
5.4 Do you prefer to work alone?	Strongly Disagree	Count	15	16	47	78
		% within Institution	7.5%	13.8%	20.3%	14.3%
	Disagree	Count	68	29	60	157
		% within Institution	34.0%	25.0%	26.0%	28.7%
	Neutral	Count	64	40	82	186
		% within Institution	32.0%	34.5%	35.5%	34.0%
	Agree	Count	46	16	27	89
		% within Institution	23.0%	13.8%	11.7%	16.3%
	Strongly Agree	Count	7	15	15	37
		% within Institution	3.5%	12.9%	6.5%	6.8%
Total		Count	200	116	231	547
		% within Institution	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	34.615[a]	8	.000
Likelihood Ratio	34.203	8	.000
Linear-by-Linear Association	4.879	1	.027
N of Valid Cases	547		

a: 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.85.

Figure 4: Frustration and willingness to share it

Cross- tab

			Institution			Total
			Zadar	UJ	Wits	
7.5 I am frustrated with my studies amd would like to feel free to discuss it with others	Strongly Disagree	Count	16	11	22	49
		% within Institution	8.0%	9.6%	9.6%	9.0%
	Disagree	Count	68	20	45	133
		% within Institution	34.0%	17.4%	19.7%	24.4%
	Neutral	Count	68	31	58	157
		% within Institution	34.0%	27.0%	25.3%	28.9%
	Agree	Count	45	41	65	151
		% within Institution	22.5%	35.7%	28.4%	27.8%
	Strongly Agree	Count	3	12	39	54
		% within Institution	1.5%	10.4%	17.0%	9.9%
Total		Count	200	115	229	544
		% within Institution	100.0%	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45.869[a]	8	.000
Likelihood Ratio	51.336	8	.000
Linear-by-Linear Association	18.845	1	.000
N of Valid Cases	544		

a: 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.36.

The values of *p* are quite high therefore it is possible to conclude with high certainty that there is no relationship between the values for these variables and the institution the study was conducted with. In other words the institution was not affecting the answers of the respondents. Although this is only a preliminary study it is possible to formulate the potential hypotheses that could be further investigated during the full empirical research with the participating institutions.

H_0: There is no statistically significant difference in how the Communities of Practice are utilized in the participating institutions.
H_1: There is a statistically significant difference in how the Communities of Practice are utilized in the participating institutions.

At this point it is however difficult to evaluate, which one of these hypotheses would be valid. Given that only two of the variables (as compared with fifteen that did not meet the Chi-Square criteria) could be utilized to investigate the hypotheses presented. Based on the preliminary study data it is possible to state that the result of the analysis of the two variables supports the null hypothesis – that there is no statistically significant difference in how the CoPs are utilized in the participating institutions. This statement is not a strong statement however. It is necessary to remember that these two variables were measuring only two aspects (and not the most important ones) of the CoPs. It is recommended that this study with improved questionnaire questions is conducted with a larger group of potential respondents.

8. DISCUSSION

This paper investigated the concept of Communities of Practice (CoPs) and the potential for their usage in the higher educational institutions (HEIs) environment. It first started with an in-depth literature review on the subject of CoPs. Literature review explored the problems faced by the CoPs in the business environment, factors affecting participants while they engage in knowledge-sharing processes and the technological aspects of CoPs.

Data for the empirical research was obtained from three higher-education institutions (HEIs). One of them was from Europe (University of Zadar, Croatia) and two from South Africa (University of Johannesburg and University of Witwatersrand). At this point it is good to realize, that although these institutions are geographically dispersed and have a different culture, they all are in similar situation when it comes to the establishment of CoPs. Therefore it is possible to perform a comparative study on them. Moreover such a comparative study may be useful for any future studies, which would investigate concepts such as CoPs or knowledge sharing across different countries, cultures and levels of development.

At later stage of the research the empirical data from the preliminary study carried out with the members of CoPs from the participating institutions was analyzed and presented. Next section will briefly describe the conclusions that can be drawn based on the secondary and primary research.

CONCLUSIONS

This research is the first step in the process of investigating the potential for the use of (Virtual) Communities Practice (VCoPs) in the Higher Educational Institutions (HEIs). Due to this fact it is rooted in the existing literature on the subject. The concepts from the literature review were utilized in order to develop constructs, which formed a basis for the empirical research. The empirical research was in a form of a pilot study carried out with three HEIs: University of Zadar (Croatia, EU), University of Johannesburg and University of Witwatersrand.

At this early stage it is difficult to provide decisive conclusions due to the limited scope of the underlying research. Based on the secondary research and the preliminary study it is however possible to state that the research in this area is very relevant and sought-after given the existing trends in the industry and academia. As it was described previously VCoP are an already established concept in the industrial world. Therefore their inclusion in the academia would allow students to learn this concept in advance and therefore would provide them a seamless start in the world of industrial VCoPs. This conclusion is valid both for the European countries as well as most-economically potent countries in the developing world (South Africa is one of the best examples of such countries).

Another conclusion that can be drawn based on this study is that there is a possibility of using the constructs taken from the industrial CoPs and "refining" them to the educational CoPs. It is expected that any further studies involved with such constructs will yield relevant and reliable results. The empirical pilot research carried out for this study is a visible proof for that. Although the questionnaire items need to be further worked upon it is possible to state that they are a good tool to measure the most common concepts of CoPs in HEIs.

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THE EFFECT OF MINDFULNESS TRAINING ON EMPLOYEES IN A DYNAMIC ORGANIZATIONAL SETTING

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ABSTRACT

The access to information and multiple sources of communication has changed the way we work, and relate to our work day. The boundaries between work and home often disappear, increasing potentially employees' stress level, diminishing cognitive capabilities, and splitting attention between numerous tasks. The consequences of multitasking have been widely studied, as well as individual differences. Based on other studies, mindfulness based stress reduction (MSBR) method appears to have a positive effect e.g. on attention, working memory, stress and empathy. Thus, this experiment introduces an intervention in the form of mindfulness training, which lasted for 12 weeks for all 110 employees, who are located in 13 countries world wide. In addition, employees attended a seminar per week during 10 weeks. These seminars were mainly based on positive psychology. In order to collect data three surveys were sent out (before the intervention, 12 weeks after the first seminar and 6 months later). Two specific measurements were used, which are Mindfulness Awareness Scale (MASS) and Perceived Stress Scale (PSS). Findings showed a significant increase in MAAS, and diminishing values in PSS, meaning that treatment, in the form of MBSR had an affect on the perceived stress in the firm.

KEYWORDS: mindfulness training, mindfulness based stress reduction (MSBR), perceived stress

1. INTRODUCTION

The words such as multitasking, "continuous partial attention", "email apnea", have become an every day representation of working demands and expectations. Throughout the history, philosophers, scholars and writers such as Socrates, Peter Drucker, and Lord Chesterfield, pointed out the importance of focusing on one thing at the time. (Drucker, 2007; Rosen, 2008) With the introduction of technology, access to massive amount of information has tempted and stimulated workers to change their working habits. According to Lindbeck and Snower, (2000) the shift occurred from "Tayloristic" organization, which emphasized focus on a single task specialization to "holistic" organization, featuring job rotation, learning new tasks and integration of tasks.

The possibility to access large amounts of information and numerous possibilities to communicate with others have often moved and changed the boundaries between work and home. During working hours, employees might also be occupied by their private things e.g. checking private email and social media accounts. On the other hand, constant checking work email and the possibility to be always reached, e.g. available for an important question has created a feeling of constantly being "on". Mark and Gonzalez (2005) observed knowledge workers, who switch every 3 minutes between single tasks, or every 11 minutes between working spheres, which Mark and Gonzalez defined as a group of related tasks. Thus, multiple projects require constant switching between tasks, which create a fragmented working day, where they often need to switch their attention. The intensity of working environment and job demands on individuals has led to a discussion on the effects of multitasking on productivity. (Appelbaum, Marchionni, & Fernandez, 2008; Freedman, 2007)

However, psychology researchers mostly focus on diminishing cognitive capabilities (Ophir, Nass, & Wagner, 2009a) information technology (Czerwinski, Horvitz, & Wilhite, 2004; Spink, 2004) education (Jenkins, Clinton, Purushotma, Robinson, & Weigel, 2006) and consequences of those on learning (Poldrack, 2006), creativity (Madjar & Shalley, 2008), and other concepts. Each of these fields has framed

multitasking in their own context. The most concern raise problems with concentration, diminishing cognitive capabilities, problems with learning, general consequences of split attention. However, it is important to mention individual differences related to the ability to multitask. According to Konig, Buhner and Gesine (2005) working memory is one of the predictors on how well one can multitask. Thus, it is not those who believe that are good at multitasking that perform well (Ophir, Nass, & Wagner, 2009b) but those who have better working memory.

However, one of the consequences of constant switching between tasks and being available to be disrupted leads to increased stress levels. Linda Jones, the former executive at Microsoft named the condition "email apnea", which she discusses in her article in Huffington Post, describing it as "*Shallow breathing or breath holding while doing email, or while working or playing in front of a screen,*" which lately has been verified in a study by Mark, Voida and Cardello (2012).
According to Jensen et al. (2012) study, they point out the effects of mindfulness training (MT) and its potential positive effect on working memory, stress reduction and empathy. Although various studies have reported positive effects of MT on stress and empathy, most of these studies were done on either medical (Sibinga et al., 2011) and nursing students (Beddoe & Murphy, 2004), or patients, who are struggling with different stress related problems, traumatic experiences, and chronic disorders.

Contrary to previous research, which aimed at testing MBSR's effect on various stress-related disorders, this paper presents an experiment within a dynamic organizational setting, where all employees were encouraged to participate, independently of their health problems, stress level, motivation, attitude and need.

2. LITERATURE REVIEW

2.1 Multitasking

The problem of multitasking has been discussed in decades by management scholars, psychologists and lately education professionals and neuroscientists. Their concerns and focus of studies are different depending on the interest of their field. Studies within management field have been mostly concerned with the effects on productivity. However, increasing number of studies shows the stress related problems due to highly demanding working environments.

Brillhart (2004) went even so far to name the type of the stress caused by technology, technostress. He defines it "as *the minds attempt to deal with change, malfunctions, multitasking issues and the over abundance of technology and data that keeps employees working harder and giving them less down time when away from work.*" Further on, he explains for different types of stress, where multitasking madness is its own category. The consequences are increasing stress that may cause stress related problems, such as headaches etc.

In their latest study, Mark, Voida and Cardello (2013), looked at the effect of email on multitasking and stress level at work. Interestingly, they found out that removing the email from a working setting decreased the level of multitasking and positively affected a focus on a task. Equally, the removal of email led to less stress.

Santora and Esposito (2010)point out that it is to expect in dual-income families to struggle with stress, when trying to balance the multitasking demands with work and home life. Thus, multitasking takes a place of a major source of stress in finding a balance between work and home. Offer and Schneider (2011) suggest that for mothers, multitasking at home and in public leads to an increase in negative emotions, stress, and work-family conflict and psychological distress.

Although multitasking is a more complex concept with a wide range of consequences, this paper solely focuses on stress related to multitasking. In dynamic environments, where real-time information has an impact, multitasking and continuous presence might be necessary, but also costly.

2.2. Mindfulness

Mindfulness is an ancient practice belonging to the Eastern Wisdom Traditions, particularly Buddhism, and as such it goes back at least 2500 years in time. The original term for "mindfulness" is *sati* (Pali), or *smrti* (Sanskrit), which connotes "memory" or "recollection," but as a spiritual or psychological faculty it signifies an attentive awareness of the reality of things. In the early Buddhist traditions *sati/smrti* signifies presence of mind, meaning the ability to be attentive to the reality of whatever unfolds. It has the characteristic of not being distracted, which implies not leaving the object one has chosen to focus upon.

Essentially, there is nothing in the original teaching and practice of mindfulness suggesting that one needs to be Buddhist in order to pursue it, although it originated and was systemized in a Buddhist environment.

2.3. Mindfulness based stress reduction (MBSR)

One of the most common examples of mindfulness practice is mindfulness based stress reduction (MBSR) that has been introduced by Kabat-Zinn in late 1970s, where he defines it as paying attention on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 2003) According to Bishop (2002) it is a clinical program, which originally was designed as a help for patients to learn to adapt to their illnesses through self-regulation approach, which would diminish stress reduction and emotion management. The goal of the meditation is

to "foster the quality of mindfulness", which is a self-regulatory approach to bring attention back, without being caught up in thoughts about a specific situation or emotional reaction to it. (Bishop, 2002)

The researchers, especially psychologists and medical workers, have tested the effect of MBSR method on numerous patients with difficulties, such as HIV-infected youth and those at risk (Sibinga et al., 2011) posttraumatic stress disorder due to domestic violence (Smith, 2010), emotional regulation related to social anxiety(Goldin & Gross, 2010), depression, anxiety and pain (Marchand, 2012)among others. All these studies found a positive effect of MBSR on these conditions and patients well being, especially on the ability to handle attention, rumination (Campbell, Labelle, Bacon, Faris, & Carlson, 2012), interpersonal relationships, hostility (Sibinga et al., 2011)or physical manifestations such as blood pressure and blood sugar. (Campbell et al., 2012)

Although MBSR method has been used mainly in patients, researchers have also looked at the benefits of the method on the ability to deal with stress and empathy in medical, premedical (Shapiro, Schwartz and Bonner 1998) students and nursing students (Beddoe & Murphy, 2004). According to Shapiro, Schwartz and Bonner (1998) the inability to deal with stress may lead to serious personal and professional consequences.

Fries (2009)in his paper discuss how changing work environment, with high uncertainty and instability, affects workers and causes stress. He suggests that the five basic factors of mindfulness, such as non-reactivity, observing, awareness, labeling and non judgment (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) an change one's inner perceptions, regardless of external happenings, thus affecting stress level.

Therefore, previous research finds that MBRS reduces stress among patients and students related to highly stressful medical environment, with high risk of fatal consequences. However, to our knowledge, the method has not been used within a business setting, although it has been suggested by Fries (2009). Due to technology driven working days, employees are often exposed to high stimuli and stress. Thus, this setting could use MBSR as a method for dealing with consequences of multitasking.

Hypothesis 1. MBSR has a positive effect on stress-level of employees in a dynamic business environment.
Hypothesis 2. MBSR reduces stress-related health problems in employees
Hypothesis 3. MBSR increases the ability to be present in the moment.

3. METHODS

The method that we used in this project was an experiment, which consisted of an intervention in the form of mindfulness training and seminars.

3.1. Mindfulness Training as an Intervention

Mindfulness training consists of practice and ten seminars. During practice the participants were supposed to engage in 10 minutes of mindfulness breathing, and "paying attention in a particular way on purpose, in the present moment, and nonjudgmentally." (Kabat-Zinn, 1994) These mindfulness practices took place every day for 12 weeks. The program contains 10 modules, which are conducted at the work place. The first seminar was a two-hour workshop on "introduction to mindfulness" and the remaining nine sessions were an hour each. The sessions were on ten different topics, which are mostly based on positive psychology. These seminars are:

1. Introduction to mindfulness
2. Perception & The importance of awareness
3. Your brain at work & Activities with mindfulness
4. Inspiration & Dealing with hindrances
5. Happiness & Valued living
6. Optimism & Mindfulness and neuroscience
7. Acceptance & Automatic thought-patterns
8. Emotional intelligence & The good life
9. Freedom & Letting go
10. Mindfull Living

The program lasted for 12 weeks, consisting of daily 10-minutes mindfulness training. TGS has an open landscape solution, where top management team sits together with everyone else. The training took place in this area every morning from 8:50 to 9:00.

3.2. Data and Sample

In order to test the hypothesis, the firm that has participated in the experiment is Telenor Global Services (TGS), which consists of ca. 120 employees located mostly in Norway, but also in large number of other countries as well. Participation in mindfulness training, seminars and surveys was highly encouraged by top management in TGS but voluntary. The top management team participated visibly in all activities and general participation in training and seminars were high.

The range of participants is between 20 and 67, where all age groups and both sexes are equally represented. In the survey group, 80% of employees have a bachelor or master degree.

3.3. Data Collection

We distributed three surveys to all employees; the first before the intervention, the second immediately after the intervention and the third after another six months.

In addition to questioning the employees about simple self-reported stress, and stress-related problems we asked them

to respond to some widely used and validated psychological instruments for measuring stress "Perceived Stress Scale", PSS, and mindfulness "Mindfulness Attention Awareness Scale", MAAS.

Perceived Stress Scale (PSS)

PSS is the most widely used psychological instrument for measuring the perception of stress. (Cohen, Kamarck, & Mermelstein, 1983)L. Harris Poll have gathered information on more than 2000 respondents in the US as a reference norm. (From Cohens homepage http://www.psy.cmu.edu/~scohen/)

Mindfulness Attention Awareness Scale (MAAS)

MAAS measures "a core characteristic of mindfulness, namely, a receptive state of mind in which attention….simply observes what is taking place." Higher MAAS scores reflect higher levels of mindfulness. (Brown & Ryan, 2003)

77 responded to the first survey. However, some complained about the survey because of its length. The employees in TGS are of all ages, both sexes, and 80% have a bachelor degree or more.

3.4. Data Analysis

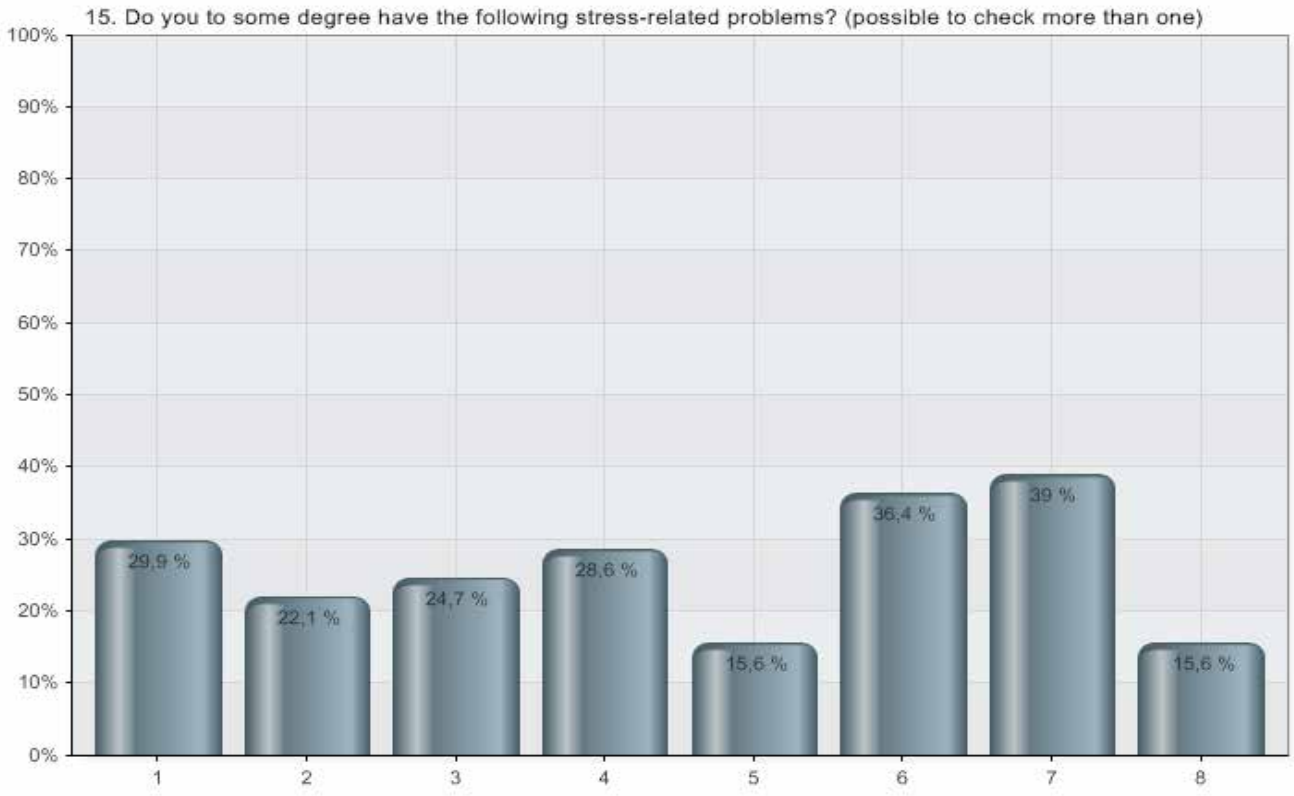
We compared differences in means between groups by ANOVA and compared differences in 2 proportions by two sample proportion z-test.

4. RESULTS

4.1. Findings before MBSR training and seminars

85% of respondents report good or very good health. Overall, they are very happy to be working at TGS and hardly have any plans to leave the company in near future. They report high job satisfaction and organizational commitment on several indicators (not reported). However, there is a heavy work load and 30% report that stress is a problem. Further on, work-related and family related stress is equally problematic (see Figure 1.).

Figure 1. Where 1=difficulties sleeping, 2=Fatigue, 3=Tension, 4=Irritability, 5=Lack of memory, 6=Lack of concentration,7= Headache or pain in shoulders, neck etc., and 8= None.



We observe that 16% did not have any of the suggested problems. The main stress-related problems were "difficulties sleeping" (30%), "Lack of concentration" (36%) and "Headache or pain in shoulders, neck etc" (39%). All these stress-related problems are likely to influence individual wellbeing and job performance.

In addition to questioning the employees about simple self-reported stress, we asked them to respond to some widely used and validated psychological instruments for measuring stress "Perceived Stress Scale", PSS, and mindfulness "Mindfulness Attention Awareness Scale", MAAS.

Table 1. *Community adults in 4 independent samples n=436, mean=4.2, SD=0.69 (Brown and Ryan 2003 and Carlson and Brown 2005)

		Harris poll		TGS March 2012		
		Mean US	SD	Mean	N	SD
SEX						
Male		12.1	5.9	14	43	5.6
Female		13.7	6.6	16	34	6.0
Tot average				15	77	5.8
Age US	Age TGS					
18-29	<30	14.2	6.2	16	13	7.8
30-44	31-40	13	6.2	17	27	5.5
45-54	40-60	12.6	6.1	13	32	5.3
55-64	>60	11.9	6.9	17	5	3.2
65 and older		12	6.3			

Differences between age-groups are significant (p=0.08) . The numbers suggest that the employees in TGS are more stressed than average US adults , which is not disturbing as this group is presumable a selection of more competitive hardworking and ambitious people than the average population. Also, we find that women are more stressed, but not more so than reflected in the US population. Furthermore, age differences are relatively equal to what is reflected in the US population, with the exception of the oldest employees. We may speculate that older There are large differences between the departments, some score much higher on PSS than others. These large differences between the various departments triggered discussion in TGS, and is important input to the top management.

The results also suggest the employees in TGS are a little more mindful than the average US adult, measured by MAAS.

4.2. Findings after MBSR training and seminars

Second Survey Findings – 12 Weeks Later

The second survey was distributed in June immediately after 12 weeks of MBSR training and seminars. This time we got 60 respondents (compared to 77 on the first survey). We consider this a very good response rate as summer vacation had just started for some employees.

80% report that they have participated several days a week or more in MBSR training. 90% have participated in seminars. A vast majority claim they have got something of lasting value and 80% express that they will continue with MBSR training in the future.

We observe (Table 1.) that self-reported "stress is a problem for me" is reduced to some extent, and that the stress that bothers some is less family-related.

We also observe that there is a large, 16%, and significant reduction in headaches or pain in shoulders, neck etc. Also several persons report less difficulties sleeping. Actually, in open question on benefits this was reported by many.
The widely used psychological instrument, PSS, shows a significant reduction in stress (p=0.01). And the Mindfulness instrument, MAAS, shows a significant increase in mindfulness in the group (p=0.02)(see table x).

Third Survey Findings – 6 Months Later

The third survey was distributed in December, 6 months after MBSR training and seminars to investigate lasting effects. The third survey was limited to a few related to continued practice and benefits , PSS and MAAS.
Due to some technical difficulties the response rate was low, n=40. However, results are still reported. In the period between survey 2 and survey 3, TGS experienced a hard time. Thus we expected increase in stress. However, the results actually indicate the opposite. Self-reported stress is decreased. PSS and MAAS are approximately the same as right after MBSR training and seminars, which we and the top management in TGS find surprising.

Table 2. Results on self reported stress levels and problems

	Survey 1		Survey 2		Survey 3	
Statement	No	Yes	No	Yes	No	Yes
"Stress is a problem for me"	73%	27%	75.4%	24.6%	85%	15%
"It is mostly work-related stress that bothers me"	57%	43%	41%	59%	45%	55%
"It is mostly family-related stress that bothers me"	67%	33%	74%	26%	78%	22%

We observe that stress is less of a problem – and that in particular family-related stress is reduced.

Changes in stress-related problems:

Table 3. Changes in stress-related problems: *p=0.1, **p=0.05, ***p=0.01

Problem	March	June	Difference
Difficulties sleeping	29,9	25	-4.9
Fatigue	22.1	30.4	+8.3
Tension	24.7	19.6	-5.1
Irritability	28.6	25	-3.6
Lack of memory	15.6	16.1	+0.5
Lack of concentration	36.4	32.1	-4.3
Headache or pain in shoulders, neck etc	39	23.2	-15.8 **
None	15.6	21.4	+5.8

We observe that several stress-related problems are reduced, however, only "headache or pain in shoulders, neck etc" show a significant and large reduction. For some reason "Fatigue" has increased. We do not understand why. At closer inspection we found that 17 persons had answered "yes" to this each time, however the percentage increased in a smaller sample even if there is not a perfect overlap between the samples.

PSS and MAAS are approximately the same in December as in June.

Table 4. PSS and MAAS and *p=0.1, **p=0.05, ***p=0.01

	TGS March	TGS June	TGS Dec
PSS score	15	12.5 ***	13.35
MAAS	4.4	4.7 **	4.7

In December we asked about continued practice and benefits. 75% still practice MBSR sometimes or regularly. And more than 50% claim to experience changes in colleagues and/or the working environment as a result of the mindfulness training.

5. DISCUSSION

The changes in a working environment have been a topic during past decades. Working tasks have been changing from a linear and orderly to more chaotic, diverse and dynamic tasks. As mentioned earlier, Lindbeck and Snower (2000) point out technology as one of driving forces for changes in the working environment. In dynamic environments, changing between tasks, being continuously available and interrupted might lead to increased stress level, causing various stress-related issues. In our experiment, which takes place in the technology company facing heavy competition, 30% of the employees reported stress as the problem. They also report various stress-related health problems, such as headache, pain in the neck and shoulders and difficulties with sleep. Interestingly, the most stressed employees have benefited the most from MBSR training and seminar. They report having less difficulty with sleep, headaches, and pain in the neck and shoulders. Similarly, the widely used instrument for measuring perception of stress, PSS, shows a significant reduction in the whole group. Although the company is experiencing hard times and changes, the effect of MBSR method continues to have an effect after six months.

New technologies and social media blur the border between work and leisure and encourage multitasking at home and in the office. We find that family-related stress is reduced with MBSR training and seminars. We speculate that employees with mindfulness training become more attentive, both at home and in office. Being able to be more" present in the moment" and not thinking about work while being with family – and visa versa. In addition to employees being "always online" we face increasing globalization, uncertainty and financial instability that characterize today's working environment. These factors are likely to increase stress in the work force.

Although this paper does not test or discuss the consequences of multitasking in general and its effect on productivity, it address the problems caused by dynamic environments, with high demand for multitasking, which might be a cause for high stress and stress-related issues in the company. However, this stress might be detrimental to individual's wellbeing, mental health and productivity. We suggest MBSR as a low threshold and low cost tool to counteract this.

CONCLUSION

This experiment took place in a dynamic organizational setting, with high demands for multitasking due to the nature of business. The results in the first survey showed that 30% suffer from stress; work related stress, as well as personal stress. By introducing the all employees of the firm to the MBSR training and seminars, there was a significant change in self-reported measures on stress and stress-related problems. According to Perceived Stress Scale (PSS) the stress level decreased as well. In addition the ability to be in the moment and focus attention, which Mindfulness Attention Awareness Scale (MAAS) measured, showed a positive improvement. Thus, we find support for all three hypotheses.

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UNIVERSITY LIBRARY AS A LIVING LAB: INNOVATING WITH STUDENTS

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ABSTRACT

Ubiquitous and pervasive technologies are part of everyday life, including the portion of it that has something to do with the university libraries: all students use personal mobile technology and all books have embedded sensors. This paper describes three years long experience with student-lead innovation of student-oriented university library services. Students, as library users themselves, have a potential to initiate changes in the existing practices, or offer novel technological solutions based on ubiquitous and pervasive technologies that are easy to adopt and use for this user group. Within the project described in the paper, the library was established as a living lab for a student-lead innovation. At this stage, the innovators are recruited among interaction design students. The approach shows very promising results, some of which are showcased in the paper.

KEYWORDS: innovation, service design, interaction design, library services

1. INTRODUCTION

The university library as an institution balances a fine line between being traditional and being innovative. The acquisition and the loan of academic books are a centuries old tradition. Rapidly changing information technology strongly influences how this traditional work is being done. The question whether libraries should simply adapt to the changes dictated by technology or be innovative in their own right is an old one. Addressing the issue of innovation in libraries (Olaisen et al., 1995) say: *"Even though it would be foolish to argue that all innovation is beneficial or that continual change for its own sake is desirable, there is evidence in the business literature that innovation is necessary for both development and survival. … Libraries must ask the penetrating questions: Is innovation necessary? For what can innovation theory be used in libraries?"*

The disruptive innovation in the book delivery system, see (Christensen & Raynor, 2010), forced by the appearance of disruptive technologies such as eBooks first and tablet later (Culén et al., 2011; Culén & Gasparini, 2011a), has practically forced the libraries to innovate. Ubiquitous and pervasive technologies are part of the library ecologies today. In terms of pervasive (sensor based) technologies in the library, paper books are all embedded with RFID tags. The use of ubiquitous, personal and mobile, technology in Norway is widespread: 97.2% of Norwegian population is using the internet, see ("Norway - New Media Trend Watch Europe," 2013), and 63% of the whole population uses social media. For the student population, Internet access is 100%, and although we do not have data for social media use, it is significantly higher than that for the general population. Students routinely use their smart phones for access to information, social media, e-commerce, m-commerce, gaming and even TV watching.

Students are a savvy group who likes cool things, and value for their time or money. It is not easy to provide services for this user group that would be widely accepted and used, see (Culén & Gasparini, 2012). For example, the results from an upcoming master thesis (Edvartsen, 2013) show that 45% of 244 users that participated in a survey around the use of library services, do not use the library web site at all. This lack of interest in library online services is also supported by a larger research done by JISC (Rowlands et al., 2008), where one of the findings is that today's students, being digital natives, generation Y or millennial generation, rely heavily on search engines like Google, rather than specialised, curated, library search engines providing only the material that passes quality control. The low level of awareness around the quality of information is also resulting in poor search strategies, (Rowlands et al., 2008). The most numerous user group of the university library are students. Thus, it was reasonable to try to create a context in which students can contribute to service innovation, leading to increased and better use of library services.

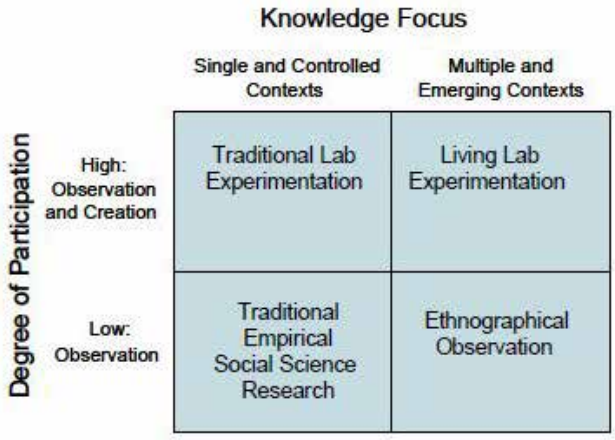
Three years ago, we offered students possibility to become innovators of library services, through academic instruction in interaction design, see (Moggridge, 2007; Saffer, 2010; Sharp et al., 2007) for an introduction to interaction design. This also implied innovation in teaching. Although the book "Creating Innovators" (Wagner & Compton, 2012), appeared on the market two years after we have set in practice similar ideas, it confirms that these are the ideas whose time has come. (Wagner & Compton, 2012) site the results of GE's 2011 survey on innovation, stating that 77% of those interviewed considered that "t*he greatest innovations of the 21st century will be those that have helped to address human needs more than those that had created the most profit",* and 69% agreed that *"today, innovation is more driven by people's creativity than by high level scientific research."* The logical question that authors then pose is: can innovation skills be learned? The authors state: *"The DNA of innovators might be considered a set of skills that are essential elements in* design thinking". Design thinking, see (Brown, 2008), is changing the innovation scene, but also education within some fields that are not traditional design fields, see (Culén et al., 2013). Thus, through the context of the course, using creativity and design thinking, students were enabled to take the lead in designing new or re-designing existing library services.

The main concern of this paper is thus discussion of how to involve students in innovation and service design (Polaine et al., 2013) processes within the university library. The idea is simple: allow human-computer interaction design students to take a lead in innovating student-oriented services at the library. We will describe our methodology, the context for innovation situated in a physical location as a living lab. Further, we will present some examples of students work throughout the innovation process, from ideation, to implementation. The stage set out for this work is truly multidisciplinary and involves fields of innovation, interaction design, education, library science and service design.
The paper is structured as follows: Chapter 2 presents the Living Lab as a concept used to raise awareness of innovation processes within the library. Chapter 3 gives an overview of the work done during the last three years while chapter 4 discusses in depth one specific project. Chapter 5 present findings so far, and chapter 6 discussion, followed by the conclusion in Chapter 7.

2. LIVING LAB AS FRAMEWORK FOR RESEARCH

We consider a Wikipedia definition of a living lab ("Living lab - Wikipedia, the free encyclopedia," 2013) to be a good definition, even though our scope is a bit narrower: "*A living lab is a user-centred, open-innovation ecosystem,[1][2] often operating in a territorial context (e.g. city, agglomeration, region), integrating concurrent research and innovation processes within a public-private-people partnership.*" The citations in the definition relate to highly relevant work of von Hippel, Cheesbrough and Bilgram et al. (Bilgram, et al., 2008; Chesbrough, 2003; von Hippel, 1986). We have used the Living Lab as a research concept and as a framework within which we could contextualize, study and understand the effects of the design of student lead innovative processes within the library. The Living Lab as a concept implies building of awareness among stakeholders around activities related to innovation. It also implies a specific context where the action happens and evolves through time (Schumacher & Feurstein, 2007). This sensibility can be used to validate and refine solutions in multiple, and similar context, but requires a very high level of observation and participation to enact new activities (see Figure 1). The Living Lab has been widely used as a research framework during the last years, even though it is quite new. Other researchers have used this framework to conduct analysis of online community activities and grasp how innovation, cooperation and voluntarism enact when the stakeholders are developing, for instance, open source software (Brandtzæg et al., 2010; Følstad, 2008a). The Living Lab framework is also used in design and deployment of welfare technology for the elderly (Thiesen et al., 2009).

Figure 1: Participation and Context of Innovation



Source: (Eriksson et al., 2006)

The "context" is an interesting attribute of the Living Lab framework. In the case of Living Labs, one can operate with two different notions of context (Følstad, 2008b). The first notion, the "Familiar context", implies that the ambient is set up to support users through the concept of familiarity. For instance, the living lab for designing with elderly may contain objects that they were familiar with in their youth and use those to build their competence with something new. The second notion, the "Real-World context", implies that the living lab is taking place in the actual situation of practice. This approach of is highly discussed, pointing out the novelty of this field (Thiesen et al., 2009) and the complexity (Markopoulos, 2001).
Regarding our research and use of the living lab, we have settled on the use of the Real-World context and given it a physical space, the university's science library. Observations of several different layers of library practice are carried out in this setting. First, the interaction design students do surveys and interviews with diverse library users, getting feed-

back and data around changes in the use of the library. The second layer consists of a series of observations and interviews done by researchers with the students participating in the interaction design course, thus collecting data on how they work. Finally, interviews, observation, focus group with librarians and library leadership are carried out by researchers, collecting data on how the innovation is perceived and what are the effects of it in the science library.

3. PRELIMINARY WORK IN THE SCIENCE LIBRARY

Three years ago the science library at the University of Oslo decided to take a deep look into its organization, operation and the meaning of technological changes on the way these operations are taking palace. As one of the consequences, several small libraries were merged into one, at a new location, in March 2012. Another change that took place was a decision to adopt the user centric view and redesign or develop new services that better serve users' needs. Libraries have a long history of offering services to users. Preserving, keeping acquiring and lending books and other information material are very old, globe wide agreed upon practice. Usually free of economic interest for end users, libraries worldwide cooperate on keeping this practices a live (Matheson, 1995). Therefore, the introduction of new user centered services implies the necessity to align them to a strong, long-lasting main practice.

In order to investigate the users' needs and let users develop services that they are interested in, the leadership of the science library established cooperation with the institute of informatics, group for design of information systems. The class in interaction design was chosen in order to explore the idea of new service design with students, for students. The framework to achieve this innovative user centric idea was then established, and during the past 3 years, several student-lead projects have informed the library of the kind of services students see as valuable.

The first year of users involvement towards informing the library started in the fall of 2010. This was the year when the iPad came out and many have seen tablets as disruptive technology that will change the education. The library was interested in finding out how it would be for students to have an entire curriculum on the iPad; is it really a game changer (Culén & Gasparini, 2011b)? They also wanted to establish a new practice around the acquisition and distribution of documents on this new platform. The role of interaction design students was to observe how a graduate level class in geoscience, equipped with iPads, and an undergraduate class in economy, equipped with an e-book reader Boox, used these devices and reading materials on them (Culén et al., 2011). The period when the project started was quite uneasy for the library since the e-book reader and the iPad represented two disruptive technologies, which could cause major changes in how the library works in the future (Culén & Gasparini, 2011a). Those technologies opened also for other possibilities, for instance an eco-friendly aspect of using these devices was the possibility to reduce the prints-out of diverse materials, including research articles, power point presentations for courses etc. The interaction design students found these side effects of the use of tablets interesting.

The second year, in the fall of 2011, before the new science library building was completed, interaction students were challenged to investigate ways of organizing new services for the library. There student projects were defined, and the central tension was around whether one should use the old way of organising services in one large web-based portal, or are some things much better done using mobile phone applications. For two of the project groups, the main idea was to mirror the services offered on the web site of the library, arguing that familiarity would aid adoption. The third group used a different strategy, making a prototype of an app that would be very useful in situ, at the new library. The services included "book a librarian", "book a study-room" or "see the map of the library". See (Student Projects, 2011) for all three projects.
The third year, in the fall of 2012, the library had opened its doors at a new location and helped provide a better context for students work. The library started a more formal project "User Driven Innovation" (BDI, 2012), and also sought external funding to support the students efforts. What happened in this period regarding innovation is the focus of the next section.

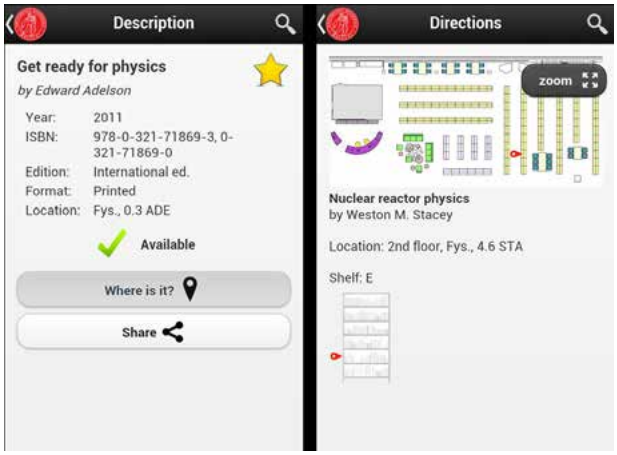
4. THE CASE STUDY

In the third cycle of cooperation between the library and the department of informatics in the fall of 2012, the organized support to facilitate students work increased substantially. Three library staff members had weekly meeting with students, again organized in three project groups, and the instructor for the interaction design course. In addition, the library organized a daylong meeting with a professional user-experience consultancy company (Netlife Research, Oslo), where students presented projects and get feedback. The library staff helped project groups with programming competence, library management system interface issues, as well as with simpler contextual help such as booking rooms for focus group or interviews, and some financial aid for gifts to the respondents. The projects, in turn, were really exciting. The results were, naturally, not fully developed systems or applications, but the way towards completion was clearly charted. An app that one of the project groups worked with is released and available at AppStore and Google Play, while the second application is ready for implementation.

The interest with these projects was not only in novelty of ideas for services or implementation of those. It was also methodological. Two of the project groups have used Participatory Design approach (Sharp et al., 2007) as their design strategy, where selected users are participating in the entire design effort. The last project used user-centred De-

sign (Sharp et al., 2007) where needs and interests of users are always in focus. The methods and techniques employed with all stakeholders were based on interviews, questionnaires, focus groups and workshops. The design was also supported by observation and user based testing. The three project groups have managed to engage diverse groups of participants, with diverse skills that were well used during the design process.

Figure 2: App for book search and possibility to scan ISBN barcode.



Source: (Reistad et al., 2012)

The first project, "Bookworms", developed a smartphone app, which helps users to find physical books on the shelves in the science library. If the book is also available in electronic edition, the user has an opportunity to choose this option. The students said that they were motivated to work on this project because the library was a place they often used, and they were exited about possibility to innovate "*… since the library has essentially been the same for many years, without much innovation.*" (Reistad et al., 2012) The students also point out that the library staff was positive and interested to help, and their involvement in the project was very crucial for their choice of project (Reistad et al., 2012).

The second project, the "BibApp", was related to the access to the knowledge resources of the library, from student's perspective. The smartphone app they designed checks their curriculum and tells them which books and articles the library has. The BibApp also enables a user to discuss and comment on the resources. The students stated that the motivation for this project was the following: "*The background for this project was …. to help the University of Oslo Library adapt to the society and the student's demand…*" (Arnesen et al., 2012).

The last project, "Minesweeper", focused on a task that combined value-based design democratizing the existing room booking system, with social aspect based in wide spread use of social media. The booking system was to work in situ, one could at glance get overview of rooms in use. For those that were in use, but had some empty seats, the users using the room could post the topic discussed and number of available seats on a feed shown on a large screen by the entrance to the library. Tweets were enabled as well, possibly attracting friends from the same class to come. For the project group the motivation was to "*…increase the library's appeal*." (Sætre et al., 2012)

5. FIRST RESULTS AND EFFECTS

One of the first effects of the User Driven project was a seminar at the end of the 2012, where students presented the projects for interested guest from the University, the University library and other libraries in the country. The interest was overwhelming, and the conference room was more than full. At the end of presentations a vivid discussion started about the need of the library to make changes and let the users participate in the innovation processes.
The results presented by the involved students, contributed to making the library leadership to commit to give economic support to a new larger research project to monitor and understand the results from these student-lead innovation projects, and finally to continue working with students. The aim of the larger research project, which started in February 2013, is to monitor and understand the effects of these efforts on the library. The first results from the data-gathering through interviews with leadership show that the leaders of the library are willing to fail with some of the student projects. They are also willing to learn from them. Further they state that some of the innovative results do not need to last. If a service is obsolete, or users point out a need for change, closing down such a project would not be seen as a failure. Faster changes would be enabled.

For the science library, the awareness around users needs that students' projects have raised is relevant. With interviews, focus groups and surveys, the students have gained a new understanding of how the library services work at present, and the possibility to influence and participate in the future of the library. The science library, by committing to student lead innovation projects, also committed itself to close cooperation with the institute for informatics, which in itself opens new possibilities for multidisciplinary cooperation.

Analysis of the project reports from 2010, 2011 and 2012 shows that the results were the strongest in 2012, both in terms of how innovative ideas were and how close to being finished products the prototypes were. This, of course, can be in part due to the increased interest and support that the library has given, but may be also in part contributed to other factors such as overall increased interest in service design as a field.

6. DISCUSSION

In Section 4, some of the motivation factors for projects were presented. The first results obtained from the interview analysis with involved students show that proper moti-

vation was important for our innovators/users. This is also in accordance with the large body of literature on motivation to innovate. For example, research on what motivates workers in a high technology company like Apple, states that one factor is a very high focus on specific goals, and as another example states that company often keeps hidden some disturbing elements, such as bad economy, from their employees (Lashinsky, 2013). Describing a young innovator, Wagner states that: *"… people worked incredibly hard, not because of any compensation package, but because they believed in what they were doing."* (Wagner & Compton, 2012). Analysing motivation factors of interaction design students, we find that the fact that they are designing better solutions for themselves and for future generation of students who would have seemilar needs, also had a large impact. On being given the support and encuragment to innovate, as one of the groups stated in Section 4, was an important motivation factor. In the literature, see (Hoholm & Araujo, 2011; Stevenson & Jarillo, 1990), support as motivating factor is discussed, pointing out that this also affects the innovators. In our case, the students have not shown inclination to be drastically innovative. Rather, they were trying to improve the existing services and making them easier to use. This may be the consequence of the support given and a desire to design a service that would also be valued by the library. This topic will be taken further and explored in interviews with this year's students participating in the project.

By observing students at work, we could get a close look at how they thought about innovation. We noticed that they are focused on practical issues of their student life in the library such as easy access to syllabus or a simple search interface into the library resources. Usefulness and functionality are more important to them than, for example, to make the library into a cool place to be. The course in interaction design did not mandate the focus on design of services; students could have chosen many other approaches, e.g. tangible interactions. In a different study, we have found out that the "cool" factor was important for the typical student age group (18 – 25) (Culén & Gasparini, 2012). The "cool" factor includes fun interactions with technology, joy in the process and it stimulates cool behaviors. However, no student projects so far have tried to use the "cool" technology and make it be part of some library service.

Some researchers argue that the library is an institution that often tries to be innovative, see for example (von Hippel, 2005). Von Hippel points out the need for the library to develop services and systems that reach their intended user groups. In order to do so, von Hippel claims that they have to use the latest technology. The User Driven project supports this approach well.

The experience the library and the leadership had with this last iteration with innovation projects from 2012, was much like that of supporting a start up company. Supporting the interaction students in their work also has the effect that, with each new generation of students, the library learns abut how students use new technology. This in turn supports and inspires the development of new practices and services built on the latest technology in the library. From the researchers point of view, this is a framework offering good conditions for research, since some attributes are constant, and some are changing, but the change can be observed within the context of the Living Lab. This, according to (Winthereik et al., 2009) is precisely when living labs work the best.

When we revisit the discussion from the introduction around the necessity of innovation in the library, see also (Olaisen et al., 1995), our conclusion is that there really is not other alternative for the libraries but to innovate. Been passive in responding to users demands may cause the library to become obsolete, and at the end, only a museum containing old and almost valuable books.

CONCLUSION

The student innovators have been quite careful, nearly conservative, in choosing what and how to innovate library services. They have, though, accomplished several positive results, resulting in positive input to the research related to this project.

Making students and library employees aware of the possibility to innovate, has changed the way both students and the library look at existing services and identified opportunities for future development. The empowerment of the library users, by let them innovate for the users is quite complex, so the effect it has on the services will be interesting to monitor in future cycles of the project. Using the Living Lab as a framework will gives us the possibility to monitor what enact the users, and gives the library the possibility to prepare and support future cycles of innovation.

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MOTIVATION AND INVOLVEMENT IN INTERNATIONAL TOURISM

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ABSTRACT

Using a sample of international tourists travelling in Portugal, Spain and Italy, this study identifies key issues related with tourist involvement. One of the main aspects in the consumer behavior and the decision processes' understanding is the concept of involvement (Broderick & Mueller, 1999; Dimanche et al., 1993) because it influences the decision rules used by tourists to reach the final decision (Sirakaya & Woodside, 2005). An empirical study of 600 international tourists reveals that motivation to relax influences tourists' involvement with the trip. A structural model reveals that when tourists are motivated to relax they get directly more involved with their trip (pleasure and information seeking). The motivation to relax also influences indirectly the tourist involvement with the evaluation and quality perception of the trip through its influence on involvement with the trip planning. Discussion centers on the implications of this model to theory and managerial development of tourism and services strategies. Directions for future research are also presented.

KEYWORDS: Motivation, Involvement, International Tourism
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1. INTRODUCTION

Tourism decisions are considered as highly risky due to the high monetary and non-monetary costs associated (Sirakaya & Woodside, 2005), so the process of buying tourism products is very engaging, which means that tourists devotes to it a considerable effort and time (Seabra et al., 2007). Additionally depending on the product or situation, tourists may be more interested, concerned or involved in the buying decision process.

In general, each buying decision process in tourism correspond to the existence of a service encounter, which typically involves interpersonal relationships between the producer and the customer. In consequence, this situation requires a higher degree of involvement by the consumer (Varki & Wong, 2003) for various reasons (Laroche et al., 2003): its production requires human interaction which introduces some uncertainty in their outcomes; the delivery, in most cases, is not possible without the participation of the consumer; there is no transfer of ownership, so the buyer cannot sell or return the product to the seller.

Involvement is, in fact, the basis of the tourist purchase decision (Zaichkowsky, 1986b) and profoundly affects the perceived value of the product and its evaluation (Bolton & Drew, 1991). This concept is a central issue in the study of consumer behavior in general (Zaichkowsky, 1985, 1986a) and especially in the decision to purchase tourism products (Dimanche et al., 1991).

Involvement is a key issue to explain what attracts consumers to products and how they make their buying decisions allowing distinguishing types of consumers (Kassarjian, 1981). In turn involvement study can help organizations to define strategies to influence consumers' decisions.

Research on involvement has been neglected in services context, especially in tourism. Also, research should focus on what influences involvement, namely motivations. Motivations that underlie a trip have a significant influence on tourists' behaviors (March & Woodside, 2005; Morrison, 1996). Accordingly, the intrinsic forces that motivate tourists to travel, the push factors, will have a significant impact on tourists' behaviors from planning to consumption and evaluation of tourism products (Moutinho, 1987).

Motivation is the set of internal forces that push people to undertake certain actions to achieve an end, so it explains why individuals decide to do something, for how long and

with which commitment. In short, they represent the internal forces that lead individuals to action (Schiffman & Kanuk, 1997).

Motivations are an important dimension in tourism research. It is a central concept in the comprehension of consumer behavior and in the tourism decision process. Many key questions related with tourism activities can be answered trough motivation study, namely those of why people travel, why do they visit some destinations and choose certain activities? The understanding of those questions helps researchers to justify the comprehension of the higher or lower investment that tourists imply in their trips. Motivation measuring allows identifying and categorizing tourists, also to understand and analyze trips patterns (Fodness, 1994).

Is not possible to make future decisions in marketing and promotion plans without evaluating what motivates tourists to travel and how those strengths influence their involvement on buying decision. So, it is our main goal to develop a model for measuring the importance and the influence of motivations on tourist buying involvement in an international context.

2. LITERATURE REVIEW

Tourists are becoming more demanding in their travel behavior, which makes its study more complex. Also, the process of purchasing tourism products has some peculiarities (Gursoy & Gavcar, 2003):: cconsumers buy and consume the products outside the places where they live (Sirakaya et al., 1996);; the decision-making process used is longer than in much of the tangible products (Gursoy & Gavcar, 2003); more often tourists don't receive anything tangible in return for their investment (Seabra et al., 2007); tourists deal with a high level of perceived risk due to their personal investment of time, effort and money (Teare, 1990); consumers plan and save money over a long period of time to be able to travel (Moutinho, 1987), which leads them to have a greater level of involvement in the decision making, selection and purchase of such products (Gursoy & Gavcar, 2003).

The purchase of tourism products requires high involvement in the decision making process (Swarbrooke & Horner, 1999), which makes involvement a central issue to understand and explain the buying and consumption of tourism products. Tourists individual features are important variables influencing involvement with buying and decision process (Hawkins et al., 1995), namely motivations.

Tourism Motivations

Tourist motivation can be defined as "the global integrating network of biological and cultural forces which gives value and direction to travel choices, behavior and experience" (Pearce et al., 1998). Past research establishes that individuals are guided by socio-psychological motivations variables into making travel decisions (Sirakaya &Woodside, 2005). Travel motivation relates to why people travel (Hsu & Huang, 2008) and are an important issue in explain tourist behavior because they are the starting points of the travel decision and destination choice processes (Crompton & McKay, 1997).

Travelling motivations can be divided in three major groups: knowledge, cultural and education motivations (Formica & Uysal 1996; Ryan & Glendon, 1998); social motivations (Fodness, 1994); and benefits seeking, this is escape from the daily life and sensation seeking (Mitchell, 1998).

One particular reason for people travelling to other countries is to seek different experiences or lifestyles that they cannot obtain from their usual environment (Uysal & Hagan, 1993). The contact with different environments, places and people, which is an inherent characteristic of tourism, allows a strong experience of learning (Formica & Uysal, 1996), by developing and enhancing knowledge and exploring new things and places (Fodness, 1994; Ryan & Glendon, 1998, Silva, Abrantes & Lages, 2009). Many tourists seek the unknown of each place (Lee & Crompton, 1992), they travel in order to learn something new and to see beautiful objects (Hsu & Huang 2008).

Tourism is a social phenomenon that also allows people to develop social interaction, to satisfy social acceptance, approval and integration needs. In tourism, the need for affiliation is often manifested in terms of need for social experience like meeting new people and having good times with others, friends and family. Tourism is a form of intercultural meeting and interaction (Ward et al., 2001). Therefore, social motivations are related with the internal needs that tourists have for social interaction by being entertained (Ryan & Glendon, 1998) and meeting different people (Ray & Ryder, 2003), building friendships and developing close relationships (Kim & Lee, 2002). This refers to social motives stimulating individuals to participate in activities that would satisfy also their desire of belonging according with the need for belongingness in Maslow's theory of needs (Ryan & Gledon, 1998).

On the 80's arises a new stream of studies in the research on motivations in tourism, travel, leisure and recreation: the benefits sought. This current research argues that tourist behavior are mostly motivated by the benefits they can offer. Thus, travel behavior is understood as a reward in itself, such as the activities associated with it (Mitchell, 1998).

Tourists experience the inherent need to relax when on holiday because ''tourism is essentially a temporary reversal of everyday activities - it is a no-work, no-care, no-thrift situation'' (Cohen, 1979, p.181). Relaxation represents a central distinguishing motivational theme (Beard & Ragheb, 1983; Kozac, 2002) and Crompton (1977) referred to it as "escaping from everyday environment". Relaxation

and getting away from routine life are the first two psychological reasons for taking a vacation (Krippendorf, 1987). In fact, tourists are motivated to travel in order to escape from their everyday life (Crompton, 1977; Hsu & Huang 2008) and to rest and relax physically and mentally (Goeldner et al., 2003).

On the other hand, one of the most attractive tourism characteristics is the ability to provide different and intense experiences. Tourism is an experimental phenomenon (Botterill & Crompton, 1996; Frochot & Morrison, 2000) where experiences are sought in relation to feelings of motivation (den Breejen, 2007). There is a new generation of travelers emerging. Instead of a tourist, the traveler has become a searcher – pleasure and sensation seeker (Moutinho, 2000). A sensation seeker is seen as a person who needs varied, novel, and complex sensations and experiences to maintain an optimal level of arousal (Zuckerman, 1979). Sensation seeking is therefore a tourism motivation which is "a trait defined by the seeking of varied, novel, complex and intense sensations and experiences, and the willingness to take physical, social, legal and financial risks for the sake of such experience" (Zuckerman 1994, p. 27). Thus, sensation seeking motivations include novelty seeking (Crompton, 1979; Rowland et al., 1986), challenge abilities (Andersson, 2007), use imagination and physical skills in sport (Ryan & Glendon, 1998).

In this study we consider four main motivations: (1) knowledge, (2) relaxation, (3) sensation-seeking and (4) social motivations (Fodness, 1994; Moutinho 1987; Ryan & Glendon, 1998).

Involvement

Involvement is the degree in which consumers are committed in different aspects of the process of consumption: product, demand for information, decision making and the purchase (Broderick & Mueller, 1999; Zaichkowsky, 1985). It is the basis of the purchase decision (Zaichkowsky, 1986a) and affects profoundly the perceived value of products and its evaluation (Bolton & Drew, 1991).

Involvement in tourism was defined as "a psychological state of motivation, arousal and interest between an individual and a recreation activity, tourist destination, or related equipment at any given time, characterized by the perception of the following elements: importance, pleasure value, symbolic value, probability risk and consequences of risk" (Havitz & Dimanche, 1990, p.180).

The same authors later proposed another simpler definition: involvement as the unobserved state of motivation, arousal and interest in respect of a recreational activity or associated product. It is evoked by a particular stimulus or situation. Therefore, involvement refers to what tourists think about leisure and recreation and that affects their behavior (Havitz & Dimanche, 1997).

Tourist products are highly engaging due to their intangibility and inseparability (Swarbrooke & Horner, 1999). And when consumers are involved, they give attention, perceive the importance and behave in a different way than when they are not (Zaichkowsky, 1986b). Involvement is related to all stages of purchase, from the pre-purchase standards to the subsequent evaluations (Shaffer & Sherrel, 1997).

Involvement is a set of stages, all related from the involvement with the product to its evaluation:

- Involvement in pre-purchase or with the generic product: involvement occurs at the individual level and results from the interaction with products (Zaichkowsky, 1985). The focus in this research area relies on the relevance or importance that a product has for consumers, particularly the relevance that products have to the consumers' needs and values (Zaichkowsky, 1986a).
- Involvement with the decision to purchase the product: is the commitment to the decisions regarding the purchase or simply with the buying act. It is conceptualized as the behavior that occurs when the consumer faces the situation of acquisition or consuming as personally relevant or important. When the buying is considered as important, consumers will spend more efforts to obtain information in order to reduce uncertainty (Zaichkowsky, 1986b). Tourists use various amounts and types of information sources in response to internal and external contingencies to facilitate trip planning decisions for primary and secondary decisions (Fodness & Murray, 1997).
- Involvement with the products' consumption: tourism involvement level can be faced from the perspective of affection, in that it can be defined as "the intensity level of interest or motivation" (Ratchford & Vaughn, 1989, p.28) with a specific tourism product and with certain consequences. This perspective assumes that involvement can be measured, directly or indirectly, by its consequences (Lehto et al., 2004).
- Involvement in product evaluation or post-purchase: involvement is strongly correlated with the product evaluation activities. Several empirical studies have confirmed the influence of involvement in the processes of post-purchase. If the consumer is highly involved, products are evaluated in a deeper way (Richins & Bloch, 1991). The overall assessment in the post-purchase tourist experience includes the experience of travel or duration of stay, the perceived quality, perceived value and overall satisfaction with the intentions of future behavior (Bolton & Drew, 1991).

In this study the concept of involvement is considered in all stages of the tourist buying process, according to the Theory of Information Processing (Bettman et al., 1998) where the process is understood as an optimal alternative individual choice by a series of rational steps (Chen, 1997), from the pre-purchase stage, through the decision, consumption and to evaluation or post-purchase.

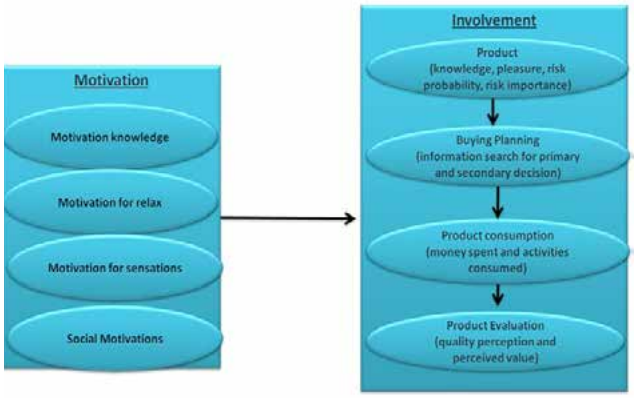
3. CONCEPTUAL MODEL

Involvement and motivation are very close concepts since involvement is defined as interest in something or like a motivational state. Involvement is a motivational state observably induced by an association between an activated attitude and the consumer ego concept. It is considered as an intermediate step in the explanation of the relationship between consumers' individual characteristics and behaviors (Bloch, 1982).

Consumers' specific characteristics are considered as background to the consumer involvement. The individuals' system of values, experiences and motivations determine their greater or lesser degree of involvement with a product (Zaichkowsky, 1986b). Involvement with a particular product or class of products relates strongly with motivational aspects related to the purchase (Dholakia, 2001).

In line with the above we propose the following model:

Figure 1: Conceptual Model



4. METHODOLOGY

The research setting refers to a survey approach, applied in three European countries – Portugal, Spain and Italy –, in an international tourism context, more specifically in an international air travelling context.

Sample and data collection

The final data was collected from January 2009 to March 2009. Tourists were randomly selected in loco across 3 international airports: Madrid/Barajas, Lisbon/Portela and Milan/Malpensa, from those agreeing to participate in the study. However, only tourists who had undertaken an international trip were interviewed. The questionnaires were self-administrated, which allowed us to ensure that the data was not biased. We obtained a final sample of 613 questionnaires and a total of 600 valid ones, equally divided among the 3 international airports.

Measures

We sourced measures from the literature and adapted them to the current research context (see Churchill, 1979). Constructs were first order, and we measured them with multi-item scales.

To measure the motivation to travel respondents were asked to rate the importance of several types of motivation from four dimensions: Motivation to Knowledge, Motivation for Relax, Motivation for Sensations and Social Motivation. We used scales adapted from Beard and Ragheb (1983), Fodness (1994), Goossens (2000) and Ryan and Glendon (1998).

Involvement, as explained before, was considered in four different facets.

- Involvement in pre-purchase or with the generic product. Respondents rated their level of agreement with statements regarding their knowledge, pleasure/interest, risk probability and importance attributed to and prestige related with tourism products, namely travelling (adapted from Park et al., 1994 and Gursoy & Gavcar, 2003).
- Involvement with the decision to purchase the product. We considered involvement with the decision to purchase the product in terms of information that tourists sought for preparing the trip. So, respondents had to classify the importance of several information sources to take the primary and secondary trip decisions. This scale is composed of 13 items regarding personal sources, marketing communication sources, neutral and experience information sources and were adapted from Assael (1998), Fodness and Murray (1998) and Seabra et al., (2007).
- Involvement with the product's consumption. As far as tourism product consumption is concerned, we considered the money tourists spent with many items during their trip. Also the activities that tourists engaged in during their trip were considered (Lehto et al., 2004).
- Involvement in product evaluation or post-purchase. Respondents had to rate their quality perception regarding four specific items of their trip namely hospitality, attractions, transportation and infra-structures (Chen & Tsai, 2007). The perceived value was the other scale used to measure involvement with evaluation (Bolton & Drew, 1991)

Survey instrument development

After selecting the scales from the literature, they were discussed with experts. The initial scales were translated into three languages: Portuguese, Spanish and German and then the instrument was back-translated to English. After revision, we used a pre-test sample of 30 international travellers in order to test the scales' reliability (through Cronbach's alpha). The pre-test results were used to further refine the questionnaire.

Data profile

Tourists in this study sample were from 41 countries, from all over the world. The sample was mainly composed of

men (56%), with ages mostly under 35 years (56%). Approximately 74% had university education, 22% were middle and senior management, 20% were businessmen, about 19% were freelancers/self-employed and 15% students. The average income ranged from 2000 to 3000 Euros per month. The sample was mainly composed of frequent travellers, who had undertaken, on an average, seven international trips in the last three years, lasting nine days each. There was a relatively high degree of familiarity with the destination visited; since tourists had in average visited the destination 3.5 times before. Each tourist used, on the average, 15 days to plan the trip, and referred to reservations planning with a period of 25 days in advance.

5. DATA ANALYSIS

To refine the measures and assess the reliability and validity of the constructs, the items were subjected to an exploratory factor analysis followed by a confirmatory factor analysis (CFA), using full-information maximum likelihood estimation procedures in LISREL 8.8 (Jöreskog & Sörbom 1996).

Measurement model

To assess the adequacy of the measurement model, we examined initially the Cronbach's alphas from each construct of the conceptual model. In result, several factors were eliminated were not included in the measurement because they presented alphas less than .65 and / or for revealing no significant values when tested to incorporate the final model.

We also examined individual item reliabilities, convergent validity, and discriminant validity (see Appendix A). We assessed item reliabilities by examining the loadings of the individual items in the respective constructs.

In this model, each item is restricted to load on its priori specified factor, with the factors themselves allowed to correlate with one another. The overall chi-square for the model is significant ($\chi2=213.69$, df=59, $p<0.00$). Four measures of fit were examined: the comparative fit index (CFI=.96), the incremental fit index (IFI=.96), the Tucker-Lewis fit index (TLI=.95), and the root mean square error of approximation (RMSEA=.066). The results suggest that the scale measures are internally consistent, able to provide a good fit of the factor model to the data.

Internal consistency was evidenced by composite validity (ρ) (Bagozzi, 1980). All the constructs passed the minimal acceptable values of .7 (Nunnally, 1978) and are valid presenting internal consistency above .80 and Cronbach's alphas of .80. Convergent validity is evidenced by the large and significant standardized loadings of each item on its intended construct (average loading size was .78). Discriminant validity among the constructs is stringently assessed using the Fornell & Larcker (1981) test; all possible pairs of constructs passed this test. Appendix A presents all the constructs, scale items and reliabilities.

Discriminant validity was assessed by observing the construct intercorrelations. The root of AVE for each construct was compared with the shared variance between constructs. The square root of the AVE should be greater than the correlation between a construct and any other construct (Chin, 1998). Table 1 provides an overview of the means, standard deviations, and correlation matrix among the constructs. Adequate discriminant validity is evident since the square root of AVE between any two constructs (diagonal) is greater than the correlation between those constructs (off-diagonal).

Table 1. Means, standard deviations, and correlations among constructs[a,b]

Construct	Mean	Standard deviation	1	2	3	4
1. Motivation to relax	4.86	1.38	**0.77**			
2. Involvement with the pleasure to travel	5.20	1.40	0.43	**0.82**		
3. Involvement with the trip planning	2.05	1.15	0.18	0.16	**0.78**	
4. Trip evaluation involvement	4.85	1.30	0.13	0.22	0.15	**0.76**

[a] All correlations are significant at the 0.05 level.
[b] The diagonal (in bold) shows the square roots of the average variance extracted.

Structural equation model

The conceptual framework depicted in Fig. 1 was tested using structural equation modeling. Specifically, this model contains four constructs, 13 observable indicators, measurement and latent variable errors, and inter-correlations between the latent constructs. The results suggest a good fit of the model to the data ($\chi2=216.15$, df=61, $p<0.00$, CFI=.96, IFI=.96, TLI=.95, RMSEA=.065).

The hypotheses defined in the conceptual model that linked those eliminated constructs presenting low Cronbach's alphas and not included in the measurement model were not tested (H1a, H1c; H3). The hypotheses relating the constructs fixed in the CFA model were tested. The following are the results (see Figure 2 and Table 2) through measures of standardized coefficients and t-values.

Figure 2: Final Model

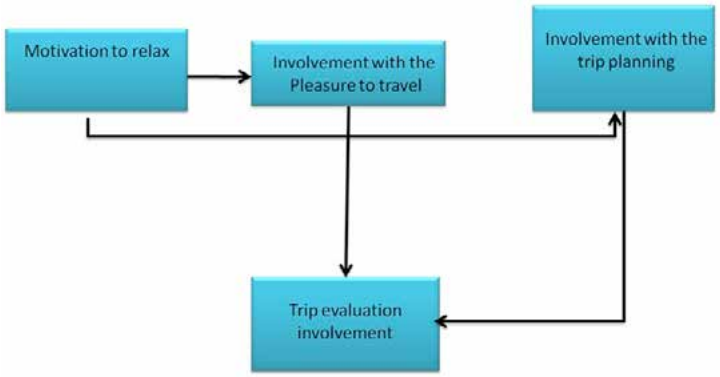


Table 2. Testing results

Causal path	Standardized loading (t-value)
Motivation to relax → Involvement with the pleasure to travel	0.43 (9.23**)
Motivation to relax → Involvement with the trip planning	0.19 (3.72**)
Involvement with the pleasure to travel → Trip evaluation involvement	0.21 (4.35**)
Involvement with the trip planning → Trip evaluation involvement	0.12 (2.43*)

**p<0.01, *p<0.05

6. DISCUSSION

In this work we undertook a literature revision of two important concepts in tourism study: motivation and involvement, namely in natural areas study.

Results indicate that motivations are effectively related with involvement. Also, involvement can be related with some phases of consumer behavior decision.

Motivation to relax influences involvement with the pleasure to travel and with the trip planning. Motivation to relax implies personal involvement with the product in the pleasure dimension. When tourists travel motivated to relax, they face the tourism product as a gift that they buy with careful implying extra efforts in the planning stage namely searching for information. Relaxation is an important motivation that leads tourists to prepare and plan their trips in a more committed way. Tourists that want to relax mental and physically, to avoid the hustle and bustle of daily life, and to be in a calm atmosphere are more involved with the pleasure to travel and with the trip planning.

Tourists motivation to relax influence positively their search for information in sites like travel clubs, books, magazines, reports in TV, radio, press, and in welcome centers. In this circumstances tourists experiment more pleasure when they buy a vacation to them, it is to like buy a personal gift. Involvement with the pleasure to travel contributes positively to the trip evaluation involvement. When tourists are involved with tourism products and when they faced them as something with great meaning to them, they will be more critical in evaluation.

The results confirmed also the significant relationship between involvement with the trip planning and trip evaluation involvement. When tourists prepare their trips in an extensive way, they create high expectations. So, they will be more involved in the trip evaluation. Specifically, those related with general infrastructures, travel information, and with local signs and indicators.

Therefore, the selection of a strategy for tourism depends on how tourists connect with products and destinations. It is expected that through the understanding of how motivation and involvement are connected, tourism organizations may better understand the type of connection that tourists establish with tourism and what its impact on tourists' decision making. They may, as a consequence, use a framework to develop and implement strategies to increase the value associated with destinations and their services. These results may provide some guidance on how to better pursue an information-oriented business strategy. By identifying tourists' levels connection with tourism it becomes possible to make choices regarding the best marketing strategies to address, such as identifying different market segments and corresponding differentiated strategies, or improving the destination's positioning.

Finally, the model developed here can be an important basis for the segmentation of a tourist market.

There are some limitations of the research to be considered. The first limitation is linked to the characteristics of the sample, which may restrict the generalization of the results to a certain extent. We include travelers that used only three European airports. Future studies with larger samples could allow for a comparison between tourists from different regions of the world, using multi-groups methodology.

Moreover, we need further research on the antecedents of motivation to relax and consequences of trip evaluation involvement, namely intention to buy. We also suggest the implementation of the conceptual model to other services and other regions.

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CROATIAN T&C INDUSTRY AND STUDENTS CUSTOMER SATISFACTION WITH CLOTHING PRODUCTS PRODUCED IN DOMESTIC COMPANIES

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ABSTRACT

In today's world of globalization and economic crisis threats for the manufacturing business in such competitive market is also the case in sector of fashion industry. It brings worries for the future and is growing every day, especially for small and medium enterprises (makes 98,56% of all) in clothing industry (C14) in Croatia in the year 2011.

In creating an effective marketing strategy it is important to identify factors that determine demand, satisfaction and idealistically, brand loyalty. This paper examined some macroeconomic indicators of Croatian textile and clothing (T&C) industry sector and demand for clothing products trough students customer perception and behaviour about Croatian producers clothing products, their satisfaction and their brand loyalty. Data were collected by surveying student population - customers of Croatian clothing products. On-line surveying students (N=311) from three faculties of University of Zagreb (EFZg, AgrF and TTF)* showed that the most of them do buy Croatian clothing products. Products quality showed to be an important factor in their purchase. Other important factors are price, fashion trends, brand image and companies' image. Furthermore, consumers are very pleased with products quality, but discontented with price, promotion and availability of products. There are a large number of customers that are not loyal to Croatian brands. Results show that Croatian clothing companies don't have clearly developed marketing strategy and should pay more attention to developing long-term relationships with their customers, researching reasons for their loyalty and developing loyalty programs. All customers agreed about buying more Croatian clothing products in case of better and more modern design, lower price, bigger promotion and wider distribution.

The scientific contribution of this paper are new insights and better understanding of the demand for clothing products in Republic of Croatia, as well as the specifics required to build a competitive marketing strategy.

KEYWORDS: Croatian textile and clothing (T&C) industry sector, small and medium enterprises, costumer perception and demand, domestic clothing market, satisfaction and loyalty, marketing strategies, students population

1. INTRODUCTION

The aim of this paper is to give a brief simple, descriptive time series analysis of some macroeconomic indicators of Croatian textile and clothing (T&C) industry as a base for understanding the place of this manufacturing industry sector in last 4 years (2008-2011) in the Croatian economy. The other aim is to empirically research the customers (students) perception and behaviour considering domestic (Croatian) producers clothing products, their satisfaction and their subjective loyalty (affiliation), as a croaky view of this interesting marketing segment which potential should grow in years ahead considering domestic (Croatian) producers of clothing products.

In general, as Andolfinin and Andersen (2011, 19) indicate the textile and clothing manufacturing industry sector is strongly driven from the dynamics in textile and clothing markets and therefore it is necessary to distinguish between two different market systems:

1. Consumer markets that are predominantly served through retailing and
2. Industrial markets where textiles are part of a system (e.g. a car) or a project (a hotel or luxury yacht) predominantly served through downward industries.

There are no precise estimates of the share of both markets, but a rough approximation indicates that consumer markets represent 60% of total textile market and industrial markets 40%.(Andinolfi, Andersen, 2011, 19). This paper

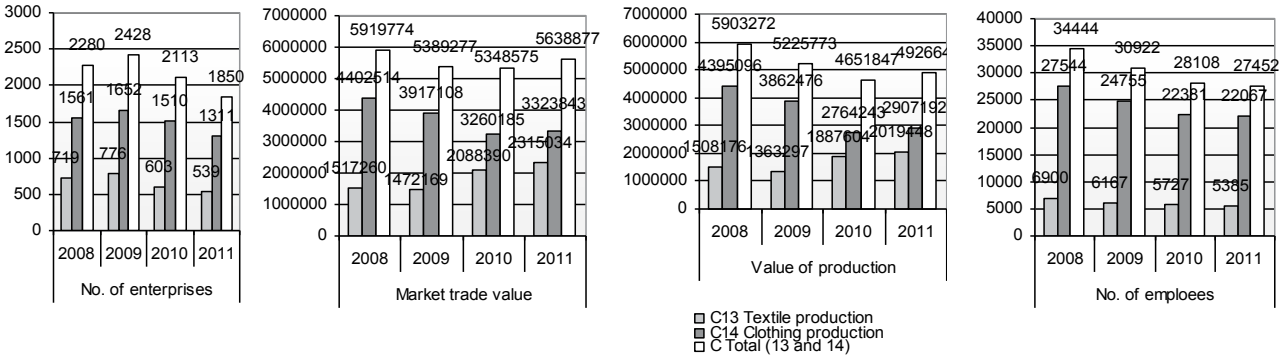
* EFZg – Faculty of economics and businesses Zagreb, AgrF – Faculty of Agriculture and TTF – Faculty of Textile Technology at University of Zagreb

tries to add some empirical facts based on the analysis of data, their trends and drivers of change found in available literature, students survey and data analysis.

1.1. Croatian textile and clothing (T&C)

This section provides data overview of some macroeconomic indicators and their key developments, trends and drivers in the Croatian textile and clothing industry (C13 textile production and C14 clothing production; T&C sector). The Croatian textile and clothing manufacturing industry (C13 and C14) shows generally mostly declining data trends over the last twenty years. Thus recent statistical data of some macroeconomic indicators of industrial production and employment in textile and clothing industry, they continue to record a decrease in production. Graph 1. and Table 1. as well as Table 2. presents quick view and tendency of some macroeconomic data in Croatian textile and clothing manufacturing industry (C13 and C14) that mostly decline (number of enterprises, number of employees, production volume and value, growth rate).

Graph 1. Presentation of absolute values of macroeconomic indicators of in Croatian textile and clothing manufacturing industry during time period (2008. -2011.) by number of enterprises, market trade value, value of production and number of employees



Source: Authors according to CBS data

In the year 2009, there were 22.447 employees in the textile and clothing industry; 17,30% in textile and 83,79% in clothing industry.

Table 1. Frequencies in the year 2008 and time series indices during period (2008-2011) in Croatian textile and clothing manufacturing industry by number of enterprises, market trade value, value of production and number of employees

Year	2008 (2008=100%)	2009 2008	2010 2008	2011 2008	2009 2008	2010 2009	2011 2010
	Indicator	**Basal index (Ib) %**			**Chain index (Iv) %**		
Branches of manufacturing ind.:	**No.of enterprises**	Basal index (Ib) of No.of enterprises			Chain index (Iv) of No.of enterprises		
C13 Textile production	719	107,93	83,87	74,97	107,93	77,71	89,39
C14 Clothing production	1.561	105,83	96,73	83,98	105,83	91,4	86,82
C Total (13 and 14)	2.280	106,49	92,68	81,14	106,49	87,03	87,55
	Market trade value (HRK)						
C13 Textile production	1.517.260	97,03	137,64	152,58	97,03	141,86	110,85
C14 Clothing production	4.402.514	88,97	74,05	75,50	88,97	83,23	101,95
C Total (13 and 14)	5.919.774	91,04	90,35	95,25	91,04	99,24	105,43
	Value of production (HRK)						
C13 Textile production	1.508.176	90,39	125,16	133,90	90,39	138,46	106,98
C14 Clothing production	4.395.096	87,88	62,89	66,15	87,88	71,57	105,17
C Total (13 and 14)	5.903.272	88,52	78,80	83,46	88,52	89,02	105,91
	No.of emploees						
C13 Textile production	6.900	89,38	83,00	87,32	89,38	92,87	94,03
C14 Clothing production	27.544	89,87	81,26	80,12	89,87	90,41	98,60
C Total (13 and 14)	34.444	89,77	81,60	79,70	89,77	90,9	97,67

Source: Authors according to CBS data

Textile sector (C13) shows generally brighter perspective comparing to clothing sector (C14). Textile sector perform, during the selected period and especially recently, at least encouraging, increase in i.e. market trade value, value of production and labour productivity (2,2% comparing to all sectors in the year 2012) while decrease and negative rates are general characteristic of other indicators in C13 and generally whole Croatian clothing sector.

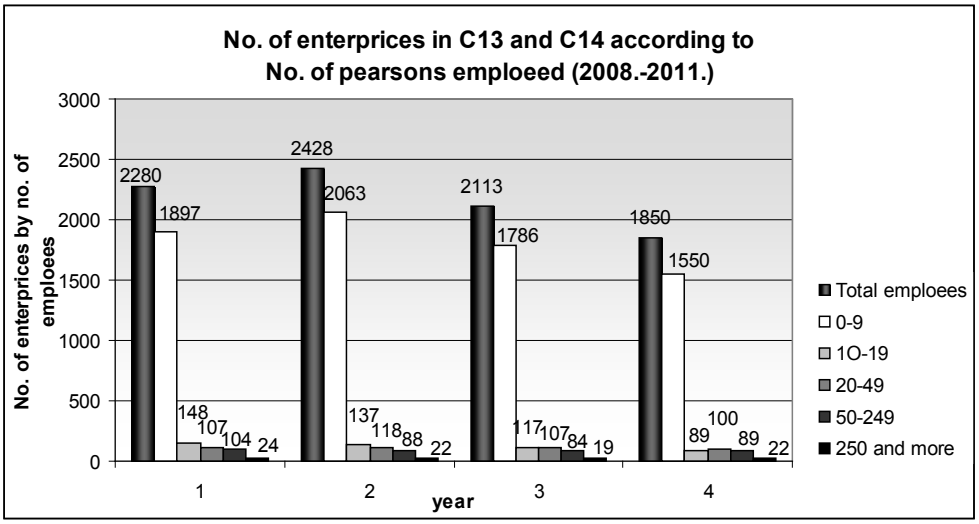
Table 2. Industrial production indicators: gross volume, growth rate, Structure and rates of persons employed and Labour productivity (2012)

Indicators of Croatian industry (2011., 2012.)	Industrial production-GROSS VOLUME indices, total, according to MIGs 2009. and NKD 2007. sections and divisions	Industrial production-GROW RATES calculated on basis of working-day ajusted indices,	Structure of persons employed	Persons employed	Labour productivity
	I. – XII. 2012. / I. – XII. 2011.	I. – XII. 2012. / I. – XII. 2011.	Ø 2012.	XII. 2012. / XII. 2011.	Ø 2012.
Total industry	94,5	-5,5	100,00	93,9	98,7
C Manufacturing	94,7	-5,1	89,91	93,6	99,1
C 13 - Manufacture of textiles	91,4	-7,8	1,72	88,2	102,2
C 14 - Manufacture of wearing apparel	86,7	-13,4	8,12	85,3	96,3

Source: Croatian Bureau of Statistics (CBS): Industrial production volume index and indices of stocks, persons employed and labour productivity

The distribution of enterprises in Croatian textile and clothing (T&C) sector, according to their proportions of enterprise sizes, selected by number of persons employed, shows a little variation during the selected period and average (in 4 years) and it is shown at Graph 2. There lays the opportunity for Croatian T&C sector when knowing that customer-satisfaction and customer-orientation are strongly associated with successful small companies (Blythe, 2001; Brooksbank et al., 1992). "It is the customer who determines what a business is, what it produces, and whether it will prosper." (Drucker, 1954, 37). Ties with customers enable Small and Medium Sized companies (SME's) to know customers taste and demands and respond appropriately in order to satisfy them. It also promotes open communication, which in turn develops trust and reliability of the SME in the eyes of customers (Gilmore et al., 2001).

Graph 2. Croatian textile and clothing total number of enterprises and their distribution by sizes of company during four-year time series



No.of enterprieses in C13 and C14 according to emploeed persons					
No.of pearsons emploeed	0-9	10-19	20-49	50-249	250 and more
Average 4 years proportion	84,12	5,62	5,01	4,24	1,01

Source: Authors according to CBS data

While industrial producer price indices somewhat weary since 2008 Prices are displayed as indices (base is the value in previews year) methodological validity. Table 3 shows the movement of prices of textile and clothing products.

Table 3. Manufacturers price indexes of textile and clothing products in the years 2009, 2010 and 2011

Industrial producer price indices (total) according to MIGs 2009. and NKD 2007. sections and divisions, in december	Indicies – Iv (%)		
	I. – XII. 2009. / I. – XII. 2008.	I. – XII. 2010. / I. – XII. 2009.	I. – XII. 2011. / I. – XII. 2010.
C 13 - Manufacture of textiles	96,9	111,0	89,0
C 14 - Manufacture of wearing apparel	79,9	98,9	105,0

Source: Authors adaption from Croatian bureau of statistics data: Short-term Indicators of Industry, 2009; 2010; 2011 – Industrial Production, Producer Prices, Turnover and New Orders of Industry-Statistical reports - 1402/2010; 1429/2011; 1458/2012

According to Anić, et al. (2011) in research on the differences and similarities in strategies employed by 80 companies operating in the Croatian textile and clothing industry, research results indicate that textile and clothing manufacturers in Croatia employ two major strategies: low cost strategy and value-oriented strategy. This paper will hereinafter try to investigate the other perspective, focusing on the students costumer's perspective, i.e. perception, satisfaction and loyalty intention of clothing products produced in Croatian companies, as well as the specifics required to build a competitive marketing strategy.

1.2. Costumers perception and behaviour at fashion and clothing market

Fashion Marketing is commonly classified in two micro and macro topics, include: Micro topics are focused on services / products offered and how to deal with customer. In fact, long-term services of customer should be considered for maintaining profitable ones.

According to Anić and Rajh, (2008, 137) numerous studies have analyzed the demand and consumer behaviour in the textile and garment industry. Studies have mostly focused on the clothing industry. Many factors influence the increase or decrease in demand for some products, and factors affecting the increase in demand are: price, income, population, cost and availability of complementary products, prices and availability of substitutes, consumer needs and tastes, and special effects (Grabovac, 1998, 44). According to Solomon and Rabolt (2004.): many studies have looked at evaluative criteria that customers use when making apparel and fashion decisions. Some of them were studies of authors like: Jacoby, Olson and Haddock (1971), Davis (1985), Hatch and Roberts (1985), Casill and Drake (1987), Eckman, Damhorst and Kadolph (1990), Kwan et al. (2004) or Stracenski (2004). Usually criterias/factor are/is divided at intrinsic factors or extrinsic factors. Intrinsic attributes of the product cannot be hanged without changing physical characteristics of the products such as design/stile, colour, fabric, quality, fit, and care. Extrinsic ones are determinate by manufacturers and/or retailers and cannot be the basic component part of the product such as the brand, price, image, country of origin. Different criteria may have also different importance on consumers buying decision (Stracenski et al., 2012).

When speeking about fashion and clothing market Andinolfi and Andersen (2011.) emphesise that in EU, consumer markets are stable or declining in mature markets (but are less sensitive to the conjectural cycle) whereas industrial markets are growing slightly above the rate of economic growth (but are far more sensitive to cycles). In Emerging Economies the trend is slightly different as societies are normally based on a dynamic and youthful population that has still some basic needs to be fulfilled but is looking at Fashion and especially Fashion Brands as a way to show their personal and professional accomplishment (Andinolfi; Andersen, 2011, 19).

According to the data from Croatian bureau of statistics there are 1,535,635 private households in Republic of Croatia (CBS, 2011) and it is assumed that the market potential for the Croatian textile and clothing sector is about 6 million HRK. In theory, income is the most important determinant of demand for textile and clothing products (Grahovac, 1998). Data from Central Bureau of Statistics in Croatia show that between 2005 and 2007 total disposable income per household had increased from 69.180HRK to 77.442HRK, relatively 11,9%. In the same time there was an increase in the average annual personal consumption of clothing and footwear in the household from 5.377 HRK to 5.867 HRK, relatively 9,1%.
But as it is shown in table 4, since 2008, time when recession began, it shows constant declining tendency.

Table 4. Personal consumption, annual average per household for clothing and footwear, expenditures, structure and indicies

Consump. expend. group C14 Clothing and C15 footweare	Year	Personal consumption, annual average per household on clothing and footweare(HRK)	Expenditures, Structure, % out of total that year	Indicies	
				Iv (%) (v=year befoure)	Ib (%) (b=2008)
Total C14 and C15	2008	5.902	7,90	/	100,00
Total C14 and C15	2009	5.553	7,30	94,09	94,09
Total C14 and C15	2010	4.787	6,40	86,21	81,11
Total C14 and C15	2011	4.493	6,00	93,86	76,13
		4.493	100,00		
C14 - clothing	2011	3.124	69,50		
C15 - footweare	2011	1.369	30,50		

Source: Authors adaption from Croatian bureau of statistics data

Unfortunately, the elasticity of demand considering income in Croatia by groups of textile products can not be calculated (Anić et. al. 2008), because the lack of statistical data by groups of textile products and expenditures.

According to Haluk Köksal and Özgül (2007), economic crises affect consumers both psychologically and economically, i.e. consumer behaviour and habits adapt to changing economic conditions (Ang, 2001; Ang, et al., 2000; Zurawicki; Braidot, 2005). Negative trend of total economic activity was moderated in 2010 to a decline level of -1,2% (CCE). According to a generally accepted practical definition of economic research, if GDP drops for two consecutive quarters, a recession may officially be declared (Shiskin, 1975).

Other macroeconomic indicators also suggest a decline in business activity. The year 2010 will be registered for the largest unemployment increase in newer Croatian history. Stronger economic recovery is not expected in 2011, therefore significant positive shifts in the labour market could not be expected as well. The registered unemployment rate in February, 2011 was 19,6%, which is 1,3 percentage points higher than last year's and 5,1 percentage points higher than before the crisis in 2008 in the last sixteen years, due to further reductions in domestic demand, growth of unemployment and a decline in disposable income (CCE).

Such heavy blows to the economy have forced customers to consider their own expenditures more thoroughly. They try to maximize their usefulness in the selection of goods depending on the consumption of that good (Banks, et al. 1997). Purchasing process through which consumer goes when buying, includes the following phases: identification of needs, seeking product information, evaluation of product attributes, product selection, making the purchase, ratings of satisfaction after buying the product, possible re-purchase and customer loyalty (Giese; Cote, 2000; McQuitty et al., 2000).

Unfortunately, on the other hand, Croatian textile and clothing companies in dynamic environment have weaken their competitive position. Resent data show negative trade balance (in 2011 it was –344.573, and in 2012 it was -282.879, but a bit encouraging is that in 2012 the negative trade balance is 17,9 index points lower than in 2011, based on CBS data (2013) presented in table 5.

Table 5. Export and import and incdicies of manufacturing of textiles, clothing, footwear, lether and simmilar products (2011. and 2012.)

Export and import according to NKD 2007. (production principle/approach)	EXPORT			IMPORT		
	I. – XII. 2011.	I. – XII. 2012.	Indicies I. – XII.2012. / I. – XII.2011.	I. – XII. 2011.	I. – XII. 2012.	Indicies I. – XII.2012. / I. – XII.2011.
CB Manufacturing of textiles, clothing, footwear, lether and simmilar products	749.343	727.768	97,10	1.093.916	1.010.647	92,40

Source: Croatian Bureau of Statistics (CBS)

The company's survival depended on the ability to introduce radical changes necessary to cope with new market challenges. Even though the crisis environment can pose a significant threat, it is also an opportunity to improve business performance, depending on the nature and root of the crisis (IMF). Some economies (countries) tried to empower their strength by encouraging their costumers to by more or at least, more often domestic products.

So, to empower the domestic industry, different countries carried out campaigns to convince consumers to support domestic industry products such as the campaign carried out by the U.S. clothing (apparel) industry during the 1980s named "Crafted with Pride" in the USA or "Let's by domestic (Croatian)" in Croatia 2000s. The goal of this kind of extensive campaigns were to promote labels, hangtags, and extensive advertising were used in attempts to convince consumers that Made in the national economy (USA; Croatia) and its effect should play a fundamental role in clothing purchase decisions (Crafted with Pride Dazzles America 1986; Dickerson 1995).

Consumer decision-making has both cognitive and affective characteristics when the fashion and clothing items/brands are researched. Although many factors influence consumer decision-making, consumers are thought to approach the market with certain basic decision-making styles (Sproles; Kendall, 1986). In the existing consumer behaviour literature, most studies assume that all consumers' approach shopping with certain decision-making traits that combine to form a consumers' decision-making style (Zhang, 2012), such as: the consumer typology approach, the psychographics/lifestyle approach, and the consumer characteristics approach and utilized a Consumer Styles Inventory (CSI) (Sproles; Kendell, 1986). But the consumer characteristics approach has been perceived to be more powerful and explanatory than others, as its focus on consumers' mental orientation (Lysonski, et al., 1996).

Sproles and Kendell, (1986) define eight factors included in the CSI to describe clothing decision making styles: (1) **quality** - Perfectionism or High-quality conscious – consumers seek the very best quality products, have high standards and expectations for consumer goods, and are concerned with the function and quality of products; (2) **image** - Brand consciousness – consumers are oriented toward the more expensive and well-known national brands and feel price is an indicator of quality;

(3) **fashion** - Novelty-fashion consciousness – consumers gain excitement and pleasure from seeking out new things, and are conscious of the new things; (4) **recreation** - Recreational, Hedonistic Shopping consciousness – consumers find shopping pleasant, shop just for fun of it; (5) **value**- Price Conscious, or "Value for money" – consumers are low-price conscious, look for the best value for the money, and are likely to be comparison shoppers; (6) **emotion** - Impulsiveness, Careless – an orientation of consumers not to plan shopping or to be concerned about the amount of money they spend; (7) **confusion**- Confused by Over-choice – consumers who perceive many brands and stores from which to choose and have difficulty making choices; and (8) **loyalty** - Habitual, Brand-Loyal toward consumption – consumers who are apt to have favourite brands and stores.

The numerous cross-cultural studies have shown that the CSI has a potential utility across international populations, although decision-making styles can vary across cultures. Zhang (2012) had found that it has been applied in following nine countries: initially in the U.S. (Sproles; Kendall, 1986) and to countries such as Korea (Hafstrom; Chae; Chung, 1992), New Zealand (Durvasula; Lysonski; Andrews, 1993), Greece, India (Lysonski; Durvasula; Zotos, 1996), the United Kingdom (Mitchell; Bates, 1998), China (Fan; Xiao, 1998; Hiu et al., 2001), Germany (Walsh; Mitchell; HennigThurau, 2001), Singapore (Leo; Bennett; Hartel, 2005), and afterword i.e. China and India (Byoungho; Park; Ryu, 2010), U.S. and Japan (Lee, J.; Karpova, E.E., 2011.) or U.S. and China (Zhang, 2012). Hiu et al. (2001) recommended four factor model: "Quality Conscious", "Brand Conscious", "Fashion Conscious", and "Recreational" are more fit to measure global consumer decision making style.

According to Yang and Tsai (2007), overall satisfaction reflects customers' cumulative impression of a clothing performance and that, in turn, may serve as a better predictor of customer loyalty (Yang; Peterson, 2004). Recently, it has attracted researchers to pay attention to the formal tests of the mediation effects of customer satisfaction in an integrated loyalty model or behavioural intentions model (e.g., Yang; Lin, 2006).

Furthermore, numerous studies considering the effects of the Made in the USA label on clothing purchasing showed that country-of-origin was far less important to consumers' clothing decisions than product attributes such as price, aesthetics, and quality (like: Abraham-Murali and Littrell 1995; Eckman, Damhorst, and Kadolph 1990; Ettenson, Wagner, and Gaeth 1988; Forney, Rabolt, and Friend 1993; Gipson and Francis 1991; Hester and Yuen 1987; Lang and Crown 1993). Few consumers appeared to be aware of the country-of-origin of their clothing purchases, and even fewer consumers admitted to caring (Forney et al. 1993; Hester and Yuen 1987).

Customer loyalty has been shown to have a strong impact on firm performance. Research has also indicated consumers may demonstrate their loyalty towards a firm in numerous different ways including willingness to pay higher prices, advocacy and the establishment of a long lasting relationship (Rowley, 2005). Dick and Basu (1994) argued that consumer loyalty is primarily determined by the strength of the relationship between an individual's repeat patronage and their relative attitude towards the entity. Generally, consumers who display relatively high levels of loyalty are likely to be more actively involved with the company and are also more likely to spend a significantly higher proportion of their expenditure with businesses they are loyal towards (Knox, 1998).
The rest of the paper is organized as follows: the next section present research design and data analysis, followed by a brief presentation of the results of the data analysis and discussions that leads to the key messages, conclusions and recommendations of future research areas.

2. METHODOLOGY

According to the theme of this research, parts of this study are based on exploratory research and parts of it are based on descriptive purpose. For the empirical research, the method of convenience sample was used. In total, 480 students' population customers (student's mailing list studying economics classes/module) equally from Faculty of economics and business Zagreb (EFZg), Faculty of Agriculture (AgrF) and the Faculty of Textile Technology (TTF) of Zagreb's University, studying during the year 2012, were selected. As a result the total sample comprises responses from 311 students/costumers students whom were willing, anonymously to participate, i.e. who filled out a questionnaire and processed it back. All surveys (respondents) were aggregated from above faculties (regardless of institution) of University of Zagreb studying economic course/module. Data were collected and partially analysed via on-line questionnaire using free program "SurveyMonkey online surveys" and SPSS17. Of all respondents (N=311), 65,27% (203) were females and 34,73% (108) were males with. Both sex groups having an average age of 20 years old (disperse from 19-24 years old). Data were presented via tables and graphs. Statistical analysis used simple and descriptive statistics method.

The method of on-line questionnaire was designed based on two demographic questions about age and gender and 6 criteria questions was adapted from established measurement scales (Anić et al., 2008.) on which the measurement of each variable was automatically generated. Several changes were made in the wording of some items. First question (Q1.: Do you buy clothes produced in Croatia?) was dichotomous; second question (Q2: What are your main reasons for buying Croatian products?) was semi structured; third question (Q3: What is your main reasons for buying Croatian clothing products?) was semi structured; next question/set of questions (Q4: How much are You satisfied with following characteristics of Croatian producers clothing products: a) Price, b) Quality, c) Fashion design, d) Availability and e) Promotion) was structured and all items in scales were retained, and for all scales Likert-type response categories (1 completely dissatisfied – 7 extremely satisfied) were used; fifth question asked about subjective perception of their own "loyalty"/affiliation for Croatian producers clothing products (Q5: How much are you loyal to Croatian clothing products?) also scales 5 point Likert- type response (1 extremely unloyal – 5 extremely loyal); and last open ended question (Q6: In what situation would Croatian manufacturers of clothing have been your first choice in buying clothing product?).

3. ANALYSIS

At the first question with closed, dichotomy answers responded 99,04% students (308), i.e. three respondents (out of 311) didn`t answer the Q1.: Do you buy clothes produced in Croatia? 68,18% (210) of respondents answered with „yes", so they buy Croatian clothing products. While 31,82% (98) do not buy it. We are free to conclude that Croatian consumers perceive the value of Croatian clothing products.

The several main factors which, according to survey, encourage consumers to purchase are shown in table 6. On second, semi structured question (Q2: What are your main reasons for buying Croatian products?), answered 96,14% of respondents. The most significant factor for the selection of clothing manufactured in Croatia respondents found *quality of products* (33,12%). The second one is *price* (16,72%), while *fashion trends*, *image of the brend* and *image of the company* tend to be less significant. The 36,98% respondents, when added the answers *shomting else* and *missing* answer, are mostly those, which answer on priviews Q1, that they do not by Croatian clothing products. On Q2 *shomting else* answered 33,12% respondents, which on open-ended subquestion *what else,* responded mostly with larger answer (not just by giving single but reather combination or multiple characteristics), specifieing answers like: balans of *„good quality and price"*, *„I by what (if), I like (it)"* or patriotic reasons *„...because it is domestic product"*.

Table 6. What are your main reasons for buying Croatian products?

The main reasons for buying Croatian clothing products (N=311)	Frequency	Rank	Percentage of answered (299)	Percentage of total (311)
Price	52	3	17,39	16,72
Quality	103	1-2	34,45	33,12
Image of the company	6	6	2,01	1,93
Image of the brand	15	5	5,02	4,82
Fashion trends	20	4	6,69	6,43
Something else	103	1-2	34,45	33,12
Answered	299		100	96,14
Missing	12			3,86

Source: Authors

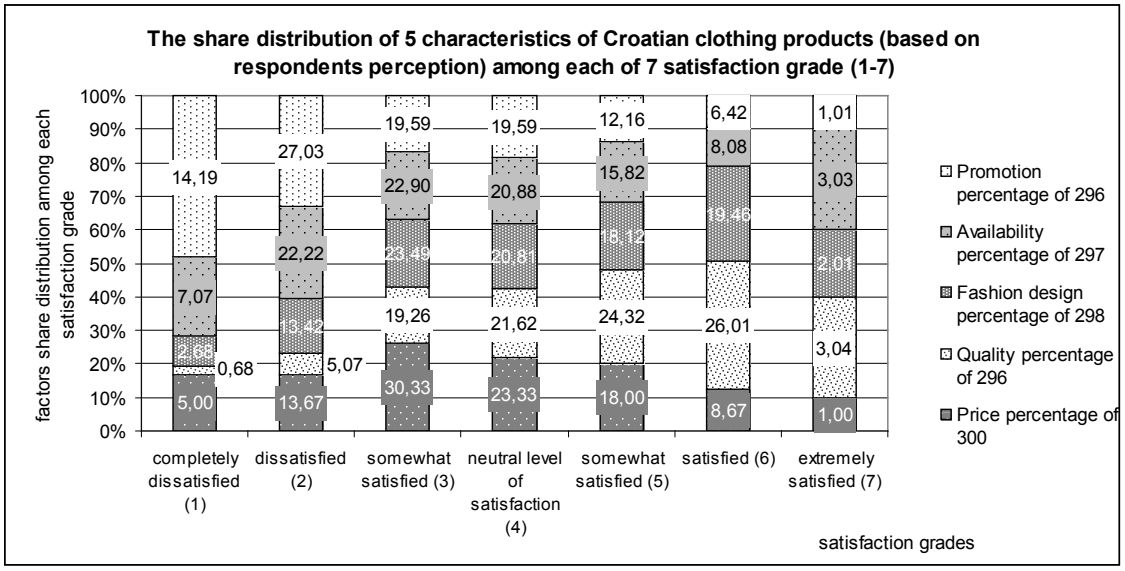
The satisfaction of 5 factors shown in table 4 were also tested using grades that represent degree of satisfaction as follows: 1= completely dissatisfied, 2=dissatisfied, 3=somewhat satisfied, 4=neutral level of satisfaction, 5=somewhat satisfied, 6=satisfied, 7= extremely satisfied. Less then 5% of respondents didn`t answered this set of questios and they mostly, strongly declare they do not by Croatian clothing.

Table 7. Rate the extent to which respondents are satisfied with the 5 factors/characteristics

The rate of satisfaction with product characteristic when purchasing Croatian clothing (N=311)		Answers								Missing answer
		1	2	3	4	5	6	7	Total	
Price	Frequency	15	41	**91**	70	54	26	3	300	11
	Percentage of 300	5,00	13,67	**30,33**	23,33	18,00	8,67	1,00	100,00	
	Percentage of total	4,82	13,18	**29,26**	22,51	17,36	8,36	0,96	96,46	3,54
Quality	Frequency	2	15	57	64	72	**77**	9	296	15
	Percentage of 296	0,68	5,07	19,26	21,62	24,32	**26,01**	3,04	100,00	
	Percentage of total	0,64	4,82	18,33	20,58	23,15	**24,76**	2,89	95,18	4,82
Fashion design	Frequency	8	40	**70**	62	54	58	6	298	13
	Percentage of 298	2,68	13,42	**23,49**	20,81	18,12	19,46	2,01	100,00	
	Percentage of total	2,57	12,86	**22,51**	19,94	17,36	18,65	1,93	95,82	4,18
Availability	Frequency	21	66	**68**	62	47	24	9	297	14
	Percentage of 297	7,07	22,22	**22,90**	20,88	15,82	8,08	3,03	100,00	
	Percentage of total	6,75	21,22	**21,86**	19,94	15,11	7,72	2,89	95,50	4,50
Promotion	Frequency	42	**80**	58	58	36	19	3	296	15
	Percentage of 296	14,19	**27,03**	19,59	19,59	12,16	6,42	1,01	100,00	
	Percentage of total	13,50	**25,72**	18,65	18,65	11,58	6,11	0,96	95,18	4,82
General grade of 5 researcher charasteristics	Percentage of average grade	5,92	16,28	23,11	21,25	17,68	13,73	2,02	100,00	
	Mod of grade	6	4	1	2	3	5	7		

Source: Authors

Graf 3. Distribution of share of 5 characteristics/factors of satisfaction of respondents among each grade (shown vertical, by single grade)



Source: Authors

Even respondents/Croatian consumers declaire they are not at all loyal to Croatian clothing products declaire 15,11% and 28,61% express that are unloyal, while 31,19% of them have neutral level of loyalty, i.e. affiliation. Only 18,33% considere themselves as loyal. Extremely loyal to Croatian products declaire 3,54% of respondents, as it is shown in table 8.

Table 8. Frequency and rate the extent to which you are brand loyal Croatian clothing products

Brand loyal to Croatian clothing products	Extremly unloyal				Extremly loyal	Answered	Missing
	1	2	3	4	5		
Frequency	47	89	97	57	10	300	11
Percentage of 300	15,67	29,67	32,33	19,00	3,33	100,00	
Percentage of total	15,11	28,62	31,19	18,33	3,22	96,46	3,54

Source: Authors

The last open-ended question refers to situation in which Croatian clothing products would be the first choice to buy for surveyed consumers were answers that encompasses characteristics of price, quality, trendiness and design (single or in combination) appears in more then 70% of all answers:

(1)"Adequate, better price", "If they will be not too expensive"; (2)"If they will be more trendy"; (3)"Good, balanced price- quality ratio"; (4)"In the case of reasonable prices, exceptional quality and interesting design"; (5)"In case in which design could compete with brands such as Zara, Mango H & M, etc., and quality and price would be near theirs"; (6)"I think that there are (if they at least were) many manufacturers who produce high quality clothing in Croatia, but aren't promoted well and do not follow fashion trends"; (7)"I would buy Croatian clothes if it was more present in the shops, there is no way you can find it in the stores. I think the whole problem of restructuring the textile industry in Croatia need to be solved. Croatian producers doomed to a very small production."; or (8)"I think when you enhance the advertising and fashion design of Croatian producers, success could be much better".

Based on the poll that have been carried out, shown that there is a consensus among consumers that Croatian brands are not sufficiently modern and that their products are not being adequately promoted and distributed. In order to change this perception, a long-term marketing strategy relating to the promotion, price and distribution as well as bust the branding (at national but also at international market) of the products should be developed.

5. DISCUSSION

The purpose of this research was to identify the situation (potential strength) of the Croatian T&C sector (macroeconomic view) on one hand and at the other hand to indicate perception and behaviour of Croatian student's market segment for the domestic clothing products (microeconomic view) proposed for use by apparel manufacturers and retailers (or even economic policy makers). The results of a survey carried out among Croatian student population, i.e. consumers showed that according to their answers, most of them buy cloths made by Croatian manufacturers. An important factor that influenced their decision to buy these products was their quality. Other important factors are products' price, fashion trends, image brand and companies image. The results of the survey differ from the conclusion drawn by Anić et al. (2008) that the main factor influencing the purchase is the price of the product. Stracenski (2004) find out that 22 or more factors (out of 83 researched) were important in 50% of respondents (N 306 Zagreb's young clothing costumers aged 15-35), which as a most influential factors for buying clothes ranked appearance of the apparel item (96,41%), own appearance in the apparel item (95,75%), comfort (91,18%), quality (85,95%) and price (83,99%) A survey among the US consumers (Fadiga et al. 2005, Lee, J.; Karpova, E.E., 2011) also showed that the price is the main factor that influences their decision when buying clothes as well as Chinese consumers (Byoungho, et al., 2010), while, by contrast, Japanese consumers increased their purchases of higher quality, domestically produced apparel, but decreased the purchase of low quality imported apparel when its price increased (Lee, J.; Karpova, E.E., 2011). This discrepancy is probably result of the demographic characteristics, time and place of the consumers who have taken part in the survey – young newly employed people who readily give out money for clothes of high quality.

Respondents are contented with the quality of the product. However, they are not contented with price, promotion, distribution and availability of the products. In the eyes of respondents, contented buyers are likely to become regular costumers, while those not contented will reach for more competitive products, sooner or later. If buyers are contented with products, they are likely to have a positive perception. This increases the probability that customers will recommend the product to someone else, they will buy the product again and in this way increase ordering of goods and their consumption. This conclusion is in concord with the survey by Anić et al. (2008) that customers can very easily choose goods by other manufacturers.

The survey on the perception of loyalty of buyers, i.e. researched students to Croatian clothing brands shows that there is a large number of buyers that are not loyal to Croatian clothing brands and that only a smaller number of buyers considers themselves to be loyal. That finding is consistent with research results of Stracenski Kalauz (2010) on younger teenagers (N507), which are among 7 types of loyalty (ultimately loyal, loyal, loyal to several brands, potentially loyal, inert, explorers and disloyal) mostly inert (26,4%), then disloyal (20,71%) and loyal (17,16%). The loyalty strength exists but it was relatively low, and only 17,32% of respondents waned to be loyal to the clothing brand (regardless of country of origin).

This results indicates that Croatian manufacturers should pay more attention to the development of long-term relations with buyers, that they should examine the reason why their image (as a producers) as a main reason for buying Croatian products isn't recognized enough by student costumers and why brother students costumers are not loyal and producers should work more harder to develop a program, which would help to attract and bound more customers. Consumers agree to buy clothes of Croatian producers in cases of better and modern product design, better promotion, wider distribution and lower prices, and that supports the findings of Anić, et al. (2011) that textile and clothing manufacturers in Croatia employ two major strategies: low cost strategy and value-oriented strategy.

Like most (Croatian) studies, this study had difficulties with primary macroeconomic data about Croatian T&C sector on one hand, and on the other hand took a "snapshot" of a sample. More abundant and richer data would have enlarged the scope of analysis as well as nowadays well known much richer statistics. But despite these limitations, the results of this study can be indicative and useful insights into the Croatian T&C industry performance and students (costumers) satisfaction with clothing products produced in domestic companies.

6. CONCLUSIONS

The paper analyzed the situation (potential strength) of the Croatian T&C sector (macroeconomic view) on one hand, and at the other hand to indicate perception and behaviour of Croatian student's market segment for the domestic clothing products (microeconomic view) proposed for use by apparel manufacturers and retailers that are mostly SMEs, and their marketing strategies. In period from 2008 to 2011 the textile sector indicate slight recovery considering market trade value, value of production and labour productivity (2,2% comparing to all sectors in the year 2012.) while decrease and negative rates are general characteristic of other indicators in C13 and generally whole Croatian clothing sector C14.

In this paper it was also examined the demand for clothing products, customer satisfaction and brand loyalty (affiliation) in Croatia. Data were collected by surveying 311 students (customers) of Croatian clothing products.

Research of Zagreb's University students, i.e. consumers found that most students buy clothes of Croatian producers. An important factor of buying proved to be products quality. Other important factors are price, fashion trends, brand image and company's image. Among answer something else that with quality share first place, were answers that combine: balans of *„good quality and price"*, *„I by what (if), I like (it)"* or patriotic reasens *„...because it is domestic product"*. Furthermore, consumers are satisfied with the quality of products, while they express dissatisfaction with price, promotion and availability of Croatian producers clothing products. There is a number of customers who are not loyal to Croatian brands producers. Results indicate that Croatian clothing manufacturers haven't developed a clear marketing strategy, that they should pay more attention to developing long term relationships with consumers and researching reasons of their low loyalty. Consumers agree to buy clothes of Croatian manufacturers in case of better and modern product design, more/better promotion, wider distribution and lower prices. Brands of Croatian producers are not sufficiently known, due to poor promotion.

The coverage of Croatian market is unfavorable and distribution channels are limited. In order to achieve sales growth, Croatian producers would have to increase investment in marketing activities, development of their own products and brands. All this must be accompanied with promotion in order to create positive consumer perceptions and positive image. Marketing strategy of Croatian producers should be adapted to particular market segments. It is necessary to follow market and take care of customer satisfaction and loyalty. The scientific contribution of this paper are new insights and better understanding of the demand for clothing products in Republic of Croatia, as well as the specifics required to build a competitive marketing strategy.

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DEVELOPMENT OF A HEURISTIC RATING MODEL FOR THE CLASSIFICATION OF KNOW-HOW-INTENSIVE AND TECHNOLOGY-ORIENTED START-UPS (KITSS) IN AUSTRIA

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ABSTRACT

The paper provides an insight into a doctoral thesis at the Vienna University of Economics and Business. Objective of this work was to analyse the reasons for success of know-how-intensive and technology-oriented Start-ups (KITSs) and to assess the potential for success at an early point of time in the companies' life cycle development. By demonstrating factors for success and failure and using them for the categorisation of start-ups, information asymmetries should be reduced and the success rate of these companies increased.

First, an explanatory model of the success of KITSs was developed, describing success factors as a cause for subsequent company success (effect). Success factors, relevance systems and interactions were identified in expert interviews, providing empirical cause-effect relationships based on experience. Second, a descriptive decision model (rating model) was derived which enables the categorisation ("Stars", "High potential for success", "Low potential for success") of a single case (specific KITS) through the application of the "general rules" identified in the success factors analysis. Success factors research (strategic management theory), rating theory (and practice) as well as model theory (heuristics) provide the theoretical framework for this work. A qualitative research design allowed the generation of a deeper understanding of the complex problem area. Furthermore, the lack of studies focusing on KITSs providing an up to date variable pool lead to a qualitative-explorative approach. 36 poblem-centered interviews were conducted with founders of young, established but also failed know-how-intensive and technology-oriented companies from different industry fields and experts of technology-intensive markets and companies (venture capitalists, business angels, representatives of funding agencies and incubators, start-up coaches, serial entrepreneurs). Factors for success and failure were identified in the domains of "team", "finance" and "market-technology-fit". For the rating model, the success factors are viewed as the "rating criteria", factors for failure as "warning signals". The weight of each rating criteria relates to the respective relevance identified in the success factors model and varies in dependence of the distinguishing features applicable to the specific KITS. For the evaluation of the KITS, the classification heuristics for evaluation and selection of alternatives "tallying" and "take-the-best" were identified. As one further result of the interviews, a "rating heuristic" was developed for the evaluation (rating) of a specific KITS.

KEYWORDS: heuristic rating model, classification, know-how-intensive, technology-oriented, start-ups, KITSS, Austria

Note: With support of Hon. Prof. Dkfm. Dr. Rainer Hasenauer (department for Marketing-Management, Vienna University of Economics and Business), ao.Univ.Prof.Dr. Dietmar Rößl (department for Small Business Management and Entrepreneurship, Vienna University of Economics and Business)

1. OBJECTIVES

Many studies refer to the positive effects from foundation and growth of KITSs on a dynamic economic development[1]. Nevertheless, these companies face specific problems in fundraising on the (Austrian) capital market due to the high risk resulting from the lack of marketable securities, company history and company key figures as well as the high technical risk and information asymmetries[2]. Objective of this work is to analyse the reasons of the success of KITSs and to assess the potential for success at an early point of time in the companies' life cycle development[3]. By demonstrating factors for success and failure and using them for the categorisation of start-ups ("Stars", "High po-

[1] Vetschera & Gillesberger, 2007, S.12, Meka et al., 2005, S.21, Metzger et al., 2008, S.1, Lueghammer et al, 2005
[2] Machart et al, 2008, S. 39, Jörg, Schibany, Nones, & Gassler, 2006, S. 11, 89, Carpenter & Petersen, 2002, S. 54ff, Engelen, 2007, S. 35ff
[3] in the seed and start-up pase according to the life cycle deleopment modell (Grabherr 2000)

tential for success", "Low potential for success"), information asymmetries should be reduced and the success rate of these companies increased[4].

In this thesis first, an explanatory model of the success of KITSs was developed, describing success factors as a cause for subsequent company success (effect). Success factors, relevance systems and interactions were identified in expert interviews, providing empirical cause-effect relationships based on experience. Second, a descriptive decision model (rating model) was derived which enables the categorisation of a single case (specific KITS) through the application of the "general rules" identified in the success factors analysis.

2. LITERATURE REVIEW

Success factors research (strategic management theory), rating theory (and practice) as well as model theory (heuristics) provide the theoretical framework for this work.

The neo-institutional finance theory emanates from information asymmetries, diverging interests and uncertainty and thus emphasizes the necessity of ratings in order to increase transparency and to reduce information costs[5]. „Rating is a method for the categorisation of facts, objects or individuals. Usually, rating is understood as the result of an assessment procedure. Ratings are applied, among others, in finance and banking, sociology, psychology and marketing."[6] Rating systems consist of rating criteria (weighted), warning signals, a rating scale and a rating result[7]. A distinction can be made between internal and external ratings, depending on which data is being used for the rating (public versus internal data). Furthermore, quantitative ("hard facts") and qualitative ("soft facts") rating criteria are used in existing rating systems, aiming at maximum transparency of strengths and weaknesses of a company.[8] This study does not differentiate between internal and external data. Success and thus rating factors were identified on a meta-level in expert interviews, not limiting possible results by predetermining categories (internal vs. external, quantitative vs. qualitative data) in advance. As start-ups cannot provide key figures (quantitative data) usually gathered from well established companies, the rating is rather based on "soft factors" (qualitative data)[9].

Banks do not develop specific rating models for start-ups but modify existing models according to practicability[10]. Heuristic models in particular are considered appropriate for the rating of start-ups [11].

Success factors theory is based on the assumption of few essential influencing variables, which significantly determine success or failure of a company[12]. Only few studies focus on the success of young technology-oriented companies. Due to the restrictions of this paper, a detailed literature review cannot be provided here. Relevant points of criticism address the methodological approach of studies in success factors theory. It is claimed that many studies neglect the multi-causal and multi-dimensional character of the phenomenon "success" in their analytical approach[13]. Nicolai & Kieser (2002) and Homburg & Krohmer (2004) postulate a lack of qualitative analyses in the success factors research. These points of criticism are taken into account in this study through the application of qualitative methods and heuristic procedures.

Due to the high complexity (multicausality, multidimensionality, and dynamic transformation of success factors) this work deals with poorly structured decision problems which lead to the application of heuristic procedures for the development of open models. The concept of „bounded rationality" has found widespread acceptance in the analysis of human decision-making[14]. According to Simon (1976), human behaviour is „intendedly rational, but only limitedly so". Consequently individuals want to act rational, but are limited in their capability to make objectively rational decisions due to cognitive limitations (limited information procurement and information processing capacities), incomplete information etc[15]. This study is based on the assumption, that the assessment of KITSs' potential for success is necessary for some stakeholder groups (start-up coaches, investors, funding agencies, incubators) in spite of limited information (lack of company history and key figures). Business angels are viewed as a particularly relevant stakeholder group as they provide capital in the early stage phase and they depend on the accurateness of their evaluation of KITSs personally (otherwise they could not be active over a longer period of time).

Heuristic models methodologically try to gain new insights based on experience values[16], which have their origins in [17,18]:

[4] This paper summarizes the work conducted in the doctoral thesis of the author.
[5] Boué, 2005, S.86 und Prigge, 2004, F.179
[6] http://wirtschaftslexikon.gabler.de/Definition/credit-rating.html, translated from german into english by the author
[7] Lorenz, 2004, S.61ff
[8] Karglmayer/ Böhm, 2004, S. 113
[9] Binevitch, 2009, S.2f
[10] OENB, 2004, S.20
[11] OENB, 2004, S.21
[12] Fritz, 1995, S.594, Jünger, 2008, S. 18
[13] Werner, 2000, S.17
[14] Descriptive decision theory
[15] March / Simon 1958, S. 136; Simon 1976, S.39f
[16] Gigerenzer, 2011
[17] OENB, 2004, S.33
[18] Newell et al. 1962, S.78, Minsky 1963, S. 407 Anm. 1, Feigenbaum und Feldman 1963, S. 7ff, Reitman 1965, S.153ff, Kirsch, 1970, S. 94

- subjective practical experience and observations
- presumed economic relationships
- economic theories for specific partial aspects

The selection and application of a specific heuristic principle is based on the context-dependent degree of value proof (indicated by frequent use in context-dependent areas)[19], not the logical character of the problem area[20]. Therefore, application examples of heuristics in similar areas of study (heuristic procedures for stock valuation) as well as different areas of study with similar problem structure (e.g. medical diagnosis) were identified. Based on these considerations, heuristics were selected and used as a reference framework for the qualitative interviews with investors.

3. APPROACH/METHOD

A qualitative research design allows generating a deeper understanding of the complex problem area. Furthermore, the lack of studies focusing on KITSs, providing an up to date variable pool requires a qualitative-explorative approach[21,22]:

1. Literature search: findings from „success factors theory", „entrepreneurship theory", „model theory" and „rating theory" were used to integrate the work into a theoretical framework. It supported the development of the research design, the conceptualization of the empirical study and the development of the interview guide (inductive-deductive theory construction).

2. Development of the success factors model (explanatory model): in order to gather success factors of KITSs empirically and to illustrate them in a general success factors model, problem-centred interviews with relevant stakeholders were conducted. Through the involvement of different perspectives on the problem area, the validity of the survey was ensured[23]:

    a. Operative practical knowledge about factors for success and failure was gathered in 14 interviews with founders of young, established but also failed know-how-intensive and technology-oriented companies from different industry fields, focusing on company-specific promoting and hindering factors for success.

    b. Knowledge on a meta-level about factors critical for success and their interaction was raised in 11 problem-centred interviews with experts of technology-intensive markets and companies (venture capitalists, business angels, representatives of funding agencies and incubators, start-up coaches, serial entrepreneurs).

    c. The gathered data was analysed (qualitative content analysis[24]) and described in an explanatory model.

4. Development of the rating model (decision model):

    a. Objective of this survey phase was the identification of methods and models used in practice for selecting and rating KITSs. Furthermore, the success factors model was validated in the interviews. Additionally, interrelationships between the identified factors as well as their relevance (in dependence of life cycle development stage[25] and technology/industry sector) of each factor were collected. This was achieved in the course of 11 problem-centred interviews with Business Angels investing in Austrian KITSs.[26]

    b. Results and findings from literature analysis and interviews were brought together and resulted in the development of the heuristic rating model.

    c. A final validation of the rating model is achieved through a retrospective rating of former companies of an Austrian public incubator[27].

4. RESULTS/FINDINGS

1. Success factors model (explanatory model)

Distinguishing features:

Distinguishing features influence the relevance of success factors. As a result of the qualitative interviews, the following distinguishing features lead to different characteristics and relevance of specific success factors. A categorization in technology/industry fields did not approve of major importance. To a greater degree, the following categories were perceived as relevant distinguishing factors:

- Life cycle development stage
- High versus low technology intensity/-complexity

[19] Dt.: „Bewährungsgrad"
[20] Scheuch, 1977, S. 48
[21] Schmalen, Kunert, & Weindlmaier, 2006, S. 5
[22] 20-30 qualitative interviews need to be conducted for the development of a typology (Lueger, 2000, S.53)
[23] The selection of interview partners was based on the „snowball system" (recommendations) as well as internet research (Przyborski/ Wohlrab-Sahr, 2008, S. 72).
[24] Mayring, 1990
[25] Grabherr 2000
[26] Selection of this stakeholder group: in Austria mainly business angels act as potential investors for KITS in the Early Stage Phase apart from family&friends, incubators and public funding. Unlike the other stakeholder groups, Business angels have long-time experience on a meta-level, could not be active over a longer time period if they are not able to assess the success potential accurately and have a personal interest in the success of KITS they invest in.
[27] Work in progress

- Basic research versus applied research
- Market-driven versus technology-driven development
- B2B versus B2C
- Experience of the team (first timer versus serial entrepreneur)
- Teamleader versus no teamleader
- Support from a business Angel / Smart Money versus no support

Success factors:

Factors for success and failure were identified in the domains of "team", "finance" and "market-technology-fit". Within these domains different critical factors exist which influence the success or failure of KITSs at a later point of time. They were illustrated in a table together with the factor-specific relevance (relevance of factors varies according to distinguishing features – see above) and interdependencies between different factors (this table cannot be displayed here due to restrictions of words in the present paper). Under specific circumstances some of the factors can be compensated.

2. Rating model (decision model)

The rating model provides an application of the general rules developed in the "success factors model" for the classification of one single case (one specific KITS).
The success factors are viewed as the "rating criteria", factors for failure as "warning signals". The weight of each rating criteria relates to the respective relevance identified in the success factors model and varies in dependence of the distinguishing features applicable to the specific KITS.
For the evaluation of the KITS, the classification heuristics for evaluation and selection of alternatives "tallying" and "take-the-best" were identified. As a result of the interviews, the following "rating heuristic" was developed for the evaluation (rating) of a specific KITS:

	Starting-situation	Search rule / rating rule	Stop rule	Decision
Ratingheuristic	Choose an object (KITS), whose potential of success should be estimated	Assign the estimated value between 1 and 0 (1; 0,8; 0,6; 0,4; 0,2; 0) to each weighted rating criteria	Finalize the assignment after estimation/evaluation of all rating criteria and assess the sum of all positive values multiplied with each weight for the object (start-up).	Predict, to which of the following categories (rating scale) the object (KITS) belongs to, according to the rules below this table: "Star", "High potential for success" or "Low potential for success"

The assignment (rating result) of one specific KITS to a category of the rating scale depends on the following rules derived from the interviews:

1. "Star": all rating criteria apply fully to the rated KITS.
2. "High potential for success": all rating criteria with high weight apply to a great extent (1-0,8) to the rated KITS. Low values are allowed if compensated according to the rules identified in the success factors model or if the respective rating criterion has a low weight (relevance).
3. "Low potential for success": one (or more) rating criterion with high weight (relevance) shows a low value and cannot be compensated.

5. IMPLICATIONS AND VALUE

- Scientific interest

Results of this work help to cover the research gap in success factors research with regards to KITSs in Austria. The methodological criticism (no consideration of multicausality, multidimensionality and dynamic transformation of success factors) is taken into account by use of qualitative methods and application of heuristic procedures. With regards to rating theories, there are no scientific models for the categorization of KITS. Conventional methods are based on key facts that are not applicable to start-ups without company history. Also this research gap should be covered in this study by revealing practice of company selection and the development of a rating model. The separate consideration of KITSs seems appropriate due to the lack of company history and key figures as well as information asymmetries and the innovative character, high initial investments, high knowledge requirements, short technology cycles and the dynamic market development.

- Economic interest

High uncertainty with regards to technological and thus commercial success leads to a market failure for KITSs in Austria[28]. This is why a widespread governmental funding system was established. Through an early identification of factors critical for success and the categorization of start-ups through a rating model:

- Information asymmetries between investors and parties seeking capital (KITSs) can be diminished and thus the provision of higher capital availability could be achieved.
- A decision support for potential investors could be provided which helps to recognize problems and risks at an early point in time and to prepare against them accurately timed.
- Could support KITSs, start-up coaches, business angels, venture capitalists etc. to take early measures for the diminishment of error rates and the increase of the probability of success.

[28] Jörg, Schibany, Nones, & Gassler, 2006, S. 13

Limitations and outlook:

- Biases due to a lack of awareness (experts are not aware of all factors that lead to success) as well as the possibility of intentional withholding of information cannot be excluded but reduced in the survey[29]. In order to consider these threats, a lot of different perspectives were taken into account. The impression of authenticity of the interviewees was gained in the personal interviews (authentic behaviour, high interest in the results of the study, provision of additional information per mail after the interviews, disposition for additional interviews, long duration of the interviews).
- The descriptive models developed in this survey are based on experience and knowledge of experts. Therefore, statistical causal relationships need to be tested in a quantitative survey. This is seen as an important follow-up work. Nevertheless, problems may arise with regards to the operationalization of the factors identified.
- The validation of the rating model should be conducted in a long-term study, observing the accurateness of the model over time. Due to time restrictions, a retrospective validation of the rating model was chosen.
- Regional focus of the study lies on Austria. Therefore, results mainly apply to Austrian KITSs active in the Austrian innovation system with its political, socio-cultural, legal and funding framework. Nevertheless, results may apply - to a certain extent - to KITSs in other countries as well.
- The study is not completely finalised.

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USABILITY AND FUNCTIONALITY EVALUATION OF THE MOST PROFITABLE CROATIAN COMPANIES' WEB SITES

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ABSTRACT

The most commonly used form of Internet presence for a company is its official web site. Business web sites have been used since the beginning of Internet development in its early stages. As the Web space has been changing over time in quality, quantity and capabilities, so have its business web sites as well. It is a known fact that web site quality varies as well as its usability and functionality. Having that in mind, there is an obvious need to systematically analyze and evaluate business oriented web sites. Both theoreticians and practitioners agree on the basic evaluation components of web site analysis in general. However, there is no single widely accepted performance evaluation model of business web sites. The aim of the paper is to analyze and evaluate web sites of 190 most profitable Croatian companies in different economic sections (sectors). The paper is focused on web site usability and functionality from the user perspective. Usability and functionality is measured in order to compare business web sites and assess their performance.

KEYWORDS: web site evaluation, usability, functionality, Croatian business web sites.

1. INTRODUCTION

The most common means of Internet presence for companies is the official web site. Official business web sites are an area which has been developed the most in business Internet presence. It is an undeniable fact that the quality of an official web site significantly varies and that special attention should be given to its analysis. Theoreticians and practical experts in this area generally agree about the most significant components of the analysis, but there is no generally accepted model of official web site success evaluation. Sporadic research of foreign web site analysis practice has shown that there are no simple and all-encompassing solutions, but that analysis models were almost always adjusted to the peculiarities of individual research situations. However, it is important to point out that every analysis model has a certain number of generally accepted standards.

2. WEB SITE USABILITY AND FUNCIONALITY EVALUATION

Although a large number of significant e-marketing research does exist, the biggest number of existing empirical research papers connected with official web site success are only preliminary. Although, a large number of older and more recent models exist which suggest a certain aspect of official web site success (less frequently of a more complete success of e-marketing efforts), until today a standard frame or systematic benchmark which defines official web site efficiency has not been established.[1] Most research on this topic is facing a limited number of quality factors or is aimed at a specific web service. Although, there should be a significant number of factors connected with official web site success, there is a fairly small number of research papers that analyze the combination of all factors and services. In the last twenty years, research and studies have generated different approaches and models for the assessment of official web site quality and efficiency. We should mention that the specific characteristics of a business field from which the subject comes are a frequent influential factor on the choice of evaluation parameters. According to the already mentioned data, we can suggest a rough categorization of official web site types which come from specific business characteristics (e.g. business or commercial official pages, educational, banking, government or government organization web sites).[2] Business and commercial official web sites were studied from different perspectives. Some researchers studied official web site

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[2] Hasan, L., Abuelrub, E. (2008) Assessing the Quality of Web Sites, INFOCOMP Journal of Computer Science. 7,4, pp. 11-20.

factors which are crucial to e-business success and called them critical success factors.[3] [4] [5] [6] Other researchers point to key problems, ideas and strategies which are necessary to take into account from a user satisfaction perspective when managing online businesses and evaluating the focus on user goals during the official web site set up process.[7] [8] [9] [10] A separate group of researchers has studied the abilities of web designers to pinpoint factors that they consider important during design and development of official web sites.[11] [12] Other researchers have developed generic tools or specific frames which grade the quality of official web sites.[13] [14] [15] [16] [17] [18] [19] Certain researchers have focused their attention to important characteristics or have suggested frames for measuring important characteristics of official web sites. Very often, they have used previous models in order to disclose to which extent official web sites, which implement e-business solutions, contain those important characteristics. Other researchers have focused on web site usability.[20] [21] [22] Heimlich and Wang[23] have proposed key web site structure problems, while Cao and Zhang[24] have studied factors which affect web site design with implemented e-shops. Heimlich[25] has studied the evaluation of business web site content, Husin et.al.[26] have studied the extent in which companies include ethical and credible elements in their pages. Fogg et.al.[27] have researched how different web site elements affect its credibility according to the perception of the user.[28]

The aim of this paper is to study to which extent users are satisfied with the functionality of business web sites, i.e. to which extent will the official web site fulfill user's expectations according to functionality and usability.

2.1 Sample

The used sample and the primary data in this paper is part of the research for the doctoral thesis *Electronic marketing of business subjects in the Republic of Croatia* which was conducted during the period between May and November 2012. The focus of this research are the most profitable companies in the Republic of Croatia, while taking into account the business field they belong to. Using the National classification of businesses (NKD2007) and the 21 business fields it recognizes, the first 10 subjects from each business field for the year 2010[29] were taken as the basic sample. Two fields were omitted from the sample as they did not contain a significant number of subjects. The final sample contained 190 subjects arranged according to business field. The existence and availability of their official web sites was tested in the next step. The classification of official web site existence was determined primarily according to size and number of pages it contains, as is shown in Table 1.

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Table 1. Classification of official web sites according to size and availability

GROUP	DESCRIPTION	Nr OF PAGES
A	Web site	More than 5
B	Microsite	2 – 5 pages
C	Part of a corporate portal	2 and more pages
D	Homepage	1 page
E	Listing within the corporate portal/web site	1 page
F	None	0 pages

Source: authors' research

In the group A we have every functional[30] official business web site which has at least 5 pages. Group B contains so called microsites i.e. very small official web sites that, apart from the home page, have very few other pages (2 - 5 pages). If the official web site has only a home page, it is placed in group D. Cases where the company has bought a domain (domain name), but has not set up a page or there is only an information page from the hosting company, were not included in the group D. Group C contains companies which don't have official web sites, but exist within a corporate portal with more than one page (subportal). If the company is only mentioned or listed within one page of the corporate portal, it is placed in group E. In case the company does not have an official web site or does not belong in any of the mentioned groups, it is placed in group F. All companies i.e. their web sites are classified into one of these categories. An additional limitation was noticed in several cases where different subjects have the same official web site. Although, legally these are different subjects, they are mostly connected at a certain level (owner structure etc.).

It is important to point out that almost 3/4 (75%) of companies from the sample have a group A official web site. However, a significant number of companies (32 or almost 17%) do not have any form of official web site and belong in group F. All the groups were incorporated in further functionality analysis, except groups E and F. Group E (listed on a corporate web portal) was not used in the research since such a form of Internet presence can't be treated as significant enough in the sense of managing Internet marketing activities. All possible analytic procedures would apply to the official group web site which is not the subject of this analysis. Official web sites of companies from group F were not analyzed for logical reasons (because they, of course, do not exist). The research was conducted on 143 official web sites.

Since the primary research goal was not to study the online population in Croatia, but the official web sites of business subjects, it was not necessary to ensure a representative sample of Internet users in Croatia. Instead, we needed educated users who can adequately stand in for typical target group representatives of the business web sites users. Having all of this in mind, it was agreed that the functionality analysis of the sample is conducted on the available student population of the Faculty of Economics Osijek. A group was created from the available student population with the goal of objectively analyzing 143 business web sites. The student population consisted predominantly (98%) of 3rd year undergraduate and 1st year graduate students of the Faculty of Economics, Osijek. It was assumed that the mentioned student population can give a valid evaluation of usability and functionality levels of official web sites from a user's perspective. However, before the testing took place, brief instructions were given to the participants, with the goal of avoiding possible flaws and ensuring a standardized approach to each test. 158 students took part in this stage of the research and they tested 143 official web sites.

2.2 Data collection

Data collection was conducted in 4 iterations i.e. with 4 student groups during a period of 15 days in June 2012. Four lecture halls with computers were used for testing purposes. All computers had roughly the same characteristics and had broadband Internet connections. Each computer was tested beforehand and different browsers of similar or almost the same characteristics were made available. The questionnaire had 4 parts. The most significant was the second part in which the functionality and usability level of the observed official web site was tested in 20 questions. The questions were mostly conceived using the Likert scales with one open ended question asking about flaws in the web site. The used seven degree Likert scales was transformed into numerical scales and mean values were calculated (with all the limitations that occur during this transformation) in order to enable easier comparison.

The questionnaire focuses on the following official web site characteristics that the users have tested:

- homepage and inner page design,
- web site purpose and purpose oriented web site design,
- web site visibility,
- web site navigation,

[30] Functionality in this context describes an official web site that can be accessed regardless of content quality. It is only important to establish that the web site represents the studied business entity (company).

- web site search engine,
- web site speed,
- influence on user distraction,
- data timeliness,
- language quality,
- web site content scope,
- web site content usability,
- ease of use,
- total satisfaction.

Each respondent has tested 10 official web sites during testing. The page was observed for 5 minutes after which the questionnaire was completed. The testing pace was adapted to the more complex web sites. 158 respondents have completed 1448 questionnaires. Some of the questionnaires were discarded because of incomplete or formulaic answers which gave reasonable doubt about the accuracy and truthfulness of the answers. 1430 questionnaires were taken for analysis, 10 questionnaires per individual official web site from the sample.

2.3 Survey analysis

Further on, we analyzed the average for all 143 official web sites which represent web locations of the most profitable companies according to business field. Figure 1 gives a complete graphic representation of the research results. The results obtained through individual questions are discussed below.

It made sense to first test the user satisfaction degree of the home page, since it is the first thing users see when they access an official web site. We can see that most users (more than 60 %) are satisfied with the home page, among which dominate those who are very satisfied (25%). The number of those who are not satisfied at all is very small (5%). Overall, the average home page satisfaction value is 4.79 (on a scale between 1 and 7 where 1 is completely dissatisfied and 7 is completely satisfied). After the home page testing, the respondents tested several content pages on the observed official web sites. User satisfaction is similar to home page satisfaction, even a little higher. Again, the highest number is of those who are very satisfied (27%) and the lowest of those who are not satisfied at all (5%). The average value for this criterion is 4.81. We can conclude that the purpose of most of the tested web sites can be established based on the home page. This can be done fairly easily on 70% of the web sites. The average value is 5.24. A similar average attitude is apparent when testing design in establishing the purpose of the web site. It has a value of 4.99. Based on the home page and related graphic elements, we can conclude that the official site purpose can be fairly easily established. Graphic elements which are relevant to the purpose and goal of the web site help greatly.

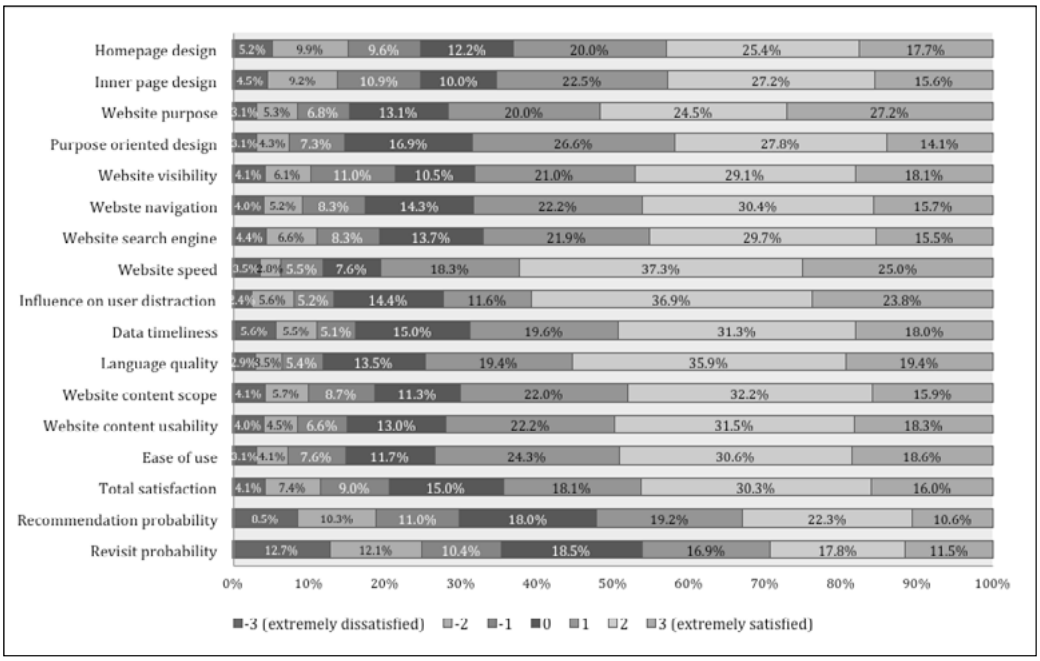
If we include all those who are satisfied to a certain extent with the web site visibility (those who are partially satisfied and very satisfied) we can conclude that they, with 68%, are the dominant group. The average value for web site visibility satisfaction i.e. the ease of content reading is 4.98. The web site navigation satisfaction degree is similarly evaluated and a generally positive attitude prevails with an average value of 5.00. Most respondents are satisfied (30%). The smallest group are the respondents who are not satisfied at all (4%). The web site search engine satisfaction degree is also positively rated with an average value of 4.93. The obtained results show that more than 75% of the respondents are to a certain extent satisfied regarding web site search engines (30% are satisfied and 16% completely satisfied). The web site speed satisfaction degree is the best rated factor with an average value of 5.46. 25% of the respondents are completely satisfied, 37% satisfied and 18% partially satisfied, which makes almost 80% of those who are satisfied to a certain extent with the web site speed. The fact that all used computers had a broadband Internet connection certainly contributes to the results.

In order to interpret the influence on the user distraction factor, it is necessary to explain the significance and testing approach. The goal was to identify if the observed official web site has specific elements which, for some reason, divert the user's attention. Since a negative effect was tested with this criterion, when transposing the scales, the maximum score was placed with the complete lack of the effect, and the minimal with the highest degree of the effect, although the opposite orientation was used in the questionnaire. Using this method it was calculated that the average mean score for this factor is 5.33, which indicates a very small presence of irritating elements which divert the user's attention from the purpose of the web site i.e. the content. The research results show that most of the respondents graded the effect as very low (37%) and non-existent (24%).
The respondents are generally satisfied with the data timelines i.e. the official web site content. The average value is 5.03. The web site testing has confirmed that the quality of the used language on business web sites mainly fits users' expectations: 19% are partially satisfied, 36% are satisfied and 19% are very satisfied: The average score is 5.29. The satisfaction degree of the web site content scope was also tested in this research. As with the previous criteria, an overall positive user satisfaction is present here. Almost half of the respondents were satisfied or completely satisfied with the content scope of tested official web sites. The average value is 5.01. Apart from the content scope, the content usability satisfaction was also tested and a generally positive attitude towards this criterion was noticed. The average value is 5.13. 19% of the respondents are very satisfied with the ease of use of official web sites in the sense of web site user orientation, 31% are satisfied. We can also add 24% of those who are partially satisfied to this group. The average ease of use score of 5.16 is a little higher than the content scope value.

The final question connected with the observed web site

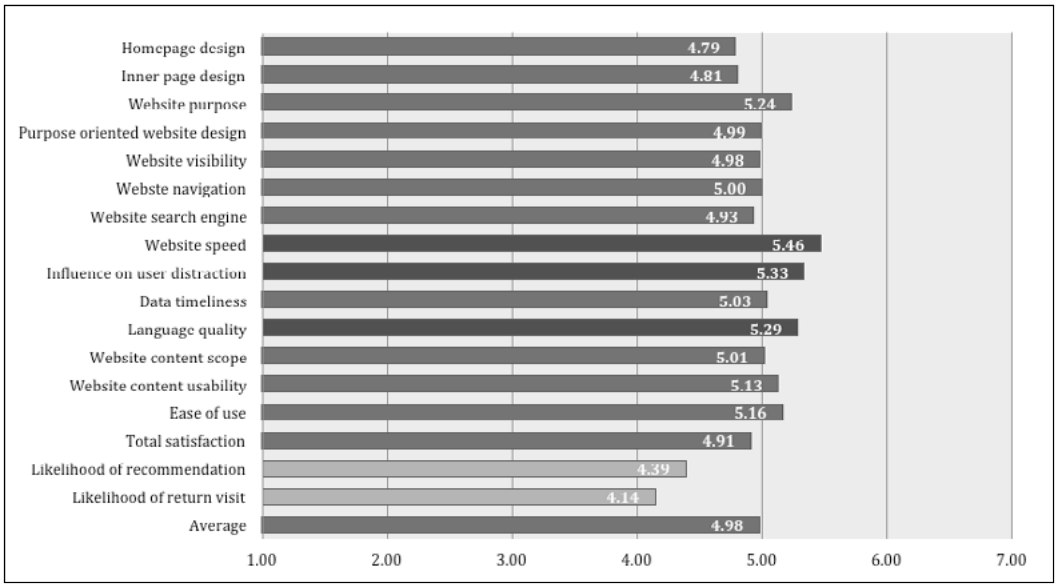
components was concerned with total satisfaction. Like with the other tested criteria, most respondents react generally positive to the total satisfaction question. The average value is 4.91. We should point out that 64% of the respondents were to a certain extent satisfied with official web sites, although a fairly significant percentage (15%) gave a neutral answer. A more even distribution of answers was noticed with questions concerning recommending web sites to other users and revisiting the tested web site. 22% of users think that there is a high probability that they would recommend the tested web sites to others, 11% are certain they would recommend the sites. The average recommendation probability value is 4.39. The revisit probability score of tested official web sites is the lowest rated of all, with an average value of 4.14. Although we are still discussing a generally positive attitude, this indicator is the closest to a neutral value (the closest to the value 4). We can now conclude that the respondents are IT literate individuals, competent for testing the quality components of functional items and the usability of official web sites, who don't significantly visit some of the tested web sites.

Figure 1. Summary results of web site functionality and usability testing



Source: authors' research

Figure 2. Mean score of survey factors



Source: authors' research

According to the mean scores the highest rated factors are web site speed, influence on user distraction (inverted scale) and language quality. The lowest rated factors are revisit probability and recommendation probability. An overall mean score of 4.98 was calculated based on all factors. It indicates that the official web sites from the sample mainly satisfy the observed criteria according to user perception. It will be possible to establish more significant finds for individual official web sites/business subjects.

2.3.2 Demographic profile of web site users

The respondents where 74% female and 26% male which is consistent with the overall male/female ratio at the Faculty of Economics, Osijek. The age structure corresponds with the sample creation method. Since the largest number of respondents are 3rd year undergraduate students and 1st year graduate students, the dominant age group among them is 21-24 (87%), 11% of the respondents belong to the age group 25-30, 60% of the respondents were 1st year graduate student and 38% were 3rd year undergraduates.

2.3.3 Sample profile by company

Table 2 shows the list of all 143 companies with their average mean scores based on the complete test. The mean score is the quantified representation of the official web site success and enables comparison between companies. It can generally be concluded that a large number of tested companies has a satisfactory average mean score. In other words, all the mean scores which are above 4 are positively evaluated official web sites i.e. there is a general positive attitude towards the web site by the users. 124 business subjects have this score, which makes 87% of tested official web sites and it represents a significant majority. Furthermore, it is apparent that as many as 76 companies (53%) have the average mean score above 5. These are the subjects which have a higher criteria satisfaction level. We should point out those companies whose web sites have achieved an average mean score of 6 or higher. These scores represent excellent web sites which have the highest testing criteria satisfaction level. This group is made of 10 companies and is, interestingly, led by three joint-stock companies: Dukat d.d., Privredna banka Zagreb d.d. i Turisthotel d.d.

Table 2. Mean scores of individual official web sites

Nr	COMPANY	WEBSITE	SCORE
1	Dukat d.d.	www.dukat.hr	6.5
2	PBZ d.d.	www.pbz.hr	6.3
3	TURISTHOTEL d.d.	www.zaton.hr	6.2
4	Globalna hrana d.o.o.	www.mcdonalds.hr	6.2
5	Zagrebačka pivovara d.o.o.	www.ozujsko.com	6.2
6	METIS d.d.	www.metis.hr	6.2
7	STOMATOLOŠKA POLIKLINIKA ZA ORALNU KIRURGIJU, ORTODONCIJU, RADIOLOŠKU DJELATNOST - ORTOPAN I ZUBOTEHNIČKI LABORATORIJ RIDENT	www.rident.hr	6.1
8	Specijalna bolnica Svjetlost	www.svjetlost.hr	6.0
9	ERSTE & STEIERMÄRKISCHE BANK d.d.	www.erstebank.hr	6.0
10	KLEMM SIGURNOST d.o.o.	www.klemmsecurity.hr	6.0
11	PZ Osatina	www.osatina.hr	5.9
12	UNILINE d.o.o.	www.uniline.hr	5.9
13	HRT	www.hrt.hr	5.9
14	BLITZ - CINESTAR d.o.o.	www.blitz-cinestar.hr	5.9
15	KAMGRAD d.o.o.	www.kamgrad.hr	5,9
16	ILIRIJA d.d.	www.ilirijabiograd.com	5,9
17	HOTEL DUBROVNIK d.d.	www.hotel-dubrovnik.hr	5,9
18	Poliklinika Šlaj-Anić	www.slaj-anic.com	5,8
19	MEDICINSKO BIOKEMIJSKI LABORATORIJ DR. SC. DARIJA BREYER	www.lab-breyer.hr	5,8
20	Pag 91 d.o.o.	www.pag91.hr	5,8
21	PLAVA LAGUNA d.d.	www.plavalaguna.hr	5,8
22	MARINE KAŠTELA d.o.o.	www.marina-kastela.com	5,8
23	Pliva Hrvatska d.o.o.	www.pliva.hr	5,8
24	CENTAR ŠKOJO d.o.o.	www.kruna.hr	5,8
25	GRADSKA PLINARA ZAGREB d.o.o.	www.plinara-zagreb.hr	5,7
26	PLINACRO d.o.o.	www.plinacro.hr	5,7
27	HP d.d.	www.posta.hr	5,7

28	AGRAM YACHTING d.o.o.	www.agramservis.hr	5,7
29	ZAGREBAČKE OTPADNE VODE d.o.o.	www.zov-zagreb.hr	5,7
30	ZRAČNA LUKA DUBROVNIK d.o.o.	www.airport-dubrovnik.hr	5,7
31	Hrvatska Lutrija d.o.o	www.lutrija.hr	5,6
32	VALALTA d.o.o.	www.valalta.hr	5,6
33	ACI d.d.	www.aci-club.hr	5,6
34	AGROKOR d.d.	www.agrokor.hr	5,6
35	MASLINICA d.o.o.	www.maslinica-rabac.com	5,6
36	ZAGREBAČKA BANKA d.d	www.zaba.hr	5,6
37	POLIKLINIKA ZA STOMATOLOŠKU PROTETIKU, PARODONTOLOGIJU I ORTODONCIJU SA ZUBOTEHNIČKIM LABORATORIJEM DR. JELUŠIĆ	www.jelusic.com	5,6
38	VIPnet d.o.o.	www.vipnet.hr	5,6
39	Business.hr d.o.o.	www.business.hr/hr/	5,6
40	ZAGREBAČKA ŠKOLA EKONOMIJE I MANAGEMENTA	www.zsem.hr	5,6
41	SLOBODNA DALMACIJA d.d.	www.slobodnadalmacija.hr	5,5
42	NP Plitvička jezera	www.np-plitvicka-jezera.hr	5,5
43	PBZ CARD d.o.o.	www.pbzcard.hr	5,5
44	TANKERSKA PLOVIDBA d.d.	www.t-com.hr	5,5
45	HBOR	www.hbor.hr	5,5
46	SPEKTAR-PUTOVANJA d.o.o.	www.spektar-putovanja.hr	5,5
47	Končar-energetski transformatori d.o.o.	www.koncar.hr	5,5
48	TDR d.o.o.	www.tdr.hr	5,5
49	KATARINA LINE d.o.o.	www.katarina-line.hr	5,4
50	HYPO ALPE-ADRIA BANK d.d.	www.hypo-alpe-adria.hr	5,4
51	KONZUM d.d.	www.konzum.hr	5,4
52	MUCIĆ & Co d.o.o.	www.mucic.hr	5,4
53	ALGEBRA d.o.o.	www.algebra.hr	5,4
54	PBZ CROATIA OSIGURANJE dioničko društvo za upravljanje obveznim mirovinskim fondom	www.pbzco-fond.hr	5,4
55	SOKOL MARIĆ d.o.o.	www.sokol-maric.hr	5,4
56	SUPER SPORT d.o.o.	www.supersport.hr	5,4
57	Hep proizvodnja d.o.o.	www.hep.hr/proizvodnja/	5,4
58	NEW YORKER CROATIA d.o.o.	www.newyorker.de/hr/	5,4
59	Hep d.d.	www.hep.hr	5,3
60	MBM-COMMERCE d.o.o.	www.mbm-commerce.hr	5,3
61	TRINOM d.o.o.	www.trinom.hr	5,3
62	dm-drogerie markt d.o.o.	www.dm-drogeriemarkt.hr	5,3
63	ELDRA d.o.o.	www.eldra.hr	5,3
64	AUTO HRVATSKA d.d.	www.autohrvatska.hr	5,3
65	Visoko učilište Algebra	www.racunarstvo.hr	5,2
66	MICROSOFT HRVATSKA d.o.o.	www.microsoft.hr	5,2
67	ATLANTSKA PLOVIDBA d.d.	www.atlant.hr	5,2
68	HEP-Operator distribucijskog sustava d.o.o.	www.hep.hr/ods	5,2
69	Hrvatske šume d.o.o.	www.hrsume.hr	5,1
70	ULJANIK d.d.	www.uljanik.hr	5,1
71	ALLIANZ ZB d.o.o.	www.azfond.hr	5,1
72	POLIKLINIKA PRO VITA	www.poliklinika-provita.hr	5,1
73	ZRAČNA LUKA SPLIT d.o.o.	www.split-airport.hr	5,1
74	IVORA - ŠKOLA INFORMATIKE	www.ivora.hr	5,1
75	LUXOR SERVIS d.o.o.	www.luxor-grupa.hr	5,1
76	Leopold Jordan GmbH	www.jordan.hr	5,1

77	BIOMAX d.o.o.	www.biomax.hr	5,0
78	Ina d.d.	www.ina.hr	5,0
79	Ledo d.d.	www.ledo.hr	5,0
80	CENTAR ZA VOZILA HRVATSKE d.d.	www.cvh.hr	5,0
81	Ribnjačarstvo Poljana d.d.	www.ribnjacarstvo-poljana.hr	4,9
82	TROMONT d.o.o.	www.tromont.hr	4,9
83	ING-GRAD d.o.o.	www.ing-grad.com	4,9
84	SOCIETE GENERALE-SPLITSKA BANKA d.d.	www.splitskabanka.hr	4,9
85	TERMOPLIN d.d.	www.termoplin.com	4,9
86	VISOKA POSLOVNA ŠKOLA LIBERTAS	www.vps-libertas.hr	4,9
87	ULJANIK PLOVIDBA d.d.	www.uljaniksm.com	4,9
88	ATLANTIC GRUPA d.d	www.atlantic.hr	4,8
89	Karlovačka pivovara d.o.o.	www.karlovacko.hr	4,8
90	JANAF d.d.	www.janaf.hr	4,8
91	IBM HRVATSKA d.o.o	www.ibm.com/hr/hr/	4,8
92	PORSCHE LEASING d.o.o.	www.porscheleasing.com.hr	4,8
93	CE-ZA-R d.o.o.	www.cezar-zg.hr	4,7
94	PODZEMNO SKLADIŠTE PLINA d.o.o.	www.psp.hr	4,7
95	HUP-ZAGREB d.d.	www.hup-zagreb.hr	4,7
96	HT d.d.	www.tankerska.hr	4,7
97	Veleučilište Velika Gorica	www.vvg.hr	4,7
98	Raiffeisen mirovinsko društvo za upravljanje obveznim mirovinskim fondom d.d.	www.rmf.hr	4,6
99	APIS IT d.o.o.	www.apis-it.hr	4,6
100	METRO Cash & Carry d.o.o.	www.metro-cc.hr	4,6
101	Visoka škola za sigurnost s pravom javnosti	www.vss.hr	4,6
102	RAIFFEISENBANK AUSTRIA d.d.	www.rba.hr	4,6
103	STUDENAC d.o.o.	www.studenac.hr	4,6
104	AGENCIJA ZA LIJEKOVE I MEDICINSKE PROIZVODE	www.almp.hr	4,6
105	GEORAD d.o.o.	www.georad.hr	4,6
106	ERSTE d.o.o., društvo za upravljanje obveznim mirovinskim fondom	www.ersteplavi.hr	4,5
107	TEHNOINVEST ZAGREB d.o.o.	www.winterhalter.hr	4,5
108	Kaming d.d.	www.kaming.hr	4,5
109	Hrvatska kontrola zračne plovidbe d.o.o.	www.crocontrol.hr	4,5
110	C.I.O.S. d.o.o.	www.cios.hr	4,4
111	Sarađen d.o.o.	www.saradjen.hr	4,4
112	Hrvatski operator tržišta energije d.o.o.	www.hrote.hr	4,4
113	ALD Automotive d.o.o.	www.aldautomotive.com	4,4
114	MARINA PUNAT d.o.o.	www.marina-punat.hr	4,4
115	OMV Hrvatska d.o.o.	www.omv.hr	4,3
116	MA. CO. T. d.o.o	www.macot.hr	4,3
117	Pioneer-sjeme d.o.o.	www.croatia.pioneer.com	4,3
118	Jamnica d.d.	www.jamnica.hr	4,3
119	Đuro Đaković Montaža - Centar za zavarivanje d.o.o.	www.argonac.hr	4,2
120	TEHNO-ZAGREB d.o.o.	www.tehno-zagreb.hr	4,2
121	HEP-Operator prijenosnog sustava d.o.o	ops.hep.hr	4,2
122	HATTRICK d.o.o.	www.hattrick.hr	4,2
123	Solana Pag d.d.	www.solana-pag.hr	4,1
124	UNIJA NOVA d.o.o.	www.unija-nova.hr	4,1
125	IMPORTANNE d.o.o.	www.importanne.hr	4,0
126	ELEKTROMODUL-PROMET d.o.o.	www.elektromodul.hr	4,0

127	SPECTRA - MEDIA d.o.o.	www.spectra-media.hr	4,0
128	ZAGORJE-TEHNOBETON d.d.	www.gpzagorje.hr	3,9
129	SN HOLDING d.d.	www.snholding.hr	3,9
130	ADRIS GRUPA d.d.	www.adris.hr	3,9
131	HERZ d.d.	www.herz.hr	3,8
132	Baker Tilly Discordia d.o.o.	www.discordia.hr	3,8
133	Poliklinika Prim. dr. PETAR NOLA	www.ordinacija-nola.hr	3,7
134	Galapagos istraživački centar d.o.o.	www.glaxosmithkline.hr	3,6
135	TRIUS d.o.o.	www.trius.hr	3,6
136	Antenal d.o.o.	www.antenal.hr	3,6
137	Poliklinika OXY	www.oxy.hr	3,5
138	MMM Agramservis d.o.o.	www.agram-yachting.hr	3,5
139	EMPORION d.o.o.	www.emporion.hr	3,2
140	Koka d.d.	www.vindija.hr	3,1
141	Vupik d.d.	www.vupik.hr	2,5
142	ANTONIO TRADE d.o.o.	www.antonio-trade.hr	2,0
143	KERUM	www.kerum.hr	1,8

Source: authors' research

On the other hand, the bottom of the list make mostly sites which were in construction during testing, microsites or only have a homepage. Because of that, the respondents could not react positively, as all available information was placed on the home page with only brief contact information. We should point out that out of the 3 web sites in category D (those which only had a home page at the time of testing in May 2012), all 3 showed no improvement by October and they still exist in that form.

The above discussed average mean scores are based on all tested factors. It is also interesting to observe the situation according to individual criteria and the mean scores for each of them. This is shown in Table 3.

Table 3. The best mean scores according to individual tested official web site factors

TESTING CRITERIA	COMPANY	WEBSITE	AVG MEAN SCORE
Home page design	Zagrebačka pivovara d.o.o.	www.ozujsko.com	6.7
Inner page design	PBZ d.d.	www.pbz.hr	6.6
Web site purpose	Globalna hrana d.o.o. Zagrebačka pivovara d.o.o.	www.mcdonalds.hr www.ozujsko.com	6.8 6.8
Purpose oriented web site design	BLITZ - CINESTAR d.o.o. NEW YORKER CROATIA d.o.o.	www.blitz-cinestar.hr www.newyorker.de/hr/	6.5 6.5
Web site visibility	Dukat d.d.	www.dukat.hr	6.6
Web site navigation	METIS d.d.	www.metis.hr	6.5
Web site search engine	Dukat d.d.	www.dukat.hr	6.6
Web site speed	Dukat d.d. PLINACRO d.o.o.	www.dukat.hr www.plinacro.hr	6.7 6.7
Influence on user distraction	KERUM	www.kerum.hr	7.0
Data timeline	BLITZ - CINESTAR d.o.o.	www.blitz-cinestar.hr	6.7
Language quality	Dukat d.d.	www.dukat.hr	6.7
Web site content scope	Dukat d.d.	www.dukat.hr	6.9
Web site content usability	TURISTHOTEL d.d.	www.zaton.hr	6.5
Ease of use	Dukat d.d.	www.dukat.hr	6.5
Total satisfaction	TURISTHOTEL d.d.	www.zaton.hr	6.7
Total satisfaction	Dukat d.d.	www.dukat.hr	6.3
Revisit probability	PBZ d.d.	www.pbz.hr	6.4

Source: authors' research

The best average value of 6.7 for home page design has Zagrebačka pivovara and the best inner page design has Privredna banka with a mean score of 6.6. The first place for web site purpose share Globalna hrana and Zagrebačka pivovara with the same mean score of 6.6. Blitz-Cinestar and New Yorker Croatia also share the first place for purpose oriented web site design with an average mean score of 6.5. The latter site is interesting because it is a corporate official web site within which there is a subportal of the Croatian subsidiary. This confirms the thesis that a web site can do a good job in this form. The Dukat web site has the highest scores in most factors (7). In 6 factors it sits alone at the top. It shares the first place with Plinacro (mean score 6.7) in the web site speed factor. The official web site of the company Metis is first according to web site navigation criteria with an average score of 6.5. The Kerum company has the maximum score 7 in the influence on user distraction criteria. This company sits at the bottom of the overall list with its average mean score, but is at the top according to this criteria because it's home page has no irritating elements which distract the user (it is a mostly empty home page with very little information). Blitz-Cinestar has the best web site according to the data timelines factor (mean score 6.7). The official web site of the company Turisthotel has the best position in 2 criteria: web site content usability (6.5) and total satisfaction (6.7). The Privredna banka Zagreb web site has the best score in the revisit probability factor (6.4).

2.3.4. Sample profile by business section (sector)

As it was explained earlier, the whole sample was created and segmented according to the business field of the companies. Out of 10 companies in each of the 19 business fields, only those were tested which had functional web sites or subportals within corporate sites. However, in order to analyze the situation in individual fields, it was necessary to take into account those which don't have an official web site or it isn't functional. The average mean score of such examples had to be 0 as they were not analyzed. The fact that they could not be analyzed because of objective reasons should be taken into account. The other specific visible influence was with 2 business subjects within one field that had the identical web site (they were legally connected). The average mean score for these cases was taken separately for both subjects. In this way, all 10 web sites in individual business fields had an impact on the average mean score which is shown in Table 4.

Table 4. Mean scores of tested official web sites according to business fields

Table 4. Mean scores of tested official web sites according to business fields

	BUSINESS FIELD (SECTION)	AVG MEAN SCORE
A	AGRICULTURE, FORESTRY AND FISHING	2,6
B	MINING AND QUARRYING	3,1
C	MANUFACTURING	5,3
D	ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	3,5
E	WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES	2,9
F	CONSTRUCTION	3,5
G	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES	4,3
H	TRANSPORTATION AND STORAGE	5,2
I	ACCOMMODATION AND FOOD SERVICE ACTIVITIES	5,2
J	INFORMATION AND COMMUNICATION	4,3
K	FINANCIAL AND INSURANCE ACTIVITIES	5,5
L	REAL ESTATE ACTIVITIES	1,3
M	PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES	2,9
N	ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES	4,8
O	PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY	2,0
P	EDUCATION	4,9
Q	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	4,6
R	ARTS, ENTERTAINMENT AND RECREATION	3,7
S	OTHER SERVICE ACTIVITIES	3,7

Source: authors' research

It can be concluded that the best mean scores according to fields has field K - Financial and insurance activities with a score of 5.5 which is a reflection of their official web site quality according to business field i.e. the testing criteria satisfaction, but also of the fact that all representatives from this field have a web site. Field C - Manufacturing is very close with the mean score 5.3. The same effect is present in field L - Real estate activities with the score 1.3, but with an apparent counter-effect (6 of the subjects do not have a web site, more than half that represent this field). A clear

conclusion imposes itself. When it comes to functionality and usability of web sites, there are significant differences between business fields because of the lack of official web sites, but also because of a lack of quality functionality components and usability by those companies which have sites.

CONCLUSION

Out of 190 official web sites of the most profitable companies in the Republic of Croatia distributed according to business field, the research could be conducted on 143 of them. Based on the testing of 143 web sites of companies, it can be concluded that they mainly satisfy the testing criteria with an average score of 4.98 (on a scale from 1 to 7). It should be pointed out that there are differences between the individual factors in the achieved average mean scores. According to the average mean scores the highest rated factors are web site speed, influence on user distraction (inverted scale) and language quality. The lowest rated tested factors are revisit probability and recommendation probability. The situation can be more precisely depicted in the individual web site analysis. It can generally be concluded that a large number of tested business subjects have a satisfactory average mean score. All mean scores which are above 4 are in a way considered positive, since there is an overall positive attitude of the users. 124 companies i.e. 87% of the tested web sites which belong to this group represent a significant majority. Having in mind the achieved mean scores, companies whose score is 6 or above should be distinguished from the others. This score indicates outstanding official web sites which have the highest criteria satisfaction level. The group consists of 10 companies. Significant differences between average mean scores were noticed during analysis of individual business fields. There are two main reasons for this: certain companies have no official web site which has affected the average mean score in some fields, but the quality functionality components and usability, which were the focus of the testing, also had a significant impact. The best mean score according to business field has field K - Financial and insurance activities.

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IT-FACILITATED INDUSTRIES AND COMPETITIVE SPACES: THE DANCE OF THE ELEPHANTS

UDK 004 / JEL M15, M13 / REVIEW ARTICLE

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ABSTRACT

Something very interesting is happening in the information-technology (IT) facilitated global economy: companies in industries that were previously quite separate are now rapidly converging on the same competitive spaces. This is resulting in a 'dance of the elephants – firms such as Amazon, Facebook, Google, eBay, Apple and Microsoft, that did not even exist 30 years ago or were a small start-ups and quite agile, have become large and increasingly hobbled in their agility by the sheer size and scope of their products and/or services. The intent of this paper is two- fold: (1) to try to identify the forces behind the convergence of these once largely noncompeting firms (with some obvious exceptions in some segments of their businesses such as Apple and Microsoft in operating systems), and (2) to show how developments in the field of interaction design, and in particular, design thinking are facilitating or hindering this convergence process.

KEYWORDS: Exploration Strategies, Competitive Spaces, IT-intensive Industries, Industry Convergence, Technology Design, Design Thinking

1. INTRODUCTION

Information technology is one of the key enablers of renewed and sustainable economic growth. It has become an essential element of the infrastructure of competitive economies. IT no longer evokes images of supercomputers, or computers for that matter, but rather images of ubiquitous server farms and pervasive computing. The vision of Brynjolfsson and Hitt (Brynjolfsson & Hitt, 2000) has come true: *"As computers become cheaper and more powerful, the business value of computers is limited less by computational capability and more by the ability of managers to invent new processes, procedures and organizational structures that leverage this capability. As complementary innovations continue to develop, the applications of computers will expand well beyond computation for the foreseeable future."* Computational ability is indeed something very few think of these days.

The relation between economic growth of a nation and how close the nation is to the technological frontier was clear for a while. In (Acemoglu, Aghion, & Zilibotti, 2003), the authors have built on this relationship and analyzed a range of issues related to technological progress and economic growth. They conclude that economies that are far from the technological frontier, favor investment-based growth strategies, while closer to the frontier, the value of innovation based strategies increases. Cairncross (Cairncross, 2001) takes a different road, claiming that technology may accomplish one thing globally: it may reduce distances and enable truly global businesses, and ultimately, a true global economy. Technologies are, and will, continually evolve and improve, but they, according to Cairncross, were already at the beginning of this century good enough to enable speculations around their potential to influence whole economies and societies. The world is now networked, at least, physical and fiber-optic cables enabling digital data transmissions have been laid out globally. The digital divide at the very start of the 21st century was no longer based on access to the World Wide Web and, thus, to the information and communication technologies. Yet, some authors have claimed, see (Gurstein, 2003; Warschauer, 2002), that a more sophisticated divide, based on social inclusion and effective use of digital technology is still very real. While that remains true today, we also see a globalised economy finally beginning to emerge.

From our standpoint, we observe that something very interesting is happening in the information-technology (IT) facilitated global economy: companies in industries that were previously quite separate are now rapidly converging on the same competitive spaces.

In this paper, we try to identify the forces behind this convergence of these once largely noncompeting firms. In particular, we discuss the role of design thinking as one factor in this convergence.

Since this work is produced by authors working respectively in the fields of strategy and human-computer interaction, we have encountered many of the problems typical for multidisciplinary research. Multidisciplinary discussions are difficult, and this paper is a testimony to that fact. Our views in this paper are not yet entirely integrated and our discourse and methods are very different. Yet, some new insights have emerged and we hope that they will be of interest to the wider multidisciplinary community.

The paper is structured as follows: in section 2, we present thoughts on how design of technology and design thinking are important for IT-facilitated industries. In section 3, we look into factors that influence long-term success of such industries and provide some examples using large now well-known companies including Apple, Google, Facebook, eBay, Amazon and Microsoft – firms that dominate information, media, knowledge and other digital spaces. In section 4, we consider what happens when micro and macro-economic forces collide within the IT-driven global economy. Finally, we provide our conclusion.

2. DESIGN, DESIGN THINKING AND THE COMPETETIVE ADVANTAGE

By investing in human capital – a term which refers to the knowledge and the competencies of each employee in a comHuman-computer interaction is no longer a field whose main concern is the interaction between a human and a computer, with the goal of making a better fit between the two (Sharp, Rogers, & Preece, 2007). It is no longer simply about humans and computers; it includes interactions with ubiquitous and pervasive technologies. Ubiquitous technologies include all mobile and personal computing, such as tablets and smart phones. Pervasive, embedded sensor, technologies enable interactions with the environment, e.g. smart cards, light and sound sensors etc. Thus, in computer science and engineering, as well as in design-oriented disciplines such as the arts, architecture and the like, the field that is concerned with shaping digital technologies for the use by people, is referred to as interaction design. Interaction design focuses on a broader aspect of interaction, including the design of digital products, services, environments, ecologies and systems. As a discipline, it is relevant for all IT-facilitated companies, although they may differ in how it is applied within the company. For example, how Apple Inc. and Microsoft design their operating systems is in a stark contrast: while Microsoft makes good use of users' feedback and users' experience, Apple is secretive about how their products are tested and improved (Jobs, Press, & Press, 2011).

Personal computers, laptops and mobile devices are no longer novel technologies. People have learned how to operate them and are harnessing the power that these technologies give them. We are all becoming savvy users of digital technologies and to increasing degrees also demanding users. It is now not enough to own a piece of technology, it needs to be "cool" (Culén & Gasparini, 2012; Holtzblatt, 2011). The "cool" was suggested, see (Holtzblatt, Rondeau, & Holtzblatt, 2010), as a driver for design of innovative products. It implies that such innovative products provide great design, great user experience and great opportunities for creative usage. However, with this approach, the technology is placed in the center.

In (Wagner & Compton, 2012), the authors are looking the other way, placing people in the center and asking the question: How can we make people be more creative and innovative? A natural follow up question becomes: can creativity be learned? The later question is answered positively and authors state: *"The DNA of innovators might be considered a set of skills that are essential elements in design thinking"*. Design thinking, see (T. Brown & others, 2008), refers to a way of thinking which requires combination of empathy for the context of a problem, creativity in the generation of insights and solutions to the problem, and capacity to analyze and adapt solutions to the situated context.

Design thinking has recently been connected to the growth of innovation based economy (Tim Brown, 2009), design of leadership (Maeda & Bermont, 2011), knowledge (Rylander, 2009), and to the gain of a competitive advantage (Martin, 2009). The later explicates that in order to become a design thinker one needs a stance, tools and experience that facilitate design thinking. The stance is related to one's worldview and the role one has in it, tools are the mental models used to understand the world and organize thinking, while experience is needed for building of skills and sensitivities. In agreement with (Wagner & Compton, 2012), Martin states that everyone can work on becoming a design thinker, a keen observer and finder of opportunities for design that could help reduce complexities of large, global problems, often referred to as wicked problems. Kolko, see (Kolko & Austin Center for Design, 2012), provides an explicit relationship between design thinking and wicked problems : *"A wicked problem is a social or cultural problem that is difficult or impossible to solve for as many as four reasons: incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden, and the interconnected nature of these problems with other problems. Poverty is linked with education, nutrition with poverty, the economy with nutrition, and so on. … These problems can be mitigated through the process of design, which is an intellectual approach that emphasizes empathy, abductive reasoning, and rapid prototyping."*

Design thinking is also seen as fundamental for successfully addressing issues of sustainability (Bonn & Fisher, 2011; Dourish, 2010; Spangenberg, Fuad-Luke, & Blincoe, 2010). The sustainable technology design has become one of the major issues in the fields of interaction design. On one hand, one should design innovative technology; on the other hand, much of this activity is actually having negative influences on the environment through rapid prototyping and unnecessary uses of resources, with all the consequences

this may have, needed for design activities. Researchers within interaction design are trying to understand why we keep some things and discard others (Odom, Pierce, Stolterman, & Blevis, 2009), and asking questions such as: do we need all this technology? (Baumer & Silberman, 2011). Clearly, the "for profit" orientation of today's economy is not the best motivator for sustainable design. It is here that creation of more enduring values than profit is of large importance.

In conclusion of this section, we point out that some lines between interaction design, design thinking, innovation, leadership, knowledge and values have been established. This presentation is drawn only as a very broad outline, but hopefully it is sufficient to establish design thinking as an emerging factor in considerations of long term health of corporations.

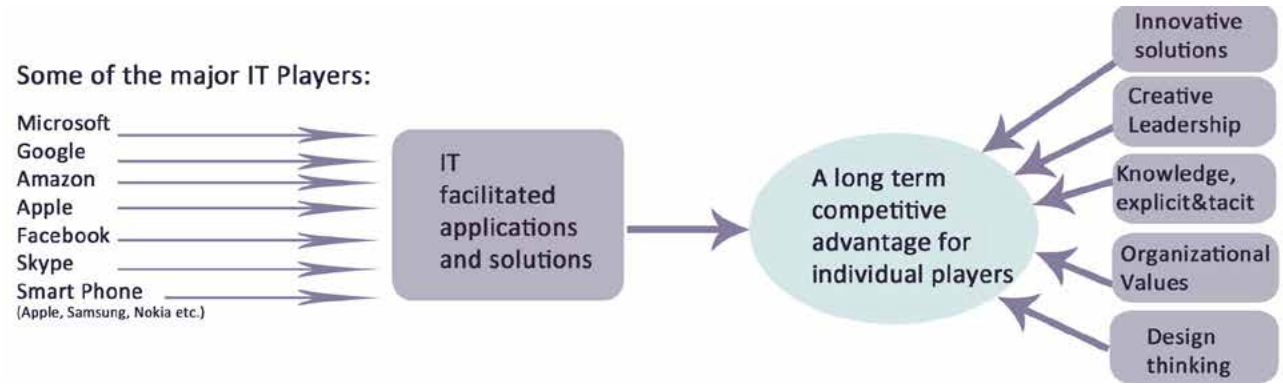
3. FACTORS BEHIND GAINING LONG TERM COMPETETIVE ADVANTAGE

uncertainty in the social and economic environments, increasing globalization and evolution in capability to use digital technologies effectively, it is of importance to consider factors contributing to the long-term health of corporations. Innovation, leadership, knowledge work, vision and values are all known to be factors influencing the long term health and effectiveness of corporations (S. L. Brown & Eisenhardt, 1997; Burgelman, 2002; Kriger & Hanson, 1999; Larwood, Falbe, Kriger, & Miesing, 1995).

Today's most influential IT players are those providing ubiquitous technologies enabling anytime, anywhere access to information and communication. Apple and other smart phone makers e.g. Samsung, HTC, Nokia on one end, operating systems producers e.g. Apple, Microsoft, Google (android) and Google, Skype, Facebook on the other, are examples of IT-companies who are major players.

Based on the discussion presented in Section 2, we propose design thinking as an important new factor for individual players to achieve a long-term competitive advantage. Figure 1 is a diagram showing the factors that are significant in achieving a long-term competitive advantage. The factors are not mutually exclusive; creative leadership may already be using design thinking, innovative solutions may be perceived as an end result of design thinking etc. The list not complete either, but we perceive the five factors provided bellow as the most important ones.

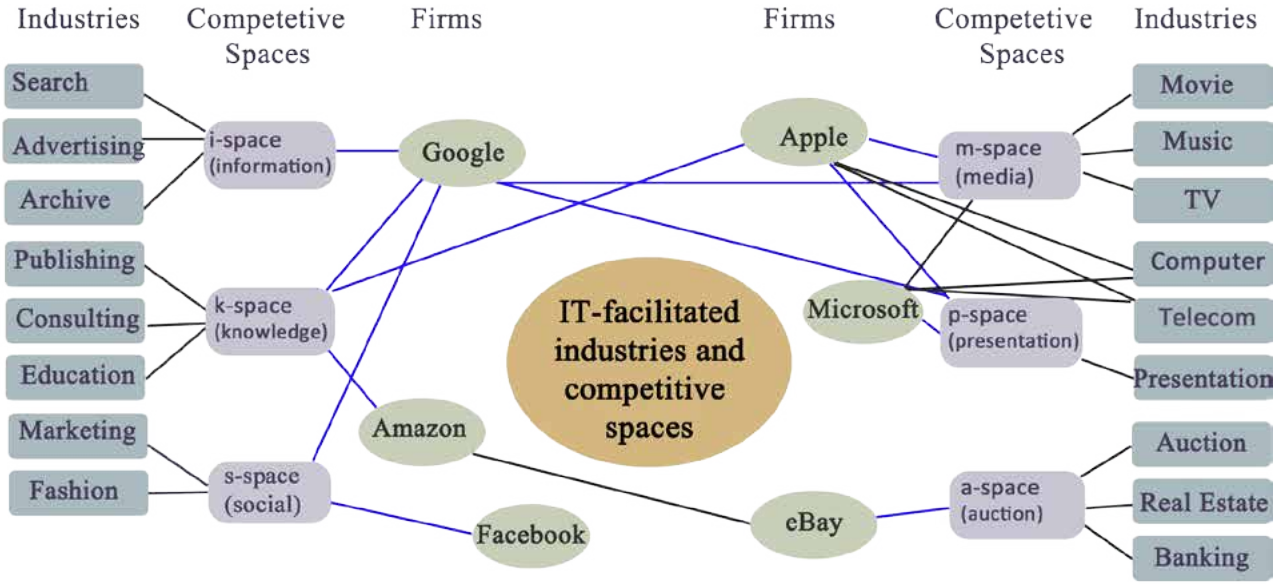
Figure 1: Technology, design thinking and open innovation have become important factors, alongside leadership, knowledge, values and others, in obtaining a long-term business advantage.



Source: Kriger & Culén

Some of these major IT-players, Amazon, Facebook, Google, eBay, Apple and Microsoft, did not even exist 30 years ago or were a small start-ups and quite agile. With time, they become large and increasingly hobbled in their agility by the sheer size and scope of their products and/or services. Until recently, these companies have been largely noncompeting, each dominating some digital environment. For example, Apple and Microsoft were developing operating systems, occupying digital presentation space (p-space). Google, started with search and advertising, thus occupying information space (i-space). Now, through its acquisition of the android operating system, Google is also moving into p-space. Facebook, as the largest social networking site, is now encountering competition from Google and Twitter in the social arena space (s-space). Figure 2 shows some of the salient competitive spaces.

Figure 2: IT-facilitated industries are seeking the competitive advantage by moving into variety of spaces, thus competing in the arenas they do not dominate.



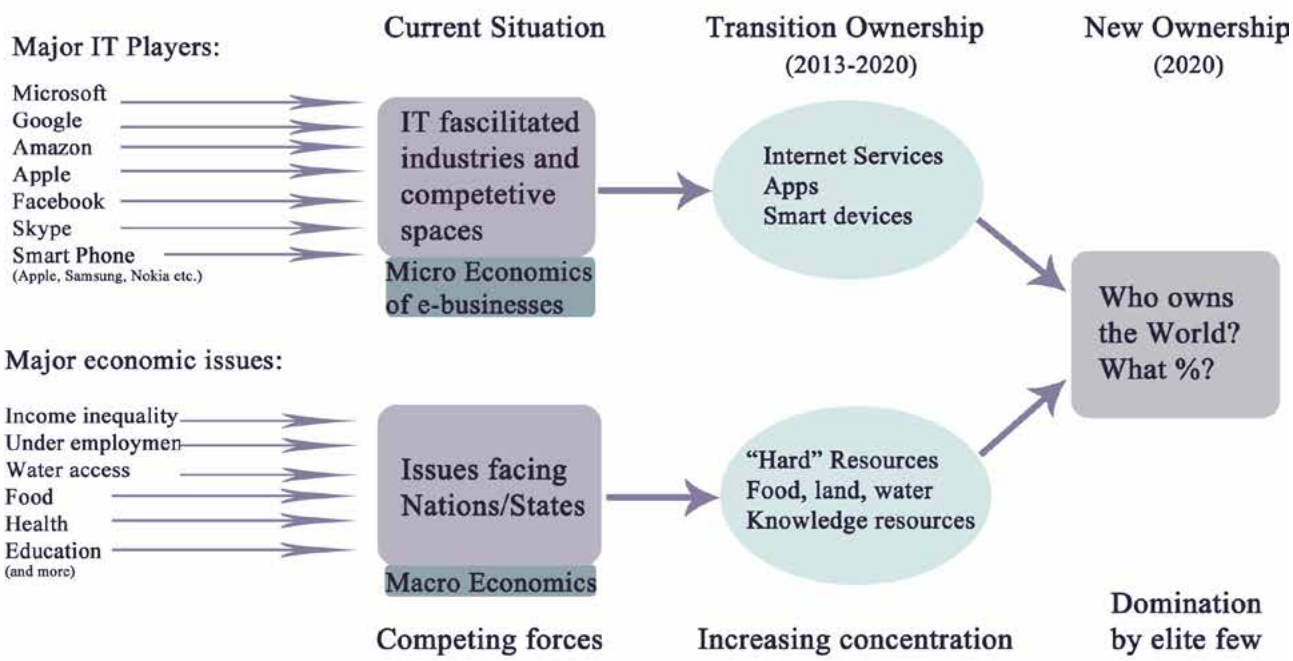
Source: Kriger & Culén

Increasingly we observe a collision taking place between the aforementioned firms and the overall macro-economic forces that are needed to create a healthy global economy. This is evident in the recently stated intention of Facebook, Google and other key IT players to get a smart phone into the hands of every citizen of the world. The financial advantages for Facebook, Google and Apple are obvious. However, there are currently over 4 billion people on the planet who do not have adequate water, shelter or food! To give them smart phones before such basic necessities is to create a potential moral and social tragedy. Some lessons pertinent to this goal of key IT-players could be learned from "one laptop per child" (OLPC) project, see (Kraemer, Dedrick, & Sharma, 2009), where various factors relevant for that project are discussed. Authors state: "The vision is being overwhelmed by the reality of business, politics, logistics, and competing interests worldwide." Further, they note: *"However, it is also clear that the PC industry cannot profitably reach millions of the poorest children, so the OLPC objectives might never be achieved through the commercial market alone."*

Considering the historical development of the IT-facilitated industries and looking at the current situation, we observe currently competing forces among e-businesses at micro-economic level. At the same time, at macro-economic level, large and complex issues such as climate changes and hard resources e.g. water and food compete for attention of states and nations, see Figure 3. In the light of the above, we raise a question of what may happen when macro-economic forces collide with IT-driven world economy.

Micro-economic competitive forces seem to be creating opportunities that are obvious for incumbent IT players such as Google, Amazon, Apple, and Microsoft to invest in and to exploit. What is not so obvious is how the world's riches should be spent to create opportunities for all and for a decent standard of living of for the majority of the people on this planet, whether in the developed or the developing world.

Figure 3: What happens when micro and macro-economics forces collide with the IT-driven world economy?



Source: Kriger & Culén

The moral dilemmas facing the executives and shareholders of the major incumbent IT players, the 'elephants', is enormous. These dilemmas are further exacerbated by the increase of competition and social and technological aspects of 'clockspeed' that are arising on numerous levels of social and technological order. These factors arose in force beginning in the late 1990s but remain even more important to address in today's IT-facilitated global economy (Cairncross, 2001; Christensen, 1997; Gleick, 1999; Nalebuff & Brandenburger, 1996; Veliyath & D'Aveni, 1996).

CONCLUSION

In conclusion, awareness of the increasing convergence of IT industries and their relevance to macro economy is crucial. We believe that design thinking provides a major opportunity to apply original ways to address the social, economic, political, environmental, technological and legal challenges facing the under-classes of the world. Only truly creative out-of-the-box thinking by the 'creative class' will result in the possibility of adequate solutions for the long term of both society and individuals in all spheres.

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MAKING AND CONSUMING CHARACTERS

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ABSTRACT

This paper shall introduce a new phenomenon about consumption. This is related to consumption of characters like Mickey Mouse and Hello, Kitty. The phenomenon appears prominently in Japan. In order to examine consumption of characters and the strategies for creating characters, we conducted a case study on a set of marketing strategies of a toy manufacturer in Japan.

Traditionally, consumption research is asserted using the uni-methodological paradigm. The uni-methodological paradigm here means that researchers have a methodological exclusiveness stance to any other research approaches. Hirschman and Holbrook (1992) distinguish five non-interchangeable research approaches on consumer research. For instance, from an economic point of view, consumption could be assumed as a problem solving method to increase utility. Baudrillard (1968, 1970) criticized this type of functional consumption. Researchers have often denied the other approaches competitive to their own approaches rather than incorporating them.

Character consumption cannot be revealed by such an insulated research stance because consumers would like to consume characters for multidimensional reasons. They consume characters to enhance their utilities. In addition, characters stimulate consumers' sentiments. The possession desire is satisfied by consuming characters. Possessing character goods can create small interest groups and stimulate communication among the group members. Consuming characters is assumed to involve multidimensional aspects: functional, conspicuous, and semiotic consumption. As a result, once we try to understand character consumption, we have to employ the multi-disciplinary approach in contrast to the uni-methodological paradigm.

Through our case study, we revealed the distinctive marketing strategies in the business of characters. It is necessary for marketers of character goods to regard character consumption as having functional, conspicuous, and semiotic aspects. We can find distinctive characteristics in the market research, product development, advertising, and communication strategies in the process of creating characters.

KEYWORDS: Characters, Character universe, Multidimensional Consumptions, Character Development

1. INTRODUCTION

The purpose of this paper is to show, still unusual phenomena except in Japan or somewhere in Asia countries, on character consumption. Before our definition of the character, it must be useful that we give some example to understand what character is. They are Mickey Mouse, Donald Duck, Hello, Kitty, Angry Birds, and Pokemon, and so on. Character is defined as an imaginary entity which has specific traits. Character consumption is defined as a buying behavior which tends to buy a specific theme of characters as well. These characters can be transformed into anything, animations, books, dolls (figures), moppets, stationaries, T-shirts, fashion goods, and so on. This trait is very important to understand character business practice. Certain estimation for these products was JPY 2,307.5 billion (2012, EUR 17.48billion). Compared to the other industries, for instance, beer has around JPY 3 trillion, utility (Gas) has JPY 3.8 trillion, restaurants have JPY 4 trillion, and housing has JPY 6 trillion, character consumption is not a small industry in Japan.

To understand character consumption must influence to the marketing thoughts. The reason why we focus on character consumption is that there are several interesting characteristics of character consumption. Some consumer

sometimes buys character goods as a functional something. Some consumer sometimes buys a character with the memory. In other case, a consumer bought it as collection goods. We can analyze this by conventional marketing methods, modern consumer research techniques (Aaker et al. 2009), and even postmodern consumer research ways (Holbrook 1995). To understand this type of consumption, we do know that it is difficult to understand, but we do not hesitate to use any type of analyzing methods, which is multidisciplinary approach.

This paper is consisted by following organizations. First, we will briefly introduce character and character businesses. Specifically, as we will discuss the case of "Capibara-san" later, we show it in detail. Capibara-san is a character which is originated from Capibara. Capibara is a mammal belonged to the mouse species. Second, we will briefly review on character and its business. In this work, we set our discussion background. Third we show our case study. Indeed, it is not based on a rigorous research methodology, but case study tells us a lot of important points on character business. Forth and it will be main body of our paper, we introduce character consumption and development. This case study is mainly based on semi-structured interview of the late project leader of "Capibara-san". Fifth and the last, we will discuss a meaning of the case and derive some conclusion of character consumption.

2. CHRACTER AND ITS BUSINESS

In this section, we will introduce character and its business. An abstract thought is very important in academic studies. But in this case, an example or actual picture is helpful to understand character.

2.1. Character

Character is one of the most meaningful concepts. It is literally and fundamentally defined as special something which can be identified by itself and distinguish from something else. Its main meaning refers to features and traits of something; it can describe what that something it is. Character sometimes refers to figures. For example, Japanese language has three ideograms, two Japanese syllabaries (hiragana and katakana) and Chinese characters (kanji). All of them have own unique figures, which can discriminate from the other ideograms. And two Japanese syllabaries do not have meanings by themselves, just sounds, but Chinese character has meanings.

Compared to above literal meanings, Foster (1927) explained character in the novel. In general, a novelist tried to pursuit the value of human experiences by developing the characters in the story. Against this kind of understandings, Forster (1927) emphasized that characters were not necessarily the existing real people; rather they are like real people. Characters' lives were not only different from real lives, but also no need to be similar. Rather sometimes character is described as a person who has overwhelmingly biased traits.

There have been a lot of characters in novels. Chandler (1939) created a toughness detective, Philip Marlowe; Fitzgerald (1925) fostered Gatzby and expressed his world; and Salinger (1951) described Holden Caulfield as an icon for teenage rebellion in "Cather in the Rye." These were all characters. As Foster (1927) indicated, characters sometimes could seem to be more real than the people around us, and this was because a novelist was able to reveal the character's hidden life. In daily life we never understand each other, neither complete clairvoyance nor complete confessional exists. But people in a novel can be understood completely by the reader, if the novelist wishes; their inner as well as their outer life can be exposed. We cannot understand each other in real lives. But in the novel we can perfectly know character in detail.

For example, Chandler (1939) made Philip Marlowe, a toughness detective. Chandler left many notes about Philip. Philip was 33 years old, when he investigated elderly General Sternwood's case in The Big Sleep in 1936. He was born in Santa Rosa, California. He had a couple of years at college and some experience as an investigator for an insurance company and the district attorney's office of Los Angeles County. Marlowe was slightly over 6 feet (180 cm) tall and weighed about 190 pounds (86 kg). He first lived at the Hobart Arms, on Franklin Avenue near North Kenmore Avenue (in The Big Sleep), but then moved to the Bristol Hotel, where he stayed for about ten years. By 1950 (in The Long Goodbye) he had rented a house on Yucca Avenue and continued at the same place till early 1952 in Playback. His office, originally on the 7th floor of an unnamed building in 1936, was at #615 on the sixth floor of the Cahuenga Building by March/April 1939 (in Farewell, My Lovely), which was on Hollywood Boulevard near Ivar. Even he was a detective, but he generally refused to take divorce cases. He smoked and preferred Camels. At home he sometimes smoked a pipe. A chess adept, he almost exclusively played against himself, or played games from books. He drank whiskey or brandy frequently and in relatively large quantities.

In psychological effect, this detail, and somewhat unusual setting around the characters, makes us to have sympathies to the character. This sympathy sometimes played important role in our interpretations of the novel and story. Once we had sympathy to character, we often complemented even there were several lucks in terms of characters' settings. This effect is sometimes called atmosphere, or universe. The atmosphere affects our understanding for the reality of characters, as if they are real human beings. Once a novelist could create this atmosphere or universe well, characters drove their realities by themselves. At that time, the novelists may not tell us all they know, but they will give us the feeling that though the character has not been explained, it is explicable.

We define character as a morpheme with an imaginary entity which can be metamorphosed into any media.
Now, we understood a character and its effect; character affects our understandings and sympathetic understanding his/her environment. And then, we shall show character business in next section.

2.2. Character Business

In this section, we will briefly review character business in several aspects. Character business is, actually not unusual, rather cliché. That is to say, companies sometimes develop, it sometimes is called a mascot, characters. For instance, Michelin Tire has Bibendum. Uncle Sams Foods has Uncle Sam. Planters, a division of Kraft Foods, has Mr. Peanut as a mascot. Some companies have characters, however, these character cannot be character business. Character business means to sell character itself, not use characters for promotion or advertising tools. In character business, character shall be sold as a product. Consumers buy characters as products which have utilities, functions, qualities, and meanings and so on. Then, we are going to look up character business.

2.2.1 Character Business

As we indicated, something that can be sold as goods is needed in character business. And this "something" must have figure, meanings, atmosphere and universe. Indeed brand is a kind of characters. It has meanings, atmosphere, and even universe, and consumer rather buys brand. So, we have said character business is unusual. Even though, character business is not easy because it is difficult to establish characters. Philip Marlowe is the character, but few tried to sell him as the character, except in the books.

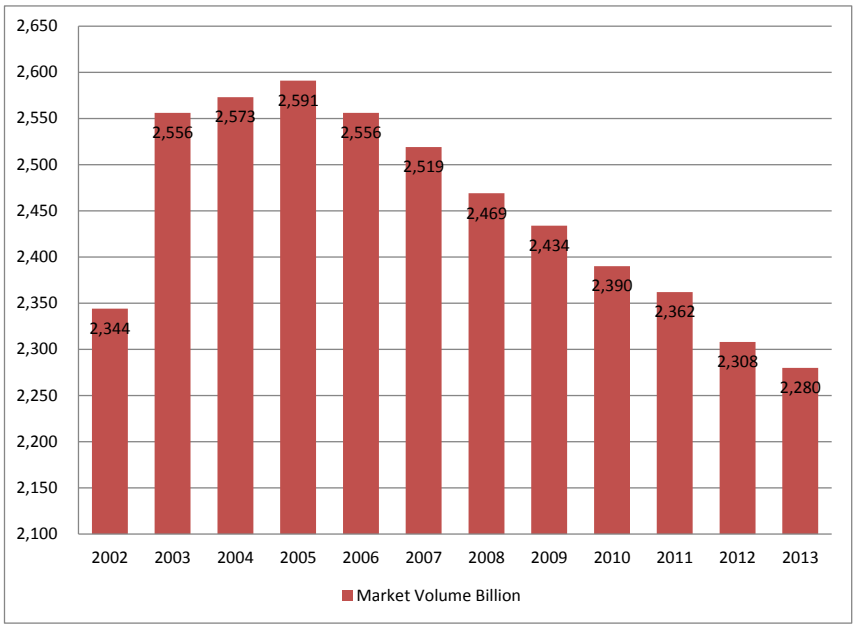
Some example of successful character businesses can be indicated as follows. They are Walt Disney and Sanrio. Without any doubt, Mickey Mouse and his friends are most successful characters in the world and ever. They are actually everywhere. Mickey Mouse appears not only in the movie, theme park, books, and animations, but also products of T-shirts, dishes, cups, and even cookies and candies. Compared to Mickey Mouse, Hello, Kitty (by Sanrio) is not so famous globally, but she is going to invade into everything. Walt Disney and Sanrio definitely have characters. They develop, sell, and maintain their characters for their businesses.

2.2.2. Character Business in Japan

As Mickey Mouse can be found all around the world, character business literally can be developed by anyone who once wanted. Even though there are some unique aspects in Japanese character consumptions.

There are many characters in Japan. Some of them can be business, the others cannot be that. Japanese character business is around JPY 2,307.5 billion (2012, EUR 17.48 billion). Figure 1 indicates market volume of character market in Japan. It is lesser compared to the last year, but it is still negligible size. The revenues of The Walt Disney Company resulted over USD 42,278 million (42billion278million). From the company financial report 2012, we can conjecture the sales revenue of character business mainly from licensing. It stated "Our Consumer Products segment generates revenue from licensing characters from our film, television and other properties to third parties for use on consumer merchandise, publishing children's books and magazines and comic books, and operating retail stores, English language learning centers and internet shopping sites." It resulted 3,252 million, in 2012. The sales performance of Sanrio, Hello, Kitty, is over JPY 46.6 billion (2012, EUR 358 million). There are tremendously many characters in Japan. Japanese manufactures often generate characters. Even local governments sometimes own original characters.

Figure 1. Market Volume of Character Market in Japan



(Source: Yano Research Institute, 2013)

3. RESERACH QUESTION AND THE CASE

We have briefly review definition of character and character business in Japan. Compare to the organization of orthodox research paper, the reason why we choose this format was to share knowledge about character and character business in Japan. We supposed there was little recognition in terms of character business in Japan. And then, we will take a new turn on our research question as follows.

3.1. Research Question in Our Study

In our paper, not only we would like to introduce Japanese character business, development and consumption, but also develop some analytical framework to understand them. In this section, we will state to Capibara-san case on both development and consumption. Before in detail of the case, we confirm brief history of the case.

Capibara-san is developed by Banpresto Co. LTD (Banpresto, hereafter). The company was established in 2008. Before 2008, it was a subsidiary of Bandai Co. LTD (Bandai, hereafter). It is one of the largest toy manufactures in Japan. Sales of Bandai in 2012 was JPY 132.35 billion (EUR 1.02 billion). Number of employees is 1,188. As Banpresto is not public company, little information was disclosed.

This project started in 2002. The project was first organized by two full-time workers and nine part-time workers. It was called Try Team. Ms. Hinako Endo became a project leader. Our information in terms of development and consumption of Capibara-san were from her. The purpose of Try Team was to do something new and market research. The team was expected to investigate and grasp the consumer behavior of Japanese high school girls. Because, Japanese high school girls influence trend and were constructed with a big character market in Japan. They are main customers, indeed.

Parent company of Banpresto was Bandai, which had no character of their own, whereas it was good at product commercialization by licensing other companies' characters. Then, Banpresto was given the issue to clear the problem to have characters of their own company's, and the team preceded it. As for an original character development, one member in the team was good at drawing, so she drew more than 100 characters and the team did consumer preference research of them. Capibara-san was one of them.

From the early stage, Capibara-san got great popularity, so the team tried to make some limited trial products such as stuffed animal. Such trial products got great popularity, so the team got to convince that it would be assured to commercialize them. The first product of Capibara-san was small stuffed toy. They were sold out in an instant, so the members of the team gradually got to convince the success of the character-Capibara-san. Now, Capibara-san has 10 categories of the products; consumer merchandising, sundries, stationeries, puppets and moppets, toys, snacks and treaties, lottorey, Gacha-Gacha, and magazines and books. From upper left side to clockwise, they are iPhone cover, porch, swimming bag, notebooks and stickers, mechanical pencils, and paper clips.

Our research question is focused upon character marketing; character development and consumption. Some character can be goods, but some cannot be that. What is crucial to making and consuming character? We will consider them through our interview of project leader.

3.2. Character Development

As we indicated before, Capibara-san received highly reputation at the consumer research in the early stage around 2003. Surprisingly, first drawing of Capibara-san was just doodle. A designer drawn many drafts, including Capibara-san, but she did not know real Capibara well. Ambiguous drawing made a roundish gentle character at this time. Then, Capibara-san was born. Ms. Endo and her team made a concept of Capibara-san.

However at that time, Capibara-san was not a formal product of Banpresto. It was just prototype and limited item. There was still a long way to go to commercialization because Bandai was good at licensed commercialization, not original character development. It was difficult to decide what type of toy might be suited to first character goods.

After two years later, Try Team decided to develop first items of Capibara-san. They were book and moving stuffed doll. Try Team had successful experience introducing book. In 2005, Try Team contracted test marketing opportunity with 11 stores in Tokyo. Capibara-san was sold out every store within only two weeks.

Ms. Endo had strong confidence on Capibara-san business at that time. Even though she and Try Team deliberated carefully about next product developments. As first introduction of Capibara-san was succeeded, many licensees asked Try Team to develop new products by own. Ms. Endo, however, did not accept with these offerings. She stickled to design and develop Capibara-san items by own, for not only quality control, but also maintaining Capibara-san universe.

Ms. Endo confessed retrospectively about successful of this character business. First, character must have universe, and its story, then, commercialization. Second, she and Try Team banned to develop Capibara-san goods freely. They limited the number and amount of quantity of Capibara-san goods. Once she refused to make Capibara-san mules because they were not suited to Capibara-san universe. She could not imagine that Capibara-san was under the foot. And third, she did not have any commitment of revenue. Her mission was to make something new, not manage new products. So she and Try Team were not assigned any obligation in terms of financial performances.

3.3. Character Consumption

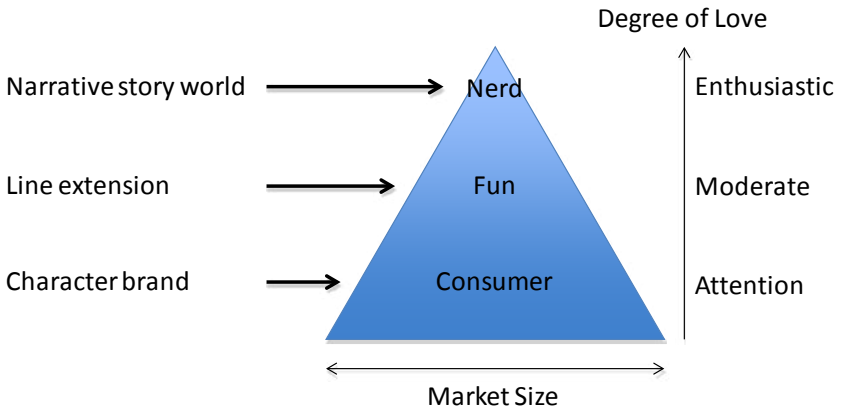
In consumer research at the early stage of Capibara-san, it received the highest evaluation in Japan. It was “kawaii (so cute and pretty).” Capibara-san always got such applauses well. Ms. Endo suggested tow more important points of character consumption.

First, consumers have several expectations to buy and own characters. In this paper, we know that consumers find at least three factors in their expectations; role, intrinsic, and figure (Odagiri 2010). Role refers to a function which generates a reason by which consumer to connect with characters. Some consumer would like to make character as a friend. Another would like to make character as a father. A good character can morpheme anything consumer wants. Intrinsic is sometimes called core of character. It is a kind of identifiers. Intrinsic figures out character identity. This factor influences consumer’s attitude to characters. Figure is a shape of character. Some character in comic books does not have three-dimensional figure, it is drawn on the papers as a two-dimensional shape. This factor is very important for character business. Rather figure is a crucial for the business because this figure essentially becomes many products of characters. Consumer prefers to the figure first, anything else.

Ms. Endo told us one impressive episode. One day, Try Team planned a picnic to watch real Capibara at the zoo with Capibara-san. A young lady who was anthropophobia attended this picnic with her mother. Ms. Endo did not know that. And a young lady enjoyed the picnic. After picnic, her mother sent a letter to Ms. Endo with deeply appriciation. She said that her daughter had such a kind of sick, but she knew this picnic through Capibara-san website, and she asked her mother to take to the picnic with Capibara-san. A young lady could open her mind just to Capibara-san, but anything else.

Second, consumer can be classified at least three categories in character consumption. Figure 2 describes these categories. This figure 3 is implicitly constructed with two dimensions. First dimension is referred to degree of love to characters. There may be three categories. There is an enthusiastic customer at the top of the level. These kinds of customers are sometimes called “Nerd” and buy every goods and comprehends character’s universe very well. Against top of the level, there are consumers who pay small attention to character goods at the bottom of the level. Although they sometimes bought character goods, they had never collected them. This attention customer buys character goods because they are fad. We can label them as just “Consumer.” Between Nerd and Consumer, there is a moderate customer. It can be called “Fun.” Fun often buys character goods, and sometimes collects them. In contrast, horizontal axis means size of the market. Of course, this market size has not been evaluated quantitatively and statistically in any way. This figure is just notification, but this figure is not nonsense, we have some confidence that this roughly represents distribution of the character customers. In Figure 3, there are still some legends, but we will explain them later.

Figure 2. Classification of Character Customers



4. ANALYTICAL FRAMEWORK

Character development and consumption somewhat different from conventional marketing, that prevailingly means 4P marketing (Kotler, P. and Keller, K.L. 2011). So, we believe that it is better to develop another way of though for understanding character marketing.

4.1. Previous Studies on Consumer Behavior

Traditionally, consumer behavior research has been conducted by taking interdisciplinary approaches composed of economics, psychology, anthropology, sociology, and social psychology although economic approach was taken for the research at first. Katona (1951), a precursor of an interdisciplinary approach to consumer behavior, took the economic psychological approach. Bourne's (1957) study on reference groups, Martineau's (1958) study on social classes, and Lazersfeld's (1959) study on personal influence can be classified into the economic sociological approach. After the 1960s, a lot of studies on the relationships between consumers' behavior and their life styles were developed. Howard and Sheth's (1969) work significantly contributed on building a comprehensive model for decision making of consumers. Bettman's (1977) model of consumers' information processing had a meaningful contribution on the development of consumer behavior theory.

In the 1980s, a competitive approach against the traditional approach was introduced by Holbrook and Hirschman (1982), and Hirschman and Holbrook (1982). They focused on the experiential aspect of consumption and hedonic consumption. They also criticized the traditional consumer research perspective based on positivism, and took an interpretivist approach. Hedonic consumption is defined as those facets of consumer behavior that relate to the multisensory, fantasy and emotive aspects of product usage experience (Hirschman and Holbrook, 1982).

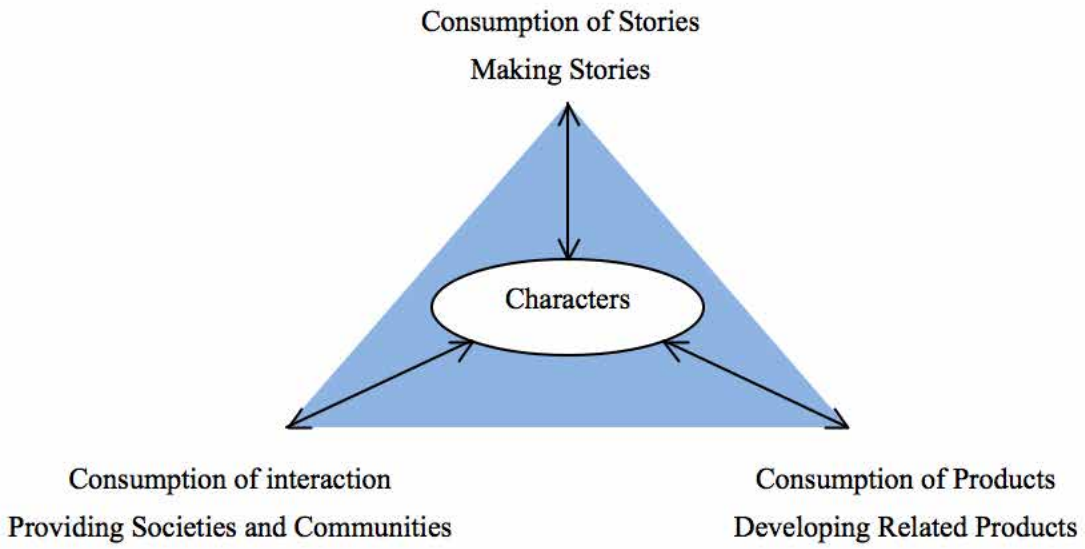
In traditional consumer behavior theory, consumers are assumed to satisfy their needs and wants and to improve their utilities by consuming products and services. Products and services are objective entities regardless of whether they are tangible or intangible in the traditional consumer behavior perspective. In the hedonic consumption perspective, however, products are viewed as subjective symbols (Hirschman and Holbrook, 1982). In addition, while traditional consumer research tends to focus on package goods and durables as research objects, hedonic consumer research's objectives are many kinds of arts (e.g., opera, ballet, modern dance, painting, photography, movies, rock concerts, fashion apparel) (Hirschman and Holbrook, 1982).
Consumer behavior perspectives have tended to be mutually exclusive. The researchers have had a kind of methodological exclusiveness stance against other methodology. Character consumption, however, cannot be revealed by such a methodological exclusiveness stance because it means consumption of tangible goods while containing the aspect of hedonic consumption.

4.2. Character Consumption as multidimensional Consumption

Focusing on character consumption, we would recognize that we should have an integrated perspective to investigate character consumption. The previous perspectives of consumer behavior research are not mutually exclusive but complementary each other.

Figure 3 illustrates a tentative conceptual framework to investigate character consumption. Consumers improve their utilities through consumption of character products; interact with each other and express themselves by possessing and carrying on the goods; and experience the stories where the characters are living. We consider that character consumption should be observed from multidimensional views. In the conceptual framework, characters play a significant role as symbols.

Figure 3. Analytical Framework of Character Consumption



5. CONCLUSION

We have worked some tasks on character marketing; making and consuming character. In this section, we will summarize our findings and opinions from our case study and analysis. First, we will unfold some discussion points and some research topics now we are doing. And then, second, we will suggest managerial and theoretical implications.

5.1. Discussions

In this case study, we would like to suggest that character marketing is not unusual, but it is not easy. There are several notifications to develop characters. First, the figure is the most important factor for making characters because consumers buy figure, not anything else. Second, however, character universe must be needed. Enthusiastic consumer tried to comprehend characters' background. This background told us what the character is and why they exist and are beside consumers. The case of Capibara-san, the consumer who had anthropophobia found friendship with them. Capibara-san story can be derived when characters had universe.

From this case, and from utility school perhaps, a causal relation can be derived. That is to say, Capibara-san had such factor to solve anthropophobia problems. So, include such a kind of factors into the character when a company makes a certain character. Against this type of utility perspectives, interpretation school suggests that no one can find any influential factor before consumer encountered characters. Rather consumer proactively gives meanings on characters. In this case, there is an interaction between consumer and character universe rather causal relation. It is easily recognized that which school could give us better understanding of consumer behavior. Just we can say both can be useful.

In regard to making characters, one important thing was narrow focus on character marketing. Ms. Endo strongly emphasized to limit the number of products when her project team introducing per a year. From this case, one implication can be derived, that is to say, to stimulate consumer desires. So, character goods which were produced in limited numbers can be useful marketing method. Unfortunately, this is a contradicted implication. Why limited number can stimulate consumer desire? Any product can stimulate consumer desires. If so, it is natural thought that many product introductions stimulate consumer desire much. But we do not decide which a better marketing technique is so far.

5.2. Implications

In this paper, we explored character business in Japan. Our main claim is that it had better to employ multidisciplinary approach for understanding character business. Especially, consumer research should employ multidisciplinary approach. According to this consumer research, as we illustrated in Figure 3, marketing might be changed. At least, there are three categories of character consumers. Then, we can suggest different marketing practices to these different consumers.

Indeed, we do not have an appropriate analytical method so far. We continue to explore character business in the future. In this paper, we have just introduced to develop and consume characters. There is still long way to go. We know it is not easy, but we will do it, not because it is easy, but because it is hard.

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EATING HABITS OF YOUNG PEOPLE AS THE BASIS FOR NEW PRODUCT DEVELOPMENT

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ABSTRACT

Market-oriented companies that operate in a highly competitive environment pay particular attention to adjusting their offer to the needs and wants of the selected market segment. At the same time, these needs, wants, and expectations of the targeted segment change along with the changes in living conditions, life styles, and gained experiences. For these reasons, in order to survive, maintain and/or improve their market position in relation to competitors, companies continually strive to introduce to the market new, innovative, or at least modified products. Companies in the food industry are devoting more and more time and attention to studying the needs and desires of existing and potential consumers and involving them in the process of new product development.

For the purposes of this paper eating habits of young people were explored. The study was conducted on a sample in the age group from 15 to 30 years. A quantitative survey on a sample of 200 participants aged from 15 to 26 was done by a questionnaire. Qualitative research was conducted in three focus groups with respondents aged between the ages of 18 and 30.

Research results have indicated the existing habits of young people when using food products as well as their experience in the preparation and consumption of food. As a result of this research, new ideas and suggestions for development of food products were collected; this was also one of the goals of this study.

KEYWORDS: food companies, new product development, market research, consumer habits, consumer experience

1. INTRODUCTION

In today's competitive surroundings, market orientation is extremely important for the survival and growth of a company. "Market oriented companies are those that consistently apply marketing concepts" (Nefat, Belullo, 2000, p. 1210). Orientation to the needs of the buyer is the central element of the marketing concept. Besides the buyer, some definitions also stress the importance of competition, so marketing concept is defined as a "philosophy in which planning and coordination of all activities goes towards the primary goal of satisfying the needs of the buyers and also the most functional means for achieving a competitive advantage and reaching company goals (Boyd, Walker, 1990, p. 70).

Kohli and Jaworsky (1990, p.6.) define market orientation as " the flow of information about the market, present and future needs of the customers, which is spread through the entire organisation, spread of the information among the departments, and proper reaction of the entire organisation." The information gathering does not refer only to market research but also to information about other events in the surroundings, including competition. Market orientation in a wider sense is defined by Narver and Slater (Narver, Slater, 1990, p 21) as the "organisational culture which very effectively establishes behaviour needed for creating superior values for consumers and thus continually superior business results."

Many similarities found in definitions by different authors were summarized by Dlačić in the following way:

1. orientation towards consumers and creation of value for consumers,
2. importance of the spread of knowledge (information),
3. coordination of marketing and other functional activities
4. readiness to react and take specific actions,
5. orientation towards the environment and influences of interest groups[1]

[1] Dlačić J. (2005): Customer orientation in Croatian Companies, University of Ljubljana, Faculty of Economy, Master's thesis

Based on the above-mentioned, it is obvious that market oriented companies that conduct business in a competitive environment have to pay particular attention to adjusting their offer to the needs and wishes of the selected/targeted market segment.
At the same time, the needs, wishes, and expectations change along with changes in lifestyle or living conditions, or based on the acquired experience of present and potential consumers.

At this time of continual changes on the market and introduction of new products and technologies as well as new ways of consumer-thinking, it is necessary to continually follow the changes and adopt to the market trends.

For this reason, in order to survive, keep and/or improve their position relative to competition, companies continually try to bring to the market completely new, innovative or at least modified products from the existing assortment. According to the research project Innovation 2010 conducted by Boston Consulting Group on a sample of 1 590 managers from all over the world 72% of the surveyed people believe that innovation falls under the three leading priorities of a company (compared to 64% in 2009); a total of 84% of surveyed persons believe innovation is important in order for companies to profit at times of economic recovery. Further, 61% respondents claim that their companies plan to increase their investment into innovation. The research also indicated the connection between investments into innovations and business results. Innovative companies, based on the business results of the past three years achieve on the average 12.4% better business results than companies that do not introduce innovations[2].

In Croatia, similar research was conducted in 2013 and included 135 production and programming companies. Of those, 35% of companies stated they had no intention of increasing their investments in research and development in spite of the crisis[3].

The process of development and improvement of an existing product passes through seven key developmental stages[4]: (1) generation of ideas, (2) selection of ideas, (3) development and testing of the concept, (4) development of the marketing strategy, (5) business analysis, (6) test marketing, and (7) commercialisation.

Correctly defined consumer wishes and needs are the basis of the entire process of developing a new or modifying an existing product. Therefore there is an increasing interest in applying the so-called "tailor-made" specific market research projects. Keeping in mind the process of developing a new product demands considerable resources (staff, equipment, funds, time), the market research methods are used not only to collect data but also as a corrector during specific phases of product-development. Market research thus cannot, in total, eliminate the risk from new product development process, but it can help by reducing it significantly.

According to the conducted research (Prester et al., 2012.) Croatian companies selected launched an average of four (4) modified and three (3) completely new products a year. Product development in Croatian companies lasts more than seven (7) months while modification of an existing product lasts over five (5) months.

2. RESEARCHING DIET HABITS OF THE YOUTH IN THE REPUBLIC OF CROATIA

Development of a new product in the food industry is a continual process to which peculiar attention is paid as it determines profits, organisational and business survival of economic subjects. The food industry is specific as food production companies pay increasing attention and time to potential and existing customers, stressing their role in the development of new products.

Croatia is a country with strong influences of different cultures, a country with excellent cuisine and diverse eating habits (especially if age differences among the population are observed). For this reason it is difficult to discuss eating habits of Croats under one roof. In order to portray eating habits of young people and thus create a picture of existing and potential needs of the market, research on the youth was conducted. Focus was put on youth between 15 and 30 years of age, i.e. high school and university students, as well as young people who live alone and start earning their own living. Qualitative and quantitative reasearch was conducted with the goal of detecting certain eating habits, trends, as well as the reasons for such behaviour. Qualitative research was conducted using the focus group method, and based on the achieved results a questionnaire for the quantitative part of the research was prepared. In total there were three (3) focus group with young people between the ages of 18 and 30, while the quantitative part of research was conducted using a sample of 200 examined persons aged between 15 and 26.

3. RESULTS OF THE QUALITATIVE RESEARCH OF THE EATING HABITS OF YOUNG PEOPLE IN THE REPUBLIC OF CROATIA

In qualitative research using the focus-group method (three focus groups were questioned) a total of 23 persons

[2] Andrew, J.P. and others (2010.): Inovation 2010, The Boston Consulting Group, (http://www.bcg.com/documents/file42620.pdf), (24.04.2013.)
[3] Prester J. i drugi, (2012.): Menadžment inovacija 2012., Katedra za organizaciju i menadžment, Sveučilište u Zagrebu, Ekonomski fakultet Zagreb, (Innovation Management, Chair for organization and management, University of Zagreb, School of economics) (http://web.efzg.hr/dok/OIM/jprester//menadzment%20inovacija/Menadzment%20inovacija%202012%20izvjestaj.pdf) (10.04.2013.)
[4] Kotler P., Keller, K. L., (2007.): Marketing Management- 12th edition, MATE, Zagreb

aged between 18 and 30 were examined. In focus groups common factors that influence the eating habits of young people in Croatia were defined. The main factors are as follows: fast pace of life with many obligations, which leads to skipping breakfast and other meals and consuming fast food; life outside of the native region where young people only start adapting to independent life and accordingly only then start thinking about own nutrition; as well as the lack of financial means, which influences choosing cheaper products. Women pay slightly more attention to their meals and diversity of nutrition than men, who are slightly more oriented toward ready-made food.

Due to the fast pace of life and numerous obligations, the beginning of independent life of young people is often marked by irregular eating and lack of food-preparing experience. It is common that young people living alone skip meals, eat fast food, food from bakeries, half-prepared or prepared pre-cooked food bought in supermarkets. The examined young people also frequently mention lack of enthusiasm for cooking and preparing meals for just themselves.

Another important factor is financial means. During this time of crisis young people often have limited income or limited financial support of parents. Limited financial means make them turn towards cheaper food products and cheaper brands. They are familiar with many brands of food products and they perceive them as being of higher quality. They, however, find them too expensive for their financial situation.

4. RESULTS OF QUANTITATIVE RESEARCH OF THE EATING HABITS OF YOUNG PEOPLE IN THE REPUBLIC OF CROATIA

The quantitative part of research was conducted using an on-line survey. Questions were asked based on the qualitative part of research, in order to gain more detailed information about the behaviour of young people in particular situations. Two-hundred (200) young people between the ages of 15 and 26 participated in the survey, out of which 58 were male and 142 female. Sixty-nine (69)% of respondents were in the age bracket 15 to 20 and 131 were in the bracket of 21 to 26 years of age.

The quantitative part of the research confirmed the results of the qualitative research in the segment of how much attention is paid to nutrition. Sixty-one (61)% of the surveyed persons do not eat breakfast every day, but skip it either sometimes or always. Out of those who do eat breakfast, 43% often eat it "on the go," something from the bakery or fast food.
Fifty-five (55)% of respondents replace a skipped meal with fast food; 83% very often and 7% even daily consume some type of fast food. A large percentage (87%) of the surveyed persons in the age group between 21 and 26 sometimes consume fast food, while in the age bracket of 15 to 20 the percentage is slightly less high (74%). (See Table 1) That finding was confirmed with a hypothesis equality (z-test) where the z-value was 2.31[5] , which is a statistically significant difference among the respondents.

Table 1. Frequency of "fast food" consumption (in %)

	Total	Gender		Age	
		Male	Female	15-20	21-26
Never	6.5	10.3	4.9	8.7	5.3
Sometimes	82.5	79.3	83.8	73.9	87.0
Every day	7.0	8.6	6.3	8.7	6.1
Do not know	4.0	1.7	4.9	8.7	1.5

Source: authors' survey

Further results indicate that 26% of surveyed young people rarely eat fruit (Table 2) while 18% does not eat vegetables (not including potatoes) at all. An interesting fact is fruit consumption, which is a daily thing among the younger age group, up to 20 years old, while the older age group consumes fruit mostly 2 to 3 times a week (Table 3). A reason might be living with parents (15 to 20 years old), where parents still take care of buying and providing food, and thus have influence on the selection of food products. The older (21 to 26) population, when it starts living alone, has different areas of interest, different new obligations and challenges, and is only working on re-defining their behaviour patterns outside of the parents' home.

[5] For data to be statistically significant and have 95% reliability, the z-value should be 1.96 or higher. To have 99% reliability and statistically significant data, the z-value should be at least 2.58

Table 2. Frequency of fruit consumption (in %)

	Total	Gender		Age	
		Male	Female	15-20	21-26
Every day	24.5	22.4	25.4	33.3	19.8
2-3 times a week	43.0	39.7	44.4	29.0	50.4
Very rarely	26.0	27.6	25.4	29.0	24.4
I do not eat fruit	6.5	10.3	4.9	8.7	5.3

Source: authors' survey

The collected z-values were calculated in order to verify if significant statistical differences between the two age groups exist, but the differences among the respondents were the same as in the first two answers.

Table 3. Frequency of fruit consumption - z-value according to the age brackets

	z-value 15-20 vs 21 – 26 years old
Every day	2.099[6]
2-3 times a week	-2.890[7]
Very rarely	0.695
I do not eat fruit	0.910

Source: authors' survey

Further, 43% of surveyed young people consume sweets on a daily basis, and among those who do not consume sweets at all there are significantly more men than women (17 vs. 3%; z-value=3.63).

When thirsty, the respondents most often drink water and fruit juices (Table 4). Women drink more water than men, while men drink more fruit juices than women (Table 5).

Table 4. Beverage consumption (in %)

	Total	Gender		Age	
		Male	Female	15-20	21-26
Water	67.5	53.4	73.2	60.9	71.0
Fruit juices	21.0	34.5	15.5	21.7	20.6
Carbonated drinks	9.0	12.1	7.7	13.0	6.9
Other	2.5	0.0	3.5	4.3	1.5

Source: authors' survey

Based on the results z-values (z-scores) were calculated in order to verify if a significant difference according to gender exists. The previously mentioned statement about differences between male and female population in consumption of water and fruit juices was confirmed.

[6] Statistically significant difference with reliability level of 95%
[7] Statistically significant difference with reliability level of 99%

Table 5. Beverage consumption - z-values according to gender

	z-values male vs female
Water	-2.711[8]
Fruit juices	2.992[9]
Carbonated drinks	0.969
Other	-1.447

Source: authors' survey

Most surveyed persons (58.5%) have always or mostly the same diet, while 41.5% introduce some novelties to their diet. As much as 65% of those surveyed believe that eating habits of young people must be changed.

CONCLUSION

The conducted research indicated eating habits of the young, their usage of specific food items, their experience with food preparation and consumption, and possibilities of developing new products; it has thus met the set goals.

Based on the research results it could be concluded that young population, living at a fast pace and having numerous obligations often neglect healthy eating habits. Meals, most often breakfast, are substituted by fast food and/or bread, and at the beginning of their independent life, many do not pay sufficient attention to the importance of quality and regular nutrition. Limited financial means are often used for other purposes, rather than on purchasing quality food products.

Although research indicates young people are aware of the deficiencies in their nutrition (65% of surveyed persons believe the young population has to change their eating habits). focus groups indicate that it is difficult to put in the additional effort and make those changes.

Based on the above-mentioned, it could be concluded that there is room on the market for the selected marketing segments for developing and offering food products adapted to the needs of the younger population, their purchasing power, as well as their lifestyle.

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[8] Statistically significant difference with reliability level of 99%
[9] Statistically significant difference with reliability level of 99%

IMPULSIVE CONSUMER BEHAVIOR

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ABSTRACT

Research into consumer behaviour features as the foundation of all the planned and implemented marketing activities of a company. Consumer behaviour is determined by numerous factors, and is therefore characterised as highly complex and difficult to predict. A particular challenge for marketing science and practice is to research impulse consumer behaviour in shopping – a behaviour that occurs when consumers experience a sudden, powerful and persistent urge to buy something immediately. This article addresses some of the factors that cause consumers' impulsive or impulse-driven behaviour, and also to point out some possible directions of thinking and future research, based on the experience from Serbia.

KEYWORDS: consumer, consumers' impulsive buying behaviour, situational factors, personality

1. INTRODUCTION

The marketing concept of business behaviour focuses on consumers, their preferences, wishes, needs and expectations that need to be met and exceeded so that the company can achieve business success quantified by the levels of revenue, profit, market share and loyal customer basis. Marketing as a science, with all its derived disciplines, has been striving ever since its emergence to investigate the causes, factors, action mechanisms and consequences of consumer behaviour, and despite the fact that much has been discovered and achieved in this aspect, marketing theory and practice are still far from having explained all the aspects of consumer behaviour.

Consumer behaviour is the most complex issue of marketing theory and practice, due to its marked heterogeneity and a multitude of factors exerting a combined impact on it, in more or less diverse ways, depending on the occasion. One of the highly specific manifestations of consumer behaviour on the market is impulsive behaviour resulting in unplanned purchases. Marketing researchers have been trying to ascertain all the aspects of consumers' impulsive buying behaviour, for decades now, during which period the research focus was redirected from researching the types and categories of products inducing impulsive buying and defining the companies' marketing offer accordingly, to current research into the broad range of factors affecting and shaping consumers' impulsive buying behaviour and setting marketing strategies based on these findings.

Most marketing researchers offer their views of which factors affect consumers' impulsive buying behaviour to which extent, but they all tend to agree that these factors can be viewed in terms of external environment factors and internal factors characteristic of each individual consumer such as personal character, internal conditions, demographic characteristics, etc.

This article aims to elucidate the phenomenon of impulsive behaviour by pointing to determining factors and by clarifying the essence of urge-driven behaviour, in order to enable companies to predict impulsive buyers' behaviour to a certain extent, and adjust and define their marketing strategies and activities accordingly.
The main aims of the article are:

- to identify factors affecting consumers' impulsive buying behaviour;
- to distinguish between impulse-driven and compulsive buying consumer behaviour
- to establish the existence and extent of the influence of gender as a specific demographic factor of impulse-driven behaviour.

The research question that the authors will try answer is: is there a difference between male and female consumers in relation to impulsive buying behaviour?

2. LITERATURE REVIEW

For a long time, the basic starting tenet of economic science was Homo Economicus, i.e. the economic consumer, whose behaviour is expressly cognitive and rational, and whose shopping habits are always guided by their interests and

consideration in order to achieve maximum benefits with minimum invested resources. Reality, however, has refuted such a narrow view of consumers, as they very often buy products and services not only to satisfy their physiological and other rational needs, but also to satisfy some personal psychological needs and desires that other consumers may find irrational. A purchase decision can be and very often is prompted by aesthetic and symbolic motives, or simply, desire for entertainment. Such deviation from standard and rational consumer behaviour is referred to as impulse buying. Generally, there are numerous examples of various products and services that can ascribe their sales levels to such shifts away from rational consumer behaviour. It is therefore not a rare occurrence; on the contrary, impulsive buying is a unique, but ubiquitous phenomenon, one that might even be classified as a routine form of consumer behaviour.

Dholakia (2000) argues that impulsive buying behaviour is a moment during the shopping trip occurring at the retail outlet, so that the greatest interest in the study of this phenomenon and the initial body of knowledge about it originate from retailing sources, where factors such as shelf arrangement, product packaging and point-of-sale promotion significantly increased the consumers' impulsive buying behaviour.

Researching the relationship between gender and material symbols in relation to impulsive buying, Dittmar, Beattie and Friese (1995) argue that the level of impulse intention characterises every individual consumer, different from one consumer to the other, but directly determine the real impulsive purchase. Although it is the consumers that manifest impulsive behaviour, it is triggered by products and services, i.e. the latter two are the main marketing stimulus of impulsive buying behaviour available to companies. Products such as clothing and accessories, music, and product categories that imply social and personal visibility and involvement, as well expressing one's personal image, tend to encourage consumer impulsive buyer behaviour.

One of frequently cited authors dealing with consumer impulsive behaviour, Rook (1987) defines it as unexpected purchases unplanned before entering a retail outlet, resulting from rapid purchase decision, preceded by sudden and strong urge to possess a noticed product or service. Impulsive purchase is an unplanned purchase decision made at the point of sale, which is, in most cases, a consumer's emotional, or cognitive, or combined response to a sudden stimulus.
Tendai and Crispen (2009) devote the most attention to researching the element of point of sale on consumers' impulsive buying behaviour, underlining that it is, basically, a purchase decision made at the retail outlet, so that it is necessary for marketing theory and practice to constantly investigate which retail outlet elements may produce impulsive buying behaviour and satisfy the consumers' need innovatively. Product display, packaging design, relaxing interior and atmosphere at the retail outlet make a positive impact on consumers' impulsive buying behaviour. Tendai and Crispen (2009) specify that the retail outlet ambience and atmosphere have two positive impacts on impulsive buying (p. 103):

- promotion effect, as a combination of information and economic effect produced by stimuli such as price reductions, coupons, gifts, etc.
- involvement effect, where the atmosphere causes a high level of customer involvement, positive agitation and pleasure by means of appearance and interior decoration, music, sales promotions, sales staff attitude, etc.

Solomon (2002) defines consumers' impulsive buying behaviour as behaviour that "occurs when a consumer a sudden irresistible urge to buy" (p.301). Most frequently, impulse purchases occur in situation when the consumer deems impulsive buying behaviour totally appropriate, such as buying a present for someone else. Salomon further categorises consumers according to the degree of manifestation of impulsive buying behaviour (p.303):

- planning consumers, who always decide in advance what, how much and which brands they will buy;
- partially planning consumers, who either choose only the category, or only the amount of product to buy; and
- impulsive buyers, without any prior shopping plan

Hanna & Wozniak (2001) opine that consumers' impulsive buying behaviour is a common occurrence on the market, and consider it to be within the consumer's non-programmed problem resolution pattern during the purchase decision making process. Impulsive behaviour and purchases imply very little time used for decision-making, limited presence or total absence of cognitive effort in decision making, where emotional appeals make a decision-making impact on the consumers.
Mowen (1993) defines impulsive purchases as "hedonically complex impulses to buy that may stimulate emotional conflict." (p. 381). Impulsive purchases tend to appear in situations when the consumer's consideration and the significance of consequences of these purchases diminish. Impulsive purchases occur when consumers have no prior perception of any problem or consequences of these purchases, or prior intention to buy. Mowen claims that between 39 and 67% of purchases are completely unplanned and impulse-driven. Impulsive buys happen automatically and without control, but always entail strong affective conditions in consumers.

Maričić (2011) regards what he terms affects as specific acts of manifesting consumer buying behaviour. An affect or emotion refers to consumers' feelings, whereas cognition or consideration refers to consumers' planned behaviour, and both these extremes are, in fact, consumers' psychological responses to stimuli and events in the environment. Affects are almost always responsive behaviour, which means that they reflect the consumers' immediate and automatic response to

stimuli they are exposed to. Maričić (2011) lists the following types of consumers' affective responses, their effect on behaviour, and characteristics of response to it (p.133):

- Types of consumer's affective responses:
  - emotions;
  - specific and subjective feelings;
  - moods;
  - assessments
- Effect of affects on consumer behaviour:
  - positive mood accelerates the consumer education process and shortens the decision-making time when
  - choosing products or services;
  - invigorated mood favours products with positive connotations;
  - emotions activate consumers' motivation to buy
- Characteristics of affect-driven response:
  - affect is always an immediate and automatic response to an external stimulus, which cannot be planned;
  - affect-driven responses are either beyond or under negligible control of the consumer;
  - intensive affective conditions also include consumers' physiological responses;
  - most affect-driven responses are learnt.

Maričić (2011) argues that consumers' affective and cognitive systems are mutually dependent and related, and continuously influence each other, which often results in unplanned and impulsive purchases. These purchases are characterised by sudden spontaneous urge to buy, which can be completely contrary to the consumer's earlier behaviour, followed by a state of psychological imbalance and loss of control over the consumer's own behaviour, occurrence of psychological conflict caused by the analysis of satisfaction and consequences, decrease in the consumer's cognition, and finally, manifestation of impulse-driven behaviour. There are five types of impulsive purchases (Maričić, 2011, p. 143):

- pure impulsiveness;
- suggestion effect
- planned impulsiveness:
- recall effect; and
- planned purchase of a category, but not also a brand of product and service.

Making an impulsive purchase requires certain mood, i.e. excitement, and the consumer's positive attitude. The most common impulsive purchases are those caused by hedonic urges and comprise the so-called hedonic consumption; these purchases, however, also cause emotional conflict, so that impulsive purchases are often also termed 'emotional purchases' (Maričić, 2011, p. 144). Although impulsive purchases include a situation where the consumer cannot resist the marketing stimulus, this does not mean that impulsive purchases do not also include cognitive consumer behaviour. On the contrary; often a cognitive analysis of, for instance, excellent offer in a retail outlet is the trigger of impulsive purchase.

2.1. The specific features of impulse-driven in comparison to compulsive consumer behaviour

In marketing research, impulse-driven and compulsive consumer behaviour are regarded as two adjacent and common phenomena in consumers' lives. As specific behaviour forms deviating from normal and usual consumer behaviour, impulse-driven and compulsive behaviour draw significant attention of both scholars and practitioners. Marketing researchers, psychologists and sociologists agree that both these types of behaviour are affected by three decisive determinants – consumers' inner states and moods, personal characteristics, and environment factors.

The degree of purchase probability which is unintended, immediate and unconsidered by individual consumers represents the tendency of impulsive buying. Impulse-driven consumers have very flexible shopping lists; compared to other consumers, they are much more open to sudden and unexpected shopping ideas, and much more prone to spontaneous responses to marketing stimuli from the environment.

Shahjehan, Quereshi, Zeb & Saifullah (2012.) regard compulsive behaviour as an abnormal form of individual consumer behaviour, characterised by chronic purchases where the consumer feels unable to stop or adjust it. Although this deviant behaviour form can also cause a certain form of short term pleasure, viewed in the long run, compulsive behaviour tends to usurp the consumer's normal life and cause highly negative consequences. The authors quote the American Psychiatric Association's definition, stating that compulsive behaviour is "repetitive and apparently purposeless activity that an individual performs according to strict rules in a stereotypical manner" (2012, p. 2188).

A manifestation of compulsive behaviour in marketing implies purchases that a consumer cannot control, which are excessive, persistent, and become a part of everyday life. Although compulsive purchases appear to be a consequence of the product and service that are the object of devotion, which is a characteristic of impulse purchases, the primary urge and drive of compulsive purchases is disturbed feeling of delight in and because of shopping.

Ridgway, Kukar-Kinney & Monroe (2006.) point out that the basic distinction of compulsive purchases in relation to impulse-driven ones is the consumer's inability to control and influence the urge to buy, and markedly negative consequences of this type of purchases, which is not present in impulsive buying (p. 131).

Compulsive behaviour definitely leads to highly unpleasant consequences for the consumers, i.e. their private and social lives, career, and financial standing. Compulsive behaviour is a behavioural disorder with a growing incidence in society, causing disturbing consequence for it. Dittmar (2005, p. 468) presents compulsive behaviour in three dimensions – irresistible desire to buy something, total lack

of control over behaviour, and incessant excessive shopping despite all the negative consequences for the consumers and their families.

Workman & Paper (2010, p. 89) state that as many as 18 million Americans suffer from this behavioural disorder, i.e. compulsive buying disorder. The authors cite various theories attempting to clarify the mechanisms of consumers' compulsive buying behaviour, entering an in-depth analysis of its factors, and conclude that females are inclined to compulsive behaviour than males, that individuals of weak self-confidence, prone to fantasises, obsessions and depressions often buy compulsively. The authors also refute the critique of marketing, labelling it as the main culprit for compulsive buying.

Compulsive behaviour is a negative extreme of impulse-driven behaviour and can be regarded as an individual consumer's illness. The main problem of research into compulsive disorder is that it is based on surveying consumers who admit and are aware of their own behavioural disorder, which is seldom the case; most compulsive consumers negate the inability to control their shopping urge, accepting only the fact that they are impulse buyers who enjoy shopping without any dangers or consequences. However, unlike impulse-driven, compulsive behaviour is laden with addiction, materialism, negation, depression, low self-esteem and self-confidence, seeking justification and understanding, and loss of control. Compulsive consumers are basically neurotic and require the help of their families, social environment and companies.

Both impulse-driven and compulsive consumer behaviour are based on the loss of control of urge to buy, but differ in the degree and intensity of this loss of control. Impulse-driven behaviour is characterised by a much lower degree and does not entail serious negative consequences, whereas in the case of compulsive, it is all much more compelling and serious.

2.2. Factors influencing impulse-driven consumer behaviour

Impulse-driven consumer behaviour is not rare on the market, so that marketing theory and practice have invested significant efforts in clarifying it as much as possible, in order to reach certain knowledge that companies could use in practice. Over the past decades, many marketing researchers have attempted to identify factors encouraging impulsive buying behaviour.

Karbasivar & Yarahmadi (2011.) investigate the effect of external marketing stimuli on impulsive buying behaviour. The authors state that impulsive purchases are situations where the consumer does not evaluate or even identify all the shopping alternatives, nor does he evaluate the consequences of his/her decision. Consumers are only focussed on instant gratification of their strong need, not thinking of the real problem, which is to be resolved in a higher-quality manner. Impulsive purchases are always instant, affective and hedonic. The authors state numerous forms of impulsive purchases – rationally unplanned, emotionally impulsive, objectively impulsive and many others, but devote special attention to factors influencing impulse purchases and consumer behaviour (p. 175):

- External impulsive purchase factors are under full control of companies, which try to use them to incite the impulse buying mechanism, i.e. strong urge to buy something that consumers cannot resist:
  - store apparent characteristics;
  - in-store displays;
  - the in-store shopping environment – music, scents, colours, sales staff etc.;
  - price discounts and point-of-sale promotions
- Internal impulsive purchase factors are related solely to the consumer, and the company can influence them to a minor extent, but cannot control them:
  - the consumer's personality traits;
  - the consumer's emotional and affective state;
  - demographic factors;
  - situation factors – time, purpose of the purchase and disposable income.

Coley & Burgess (2003, p. 283) claim that simultaneous effect of external and internal stimuli results in positive shopping emotions and guides consumers' moods, followed by strong urge and desire to buy that the consumer cannot resist, resulting in the emergence of impulse-driven behaviour and, eventually purchase. The authors have also identified significant differences in the impulse-driven behaviour of males and females, depending on product categories.

Virvilaite, Saladiene & Bagdonaite (2009.) argue that impulsive buying behaviour occurs as a consequence of action of diverse marketing stimuli in the retail outlet, focussed on low prices and appealing promotions, resulting in unplanned purchase. In their opinion, factors influencing consumers' impulsive buying behaviour:

- characteristics of a consumer;
- peculiarities of purchase environment;
- characteristics of the product or services; and
- situation factors

Pleasant and stimulating atmosphere in the sales outlet, appealing prices, friendly sales staff, product displays, products and services with a strong effect of expressing the consumer's personality etc. have a powerful effect on the strong manifestation of the consumers' impulsive buying behaviour. Factors with a stronger experiential, entertaining and hedonic effect also have a comparatively stronger effect on the consumers' impulsive buying behaviour.
Chen (2008) deems that impulsive purchase add hedonic value to the act of shopping itself, and consequently, products and services with a high level of hedonic dimension provoke higher level of emotion and the consumer affective response, eventually resulting in impulsive purchase. The

same author lists a range of factors influencing the impulsive buying behaviour (p. 155):

- the product's characteristics;
- the consumer's mood or emotional state;
- the shopping task;
- availability of time and money; etc.

The combination of these factors influences the consumers' impulsive buying inclination spontaneously, immediately and kinetically, and, at the same time, determines the consumers' involvement, which is dependent on the interest and significance of purchase for the consumer. The author deems that the most frequent objects of impulsive purchases are "consumer goods which appear to have potential for self-presentation, self-expression, mood adjustment, diversion and entertainment" (p. 156).

Yang, Huang, & Feng (2011) study the factors affecting the impulsive purchases of cosmetic products, terming them as consumers' "weakness of will" (p. 275). The authors claim that impulse-driven behaviour, i.e. the intensity of its manifestation is individually determined by the inclination to it, affected by the company's marketing stimuli and the situation itself. The factors of economic, personal, temporal and cultural nature affecting impulsive purchases are (p. 276)

- external stimuli – display of products in the retail outlet, promotion, atmosphere, purchasing frequency of the product category, etc.;
- internal perceptions – lifestyle, the customer's personality traits, emotions, disposable money and time;
- buying behaviour – price, payment terms and conditions, and time of purchase;
- demographic characteristics – age, gender, income;
- profession, education level, marital status, social position etc.

Yang, Huang, & Feng (2011) conclude that there is a significant correlation between gender structure and impulsive buying intention, but this correlation did not turn out to be significant enough in terms of real impulsive buying behaviour.

Maričić (2011, p. 144) highlights that unplanned and impulsive purchases stand in "close correlation with the consumers' income and overall economic situation". The rise in the number of impulsive purchases is directly related with the increase in the consumers' discretionary income and vice versa.

Gasiorowska (2011) focuses the major part of her research into consumers' impulsive buying behaviour on the analysis of differences between genders on encouraging and manifesting impulsive behaviour. The author points out that females regard impulsive purchases as a game of chance that offers them a high level of stimulation and the feeling of sensational, while impulsive purchases made by males are in most cases the result of action of companies' marketing stimuli and unwanted situation of information overload that they wish to avoid by accelerating the purchase decision. Furthermore, the author states that females spend much more time shopping, which arises the feeling of pleasure and delight in them. Male consumers, on the other hand, make purchase decision much faster, and are less prone to unplanned purchases. However, male consumers devote more attention to companies marketing stimuli, placing themselves under higher probability of impulsive purchase. Females' impulsive purchases are determined by emotions and materialism, whereas the same is of instrumental character in males' case, that is, gratifying the sudden urge as soon as possible.

Generally speaking, the correlation between gender and consumer behaviour is one of the most discussed topics in marketing theory and practice. A notably detailed overview of significant analyses of correlation between gender and consumer behaviour was given by Professor Kay M. Palan from Iowa State University (2001), who was the first one to point out the importance of differentiating between the notions of biological sex and gender identity – "the fundamental, existential sense of one's maleness or femaleness" (p.1). Palan notes that there are numerous studies confirming some hypotheses on differences in behaviour, but also that most of them have no major scientific relevance, for instance a 1980 study claiming that the biological sex is a better predictor of consumer behaviour in terms of their categorisation of products and services as males' and females' than gender identity. He lists a couple of significant studies that proved scientifically that sexual identity in males much better accounts for purchase intention than biological sex, that female gender identity results in higher involvement level in purchasing votive candles at Christmas time, that promotional appeals about financial services are much better responded to by females with male personality traits, and that males remember benefits of the presents they got, whereas females remember more who the gift came from.

Tifferet & Herstein (2012) study gender difference and their influence on brand commitment, impulsive buying, and hedonic consumption. These authors prove in their research that females as consumers are more inclined to hedonic consumption and impulsive purchases. The authors find a partial explanation in females' personality structure and the fact that they are more prone to depression, and regard these impulsive purchases as a means of improving their own mental state (p. 178).

Kovač Žnideršić & Marić (2013) look into the gender differences and their correlation with consumer behaviour in terms of the application of ethical standards, and highlight all the complexity of this aspect, as female consumers are more prone to using double standards when assessing their behaviour.

Despite the immense body of research into impulsive buying behaviour, the need to study it has not diminished; on the contrary, any change in the marketing environment results in new consumer behaviour patterns, and thus new forms of expressing impulse-driven behaviour and impulsive purchases.

3. RESEARCH METHODOLOGY

A research project completed in order to support or reject the defined hypothesis was conducted on a random sample of 312 respondents in the cities of Novi Sad and Subotica. The sample was stratified by gender, and it is important to point out that 65% of the respondents were females, and 35% were males. Empirical data was gathered by means of an anonymous questionnaire comprising questions and statements about consumer intentions and behaviour related to the analysis of the respondents' impulsive buying behaviours. The respondents were asked to express the degree or agreement or disagreement on a 5-degree Likert scale. The main limitation was the sample size, and the fact that the research was based on the consumers' sincerity in answers, without verifying their actual behaviour and actual purposes.

The defined null and alternative hypotheses are:
H0: Gender as a demographic determinant does not affect consumer behaviour and impulsive purchases
H0: Gender as a demographic determinant affects consumer behaviour and impulsive purchases
The set hypothesis was tested by means of non-parametric chi squared ($\chi 2$) statistical test, i.e. characteristic function test for conditional independence, according to the following formula:

$$\chi 0^2 = \sum i=1^m \ (fi - fi^{(t)})^2 / fi^{(t)}$$

with the number of degrees of freedom r and probability of 95%, i.e. error risk $\alpha = 0.05\%$ that the characteristic independence hypothesis is rejected if $\chi 0^2 > \chi^2$.

4. ANALYSIS, LIMITATIONS AND FINDINGS

Due to the limitations in the size of the article, not all tables will be shown, but the essential results, i.e. respondents' replies to main statements are given in the tables below.

Table 1.

	I often buy totally spontaneously and depending on how I feel					TOTAL
	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	
MALES	20	38	31	80	35	204
FEMALES	6	24	44	30	4	108
TOTAL	26	62	75	110	39	312

Chi squared $\chi^2 = 34.00205112$; p value = 0.00000074; the hypothesis is rejected.

As p value 0.00000074 is lower than α error (0.05%), hypothesis H0 is rejected, so that we can conclude that there are statistically significant differences between genders in terms of manifesting impulsive buying behaviour, i.e. spontaneous purchases guided by current emotions. As 57% females and only 31% males confirmed that emotions and spontaneity, as indicators of impulsive buying, determine their behaviour, it was concluded that females are much more prone to impulsive buying, i.e. spontaneous and emotional. It is interesting to note that an identical percentage of males and females gave negative answers (28%), and that females are much more determined in this statement, as only 15% of them were neutral, whereas this percentage was much higher in males, amounting to 41%.

Table 2.

	I often buy something and reconsider it afterwards					TOTAL
	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	
MALES	15	36	36	85	32	204
FEMALES	20	36	26	24	2	108
TOTAL	35	72	62	109	34	312

Chi squared $\chi^2 = 46.26531971$; p value = 0.00000019; the hypothesis is rejected.

As p value 0.0000001 is lower than α error (0.05%), hypothesis H0 is rejected, so that we can conclude that there are statistically significant differences between genders in terms of manifesting impulsive buying behaviour, i.e. that the purchase is often made without having completed cognitive process. As 57% females and only 24% males confirmed that they often buy without prior consideration, which indicates impulsive buying behaviour, it is concluded that females are much more impulse-driven when shopping, i.e. they purchase with decreased or eliminated cognitive processes. Males are very decided in the statement that they first consider ad only then buy (52%), whereas this share in females is only 25%. 24% males and only 18% females gave a neutral response.

Table 3.

	I often regret buying something					TOTAL
	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	
MALES	12	26	15	100	51	204
FEMALES	20	38	32	14	4	108
TOTAL	32	64	47	114	55	312

Chi squared χ^2 = 64.71753123; p value = 0.00000001; the hypothesis is rejected.

As p value 0.0000001 is lower than α error (0.05%), hypothesis H0 is rejected, so that we can conclude that there are statistically significant differences between genders in terms of manifesting impulsive buying behaviour, i.e. the feeling of regret often appears after the purchase. As many as 74% females and only 17% males reported post-purchase consumer regret, which points to impulsive buying behaviour, and the fact that females are significantly more impulse-driven when shopping. Only 19% females claim that they seldom regret the purchases they made, whereas the same is claimed by 54% males. Females are highly determined in this statement, as only 7% have no opinion, whereas the percentage of neutral males is more than four times higher (29%).

Table 4.

	I often buy because it makes me happy.					TOTAL
	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	
MALES	18	34	33	85	34	204
FEMALES	20	41	25	17	5	108
TOTAL	38	75	58	102	39	312

Chi squared χ^2 = 50.91643212; p value = 0.00000001; the hypothesis is rejected.

As p value 0.0000001 is lower than α error (0.05%), hypothesis H0 is rejected, so that we can conclude that there are statistically significant differences between genders in terms of manifesting impulsive buying behaviour, i.e. that often the motive for purchase is the feeling of happiness and gratification, identified in the literature as one of the basic drives of impulsive buying. As many as 59% females and only 20% males confirmed that their purchases are often motivated by the feeling of satisfaction and happiness¸ which points to impulsive buying behaviour, and the fact that females are significantly more impulse-driven when shopping. A negative reply was given by 25%, and more than half the surveyed males, i.e. 57% stated the same. Females are much more determined in this statement, as only 15% of them were neutral, whereas this percentage was much higher in males, amounting to 41%. Females are highly determined in this statement as well, as only 16% have no opinion, i.e. opted for neutral, whereas the percentage of neutral males is 23%.

Table 5.

	I carefully plan my shopping, and make and stick to my shopping list.					TOTAL
	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	
MALES	34	72	37	38	23	204
FEMALES	6	22	22	40	18	108
TOTAL	40	94	59	78	41	312

Chi squared χ^2 = 72.4433464; p value = 0.00010820; the hypothesis is rejected.

As p value 0.0000001 is lower than α error (0.05%), hypothesis H0 is rejected, so that we can conclude that there are statistically significant differences between genders in terms of manifesting impulsive buying behaviour, i.e. that the purchase is often previously planned and shopping list is made, which is an indicator of rationality in shopping, curbing and controlling impulsive buying behaviour. The results are reversed, and show that men are more rational shoppers and consumers, because as many as 54% of surveyed males regard themselves as such. Only 30% females claim to be rational shoppers. As many as 52% accounts for women who go shopping without previous planning or making a list, compared to 26% males. The percentage of neutral is similar, amounting to 20% males and 18% females.

Table 6.

	My rationality in shopping would increase with an increase in income.					TOTAL
	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE	
MALES	18	46	61	58	21	204
FEMALES	12	43	31	19	3	108
TOTAL	30	89	92	77	24	312

Chi squared χ^2 = 73.01352694; p value = 0.00258826; the hypothesis is rejected.

As p value 0.0000001 is lower than α error (0.05%), hypothesis H0 is rejected, so that we can conclude that there are statistically significant differences between genders in terms of manifesting impulsive buying behaviour. Very often, research into impulsive buying behaviour confirms its directly proportionate correlation with income levels. The actual purpose of this statement is to gain insight into consumers' intended impulsive buying behaviour (disguised as a question about the opposite, i.e. rational behaviour) conditioned by expected growth in income. 31% of females who regard themselves as impulsive buyers in the survey believe that a future increase in income would not increase rationality of their behaviour, while 39% of them believe that a rise in income would cause a fall in impulsive purchases, i.e. increase in rationality, and 30% of females express no opinion on this statement. The structure of responses shows that females are equally distributed across the three groups, and it cannot be inferred with certainty whether an increase in income also causes an increase in rationality and reduction in impulsive buying behaviour in female consumers. As for males, only 20% of them answered that increased income will cause a rise in their rationality, whereas as many as 51% answered negatively, and a significant segment of 29% gave a neutral response. This can be explained by males' thinking pattern, i.e. the fact that they already perceive themselves as rational, so that it will not change even with an increased income, i.e. does not confirm the claim stated in some studies that increased income results in increased impulsive buying behaviour.

5. CONCLUSION

Through its social, cultural, political, legal, economic and even technological dimension, the contemporary marketing environment changes traditional behaviour patterns of both males and females. The trends in women's emancipation, their growing involvement in education, corporate management, politics and public life are extending globally from developed to developing markets. With legal regulation and departure from earlier rigid moral standards related to the individual's gender identity in society, we are witnessing a growing relativisation of differences in consumer behaviour stemming from differences in biological sex. However, despite the above mentioned trends and tendencies, consumers' impulsive buying behaviour still maintains significant differences regarding male and female consumers.

Companies will undoubtedly keep basing a noteworthy segment of their marketing plans and strategies on consumers' impulsive buying behaviour, where it is necessary to develop different approaches to male and female consumers. Companies must keep investing efforts and resources into studying the phenomenon of loss of control over the shopping urge in general, and especially monitor any change that can affect it, in terms of certain sociological and psychological processes in the consumer world, such as online gender swapping, change of gender identity, and related shopping behaviour patterns.
Finally, it is also important to highlight that consumer behaviour in all the stages of shopping can only be studied and explained through interdisciplinary approach, where the results of geographic and demographic analysis are used in the initial stages of research. This is followed by economic and sociological explanations regarding the research into external stimuli of consumer behaviour, and their interpersonal relations and communications. The final stage comprises psychological rationales, which are intrinsically internal in character, and is conducted with the aim of comprehending the intra-personal determinants, which powerfully shape consumer behaviour, in interaction with the effect of external factors.

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PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM

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ABSTRACT

In this paper, the results of the empirical research investigating the awareness, attitudes and confidence of the interested public towards authorized companies who carry out the monitoring and controlling of environmental protection in the economy are interpreted, on the example of Croatian largest cement plant. A survey research was conducted on a target sample using an in-depth interview and participant observation. One of the research aims was to determine whether the interested public believes that inspection services monitor the activity of the cement plan adequately and whether they believe their reports. In the analysis of the empirical material a grounded theory method was used, quantification of qualitatively analyzed coded material was performed using the Statistica ver 11.00, and finally, SWAT analysis was conducted.

By analyzing the aforementioned results, it can be stated that representatives of the target groups differ from each other in the variables used, and that their attitude and opinion about content items depends on the group to which they belong. The variable referring to the confidence towards inspection services had the highest projection in the first discriminant function, and the greatest differences among the target groups occur in relation to this coded question. The second discriminant function has the highest relation to the variable referring to the alignment of Croatian and EU legislation, and therefore, it contributes the most in differentiating the target groups. The variable referring to the reliability of the measurement performed by authorized institutes and laboratories has the highest correlation to the third discriminant function and the highest projection of differences.

The majority of subjects believe that inspection services monitor the activity of the cement plant adequately and they believe their reports. The results of the SWOT analysis show that the *strengths* overcome the *weaknesses* and the *opportunities* overcome the *threats*, supporting the growth strategy.

KEYWORDS: awareness, attitudes, inspection services, economy

1. INTRODUCTION

One of the most important segments affecting the world today is climate change and its impact on the economy and population. It has become a substantial global problem, and governments take significant steps to solve this problem. The speed in which physical changes of the ecosystem occur leads to economic losses and new dangers on human health and quality of life (Batelle Report br. 8, 2002). New goals for cleaner technologies from renewable energy sources are set in front of the economy. The industry is not viewed separately from its environment, it is rather viewed as a part of the system to which it is connected, and the success of the consistence of all the links in the chain of creating values is increasingly dependent on the awareness and the attitude of the public interested in the project. In the cement industry, in addition to the importance of preserving the environment and the atmosphere, the problem of climate change also brings forth serious financial consequences. CEMEX Croatia has been frequently exposed to the pressure of the public over the last ten years because of the consequences of the activities performed daily in the process of cement production, as well as to the recent efforts to meet the legal obligations of the Kyoto protocol, to introduce substitute fuels in the process of cement production in order to reduce the consumption of fossil fuels and adapt to the fight against climate change and reduce greenhouse gas emissions. The aim of this paper is to investigate the awareness of the interested and competent public about the acceptability of environmental impact of Cemex Croatia and to determine if the interested public thinks that the inspection services are adequately monitoring the cement plant and whether they believe their reports. The research hypothesis is: there are significant differences between the entities of the defined target and sector groups in their attitude towards the environmental impact of the cement plant and their confidence in the institutions of the system.

2. METHODOLOGY

The subject sample was defined by 100 entities, 55 of which were male and 45 were female. Mean age of subjects was 47.9 years. Subjects' age, education level, employment status and place of residence are presented in Table 1.

Table 1. Subjects' age, education level, employment status and place of residence

		N
TOTAL SAMPLE		100
Gender	Male	55
	Female	45
Age	Under 30	3
	Between 31 and 44	22
	Between 45 and 60	62
	Over 60	13
Education	High school	28
	Undergraduate/Graduate	72
Employment status	Unemployed	7
	Employed	82
	Retired	6
	Students	5
Town	Kaštela	39
	Solin	36
	Split	25

LEGEND: N- the number of subjects

The subjects were divided into nine subsamples (target groups) which were qualitatively defined as:
ORGANIZATIONS – representatives of non-governmental environmental organizations of Split-Dalmatia County, 10 subjects; *TOWNS* – representatives of local government employees from Kaštela, Solin and Split, 10 subjects; *BUYERS/SUPPLIERS* – representatives of buyers and suppliers of CEMEX Croatia, 10 subjects; *POLITICS/SCIENCE* – representatives of local political structures and scientists, 10 subjects; *SPONSORSHIP AND DONATIONS RECIPIENTS* – representatives of beneficiaries and recipients of CEMEX sponsorships and donations, 10 subjects; *KAŠTELA RESIDENTS* – representatives of neighbours of the plant "Sv. Juraj" in Kaštel Sućurac, 15 subjects; *SOLIN RESIDENTS* – representatives of neighbours of the plant "Sv. Kajo" in Solin, 15 subjects; *CEMEX EMPLOYEES* – representatives of CEMEX employees, 10 subjects; *THE COUNTY* – representatives of local government employees of Split-Dalmatia County, 10 subjects.

Out of the abovementioned subsamples, three new clusters (sectors) consisting of the total of 70 subjects were classified, which were qualitatively defined as:
PUBLIC SECTOR – 30 subjects from the target groups: *TOWNS*, *POLITICS/SCIENCE* and *THE COUNTY*.
CIVIL SECTOR – 20 subjects from the target groups: ORGANIZATIONS and *SPONSORSHIP AND DONATIONS RECIPIENTS.*
ECONOMIC SECTOR – 20 subjects from the target groups: *BUYERS/SUPPLIERS* and *CEMEX EMPLOYEES.*

The variable sample is represented by a set of 6 qualitatively defined questions which were used in an open and/or indirect interview.

The first variable, which was code-named *awareness_ environmental impact of* CEMEX*,* was defined based on the first question:
1. *In your opinion, how well informed are you on the environmental impact of CEMEX?*

The second variable, which was code-named *impact of CEMEX_ acceptable*, was defined based on the second question:
2. *Is that impact (of CEMEX) acceptable?*

The third variable, which was code-named *environmental impact of CEMEX _reduced,* was defined based on the third question:
3. *Do you think that the environmental impact of CEMEX has been increased or reduced in the last few years?*

The fourth variable, which was code-named *measurement reliability_authorized institutions*, was defined based on the fourth question:

4. *In your opinion, is the measuring done by the authorized institutions controlling CEMEX reliable?*

The fifth variable, which was code-named *inspection services_report authenticity*, was defined based on the fifth question which reads:

5. *Do you believe that the inspection services sufficiently monitor the operation of the cement plant and do you believe their reports?*

The sixth variable, which was code-named *eu ecological requirements_croatian ecological requirements*, was defined based on the sixth question:

6. *Do you think that cement plants in the EU work under stricter ecological requirements than those in Croatia?*

A problem-oriented in-depth interview was conducted with 100 subjects divided into nine target groups and three control sector groups representing a target sample of the interested public which is rich in information and, in its activity, involved in forming the attitudes of others.

After being presented with the problem and the aim of the research, all subjects gave a willing consent for participation in the research.

Based on written transcripts, numerical coding of responses was performed for the purposes of forming the entity matrix, defined by the overall subject sample and coded variables, for further statistical analysis. By descriptive analysis, frequency of the six code-named variables, applied for each questions, was determined, as well as their relative and cumulative values. Discriminant analysis of differences between the defined subsamples (target groups) was also conducted, as well as the analysis of differences between the three classified clusters (sectors).

Quantification of qualitative empiric material and transformation to the numerical form was performed for the purposes of further statistical analysis. Complete statistical analysis was performed by STATISTICA, Ver.10.00 software package. *SWOT* analysis was also used in this research.

3. RESULTS AND DISCUSSION

Quantitative analysis of the entity matrix and the first variable was based on the responses obtained by the qualitatively defined first interview question:
In your opinion, how well informed are you on the environmental impact of CEMEX?

The respondents expressed their opinion on the level of awareness about the environmental impact of CEMEX.
Their responses were defined at three levels:

The *first group* represents those entities who responded: I am informed a little, I am not adequately informed, I have partial information. Quantitatively, these responses were coded by 0 (zero) for further statistical data analysis.

The *second group* defined their responses affirmatively: Yes, I am informed, I am adequately informed, I have good information. Quantitatively, these affirmative responses were coded by the number 1 (one) for further statistical data analysis.

The *third group* of respondents was classified according to the answer: I am not informed. Quantitatively, these negative answers were coded by the number 2 (two) for further statistical data analysis.

Frequency of the coded answers for the overall sample was determined by descriptive analysis.
The results of frequencies of all entities and the first variable *awareness_environmental impact of CEMEX* are presented in Table 2.

The total of 93% of respondents thinks that they are well informed and familiar with environmental impact of CEMEX. Those partially and insufficiently informed on the environmental impact of the cement plants were quantitatively expressed by 6%, and only one respondent declared he was not informed.

Table 2. Relative and cumulative frequencies of the variable *awareness_environmental impact of CEMEX*, N=100

	Count	Cumulative - Count	Percent	Cumulative - Percent
0	6	6	6.00	6.00
1	93	99	93.00	99.00
2	1	100	1.00	100.00

Legend: 0-partially, little; 1-well, adequately; 2-not informed

Quantitative analysis of the entity matrix and the second variable was based on the responses obtained by the quantitatively defined second interview question which reads:
Is that impact (of CEMEX) acceptable?
The respondents expressed their attitude on how they accept the environmental impact of CEMEX plants.
Their responses were classified at three levels.

The *first group* was classified according to the negative response and it represents those entities that responded: Environmental impact of the CEMEX plants is not acceptable.

Quantitatively, these responses were coded by 0 (zero) for further statistical data analysis.

The *second group* was classified according to the affirmative response and it represents those entities that responded: Yes, the impact is acceptable, it is acceptable now, it has been acceptable for the last few years, etc. Quantitatively, these responses were coded by the number 1 (one) for further statistical data analysis.

The *third group* represents those entities who defined their responses as: I am not sure, I am partially informed, I don't know enough, I am not fully informed, I know some information but not all, etc. Quantitatively, these responses were coded by the number 2 (two) for further statistical data analysis.

Frequency of the coded answers for the overall sample was determined by descriptive analysis.
The results of frequencies of all entities and the second variable code-named *impact of CEMEX_acceptable* are presented in Table 3.

The total of 68% respondents thinks that the impact of CEMEX is acceptable. There were 15 respondents who gave a negative response and 17 entities did not have an opinion on this question because they were not sure about the right answer, were partially informed, didn't know enough, were not fully informed, knew some information but not all, etc.

Table 3. Relative and cumulative frequencies of the variable *impact of CEMEX_acceptable*, N=100

	Count	Cumulative - Count	Percent	Cumulative - Percent
0	15	15	15.00	15.00
1	68	83	68.00	83.00
2	17	100	17.00	100.00

Legend: 0-no; 1-yes; 2- I am not sure, I am partially informed

Quantitative analysis of the entity matrix and the third variable code-named *environmental impact of CEMEX_ reduced* was based on the responses obtained by the quantitatively defined third question which reads:
Do you think that the environmental impact of CEMEX has been increased or reduced in the last few years?

The respondents expressed their attitude on the increase or reduction of environmental impact of CEMEX.
Their responses were defined at three levels:

The *first group* was classified according to the negative response and it represents those entities that responded: No, the environmental impact of CEMEX has not been reduced. Quantitatively, these responses were coded by 0 (zero) for further statistical data analysis.

The *second group* was classified according to the affirmative response and it represents those entities who responded: Yes the impact has been reduced, it has been obviously reduced, CEMEX is investing in environmental protection, the production has been reduced, the installations have been shut down, CEMEX has done a lot for protecting the environment, the impact is completely acceptable, etc. Quantitatively, these responses were coded by the number 1 (one) for further statistical data analysis.

The third group represents those entities that defined their responses as: I am not sure, I am partially informed, I don't know enough, I am not fully informed, I know some information but not all, etc. Quantitatively, these responses were coded by the number 2 (two) for further statistical data analysis.

Frequency of the coded answers for the overall sample was determined by descriptive analysis.
The results of frequencies of all entities and the third variable *environmental impact of CEMEX_reduced* are presented in Table 4.

80% of respondents expressed the opinion that the impact had been reduced, that CEMEX is investing in protecting the environment, and that the production has been reduced and some of the installations shut down. They believe that the impact is acceptable. 10% of the entities stated that the impact had not been reduced and that the changes were only "cosmetic", while 10% thinks that they are partially informed, not sure, not fully informed so they decided on the undefined answer.

Table 4. Relative and cumulative frequencies of the variable *environmental impact of CEMEX_reduced*, N=100

	Count	Cumulative - Count	Percent	Cumulative - Percent
0	10	10	10.00	10.00
1	80	90	80.00	90.00
2	10	100	10.00	100.00

Legend: 0-no; 1-yes; 2- I am not sure, I am partially informed

Quantitative analysis of the entity matrix and the fourth variable was based on the responses obtained by the quantitatively defined fourth question which reads:
In your opinion, is the measuring done by the authorized institutions monitoring CEMEX reliable?
The respondents expressed their attitude on reliability of measurement done by authorized institutions monitoring the operation of CEMEX.

Three levels of responses were defined as follows:
The respondents who answered affirmatively and who did not express confidence in measuring done by authorized institutions monitoring CEMEX, and the entities who stated that the results should be consistent but they were unfortunately not sure about that, were coded by zero (0) for further statistical data analysis.

The respondents who believe the measuring results and find them reliable and consistent were quantitatively defined by the number one (1) for further statistical data analysis.

The entities who were not sure, not adequately informed or not familiar with the way in which the measuring had been conducted, gave an answer coded by the number two (2).

Frequency of the quantitative answers for the overall sample was determined by descriptive analysis.

The analysis of the frequency results of all respondents and the fourth variable code-named *measurement reliability_ authorized institutions* was defined by a relative value of 73% of respondents who believe the results of measuring done by authorized institutions responsible for monitoring CEMEX, and who find them reliable and consistent.

16% of respondents claimed the opposite and did not believe the authorized institutions, while 11% of respondents were indecisive because they were not sure, were partially familiar with the facts or thought they did not have enough information.

The results of frequencies of all entities and the fourth variable code-named *measurement reliability_authorized institutions* are presented in Table 5.

Table 5. Relative and cumulative frequencies of the variable *measurement reliability_authorized institutions,* N=100

	Count	Cumulative - Count	Percent	Cumulative - Percent
0	16	16	16.00	16.00
1	73	89	73.00	89.00
2	11	100	11.00	100.00

Legend: 0-no; 1-yes; 2- I don't know, I am not sure, I am partially informed, I do not have an opinion

Quantitative analysis of the entity matrix and the fifth variable was based on the responses obtained by the qualitatively defined fifth interview question:
Do you believe that the inspection services sufficiently monitor the operation of the cement plant and do you believe their reports?

The respondents expressed their attitude on the objectivity of the inspection services, quality of their supervision, and reliability and authenticity of their reports.
Three levels of responses were defined as follows:

The *first group* was classified according to the negative response and it represents those entities who responded: inadequate supervision, poor supervision, I do not believe the reports, I question their objectivity and authenticity. Quantitatively, these responses were coded by zero (0) for further statistical data analysis.

The *second group* defined their response affirmatively as follows: yes, inspection services are doing a good job, I believe the authenticity of their reports. Quantitatively, these affirmative responses were coded by the number one (1) for further statistical data analysis.

The *third group* of respondents remained undefined and was classified according to the answer: I do not know, I am not sure, I am not adequately informed, I am not familiar with the facts sufficiently to answer, I am partially informed, etc.

Quantitatively, these incomplete answers were coded by the number two (2) for further statistical data analysis.

Frequency of the coded answers for the overall sample was determined by descriptive analysis.
The analysis of the frequency results of all respondents and the fifth variable code-named *inspection services_report authenticity* indicated a relative value of 78% of entities who believe the reports of the inspection services, who think that they perform the control and supervision well.

On the other hand, the respondents who question the authenticity of the reports and believe that the authorized inspection services do not provide sufficient control were numerically defined by a relative value of 20 %.

2% of the entities were not adequately informed, were not sure and remained undefined at this question.
All quantitative results of frequency N=100 and the coded variable *inspection services_report authenticity* are presented in Table 6.

Table 6. Frequencies of the variable *inspection services_report authenticity.* N=100

	Count	Cumulative - Count	Percent	Cumulative - Percent
0	20	20	20.00	20.00
1	78	98	78.00	98.00
2	2	100	2.00	100.00

Legend: 0-no; 1-yes; 2-I don't know, I am not sure

Quantitative analysis of the entity matrix and the sixth variable was based on the answers obtained by the sixth interview question:
Do you think that cement plants in the EU work under stricter ecological requirements than those in Croatia?
The respondents expressed their opinion about their knowledge on the ecological requirements in the EU and Croatia.
Three levels of responses were defined as follows:

The *first group* was classified according to the negative response and it represents those entities who responded: No, European ecological requirements are not stricter in the EU, Croatia has the same ecological requirements as the EU, regulations, laws and requirements are the same in the EU and Croatia. Quantitatively, all responses were coded by zero (0) for further statistical data analysis.

The *second group* defined their answer affirmatively as follows: Yes, ecological requirements are stricter, especially in Scandinavian countries, EU has better supervision and requirements than Croatia. Quantitatively, all affirmative responses were coded by the number one (1) for further statistical data analysis.

The *third group* of respondents remained undefined and was classified according to the answer: I don't know, I am not sure, I am not adequately informed, I am not familiar with the facts sufficiently to answer, etc. Quantitatively, these incomplete answers were coded by the number two (2) for further statistical data analysis.

Frequency of the coded answers for the overall sample was determined by descriptive analysis.
The analysis of the frequency results of all respondents and the sixth variable code-named *eu ecological requirements_croatian ecological requirements* indicated a relative value of 45% of entities who believe that EU does not have stricter ecological requirements than Croatia, but that these are better enforced and applied.

Relative value of 24% accounts for the respondents who think that Croatia and EU have comparable ecological regulations, laws and requirements. The total of 31% entities were not adequately informed, were not sure and remained undefined at this question. All quantitative results of frequencies N=100 and the coded variable *eu ecological requirements_croatian ecological requirements* are presented in Table 7.

Table 7. Frequencies of the variable *eu ecological requirements_croatian ecological requirements,* N=100

	Count	Cumulative - Count	Percent	Cumulative - Percent
0	45	45	45.00	45.00
1	24	69	24.00	69.00
2	31	100	31.00	100.00

Legend: 0-no; 1-yes; 2-I don't know, I am not sure, I am partially informed

Table 8 shows statistically significant differences of all six code variables used according to target groups, their separate Wilks' lambda values that indicate the overlapping between the variables, F-test value that indicates the ratio of differences between the groups and within the groups, and the level of statistical significance p.

Variables: ***awareness_environmental impact of CEMEX***, ***inspection services_report authenticity*** and ***eu ecological requirements_croatian ecological requirements*** were statistically significant at the level of p=0.00, whereas the variable ***measurement reliability_authorized institutions*** had a tendency of significance at the level of p=0.06.

Table 8. Analysis of differences of the content domain *PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM* according to the *target group*, N=100

variable	Wilks' - Lambda	F-test	p-value
awareness_environmental impact of CEMEX	0.12	3.2	0.00
impact of CEMEX _acceptable	0.09	0.4	0.93
environmental impact of CEMEX _reduced	0.10	1.6	0.15
measurement reliability_authorized institutions	0.11	2.0	0.06
inspection services_report authenticity	0.24	17.8	0.00
eu ecological requirements_croatian ecological requirements	0.13	5.1	0.00

Legend:Wilks' lambda- coefficient of statistical significance, F-test- coefficient of F-test differences, p-value- level of significance

Discriminant analysis on six variables between the nine target groups determined three statistically significant functions. Coefficients of canonical discrimination, Wilks' lambda, as well as their level of statistical significance, are presented in Table 9.
The first two discriminant functions are significant at the level of p=0.00 whereas the third discriminant function has the level of significance p=0.01.

BY ANALYSING THE RESULTS WE CAN STATE THAT REPRESENTATIVES OF THE TARGET GROUPS DIFFER SIGNIFICANTLY IN THE VARIABLES USED AND THAT THEIR ATTITUDE AND OPINION ABOUT THE CONTENT QUESTIONS PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM DEPEND ON THE GROUP TO WHICH THEY BELONG.

Table 9. Discriminant analysis of the content domain *PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM* between the target groups, N=100

	Eigen- value	Canonicl - R	Wilks' - Lambda	Chi-Sqr.	df	p-value
1	2.98	0.87	0.09	221	48	0.00
2	0.75	0.65	0.36	94	35	0.00
3	0.36	0.52	0.62	43	24	0.01
4	0.14	0.35	0.85	15	15	0.47
5	0.03	0.17	0.97	3	8	0.94
6	0.00	0.06	1.00	0	3	0.96

Legend: Can. R-coefficient of canonical discrimination, Wilks' lambda- coefficient of statistical significance, Chi.Sqr.- Chi Square -coefficient of statistical significance, df- degrees of freedom, p- level of significance

The contribution of each variable used in explaining the differentiating power in discriminant function is presented in Table 10.

The variable ***inspection services_report authenticity*** had the highest projection in the first function and the groups differed most according to this coded question.

The second function had the highest correlation to the variable ***eu ecological requirements_croatian ecological requirements*** and therefore it contributed most to the differentiation between the target groups.

Measurement reliability_authorized institutions had the highest correlation to the third discriminant function and the highest differentiating projection.

Table 10 Discriminant analysis of the content domain *PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM* between the *target groups*, N=100

variable	Root 1	Root 2	Root 3	Root 4	Root 5	Root 6
awareness_environmental impact of CEMEX	-0.06	-0.58	-0.13	0.70	0.37	0.07
impact of CEMEX _acceptable	0.26	0.10	-0.13	-0.24	0.90	-0.19
environmental impact of CEMEX _reduced	-0.13	0.17	0.60	0.36	-0.27	-0.62
measurement reliability_authorized institutions	0.04	0.13	0.61	0.12	0.48	0.61
inspection services_report authenticity	0.97	-0.06	-0.16	0.18	0.03	-0.05
eu ecological requirements_croatian ecological requirements	-035	0.80	-0.32	0.32	0.07	-0.16

Legend: ROOT- discriminant function

Centroids of the target groups are presented in Table 11, indicating how much each group participates in explaining each discriminant function, and based on its sign, which groups are separated.

In the first function, the representatives of *ORGANIZATIONS* and *SOLIN RESIDENTS* differ significantly in their attitudes and opinions in comparison to the seven remaining *target groups*. In the second function, the representatives of the *target groups TOWNS, BUYERS/SUPPLIERS, POLITICS/ SCIENCE* and *SOLIN RESIDENTS* differ significantly in comparison to the five remaining defined subsamples. In the third function, the representatives of *TOWNS, SPONSORSHIP AND DONATIONS RECIPIENTS, SOLIN RESIDENTS* and *CEMEX EMPLOYEES* and *THE COUNTY* are distinguished by their positive centroids and they differ significantly in their attitudes and opinions on the content domain *Environmental impact of the cement plant.*

Table 11 Centroids of the target groups in discriminant analysis

	Root 1	Root 2	Root 3	Root 4	Root 5	Root 6
ORG	-3.8	-0.59	-0.4	0.05	0.00	-0.09
TOW	0.7	0.31	0.0	0.67	-0.10	-0.01
BUY/SEL	1.0	1.81	-0.1	-0.52	-0.06	-0.07
POL/SCI	1.6	0.27	-0.1	0.61	0.03	-0.03
SPO/DON.REC	0.9	-0.45	0.6	-0.12	0.43	-0.02
RES/KAŠ	0.6	-0.36	-1.2	-0.19	0.04	0.05
RES/SOL	-2.0	0.73	0.5	0.02	0.00	0.09
CEM/EMP	0.9	-0.95	0.5	-0.22	-0.18	-0.00
COU	0.9	-0.95	0.5	-0.22	-0.18	-0.00

Legend: ROOT- discriminant function

After analysing the differences between the *target groups*, discriminant analysis was applied between the three defined *sector groups*.
Quantitative values of the applied coded variables and their individual statistical significance for the content domain *PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM* are presented in Table 12. Out of the total of six variables, two coded answers were statistically significant: ***awareness_ environmental impact of CEMEX*** and ***inspection services_ report authenticity*** at the level of p=0.01 and p=0.00.

Table 12 Analysis of differences of the content domain *PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM* according to the *sector group,* N=70

variable	Wilks' - Lambda	F-test	p-value
awareness_environmental impact of CEMEX	0.58	4.5	0.01
impact of CEMEX _acceptable	0.53	1.2	0.30
environmental impact of CEMEX _reduced	0.51	0.1	0.95
measurement reliability_authorized institutions	0.51	0.4	0.67
inspection services_report authenticity	0.80	17.9	0.00
eu ecological requirements_croatian ecological requirements	0.51	0.3	0.76

Legend: Wilks' lambda- coefficient of statistical significance, F-test- statistical significance of differences, p-value- level of significance

Coefficient of canonical discrimination of 0.65 indicates that the first discriminant function, with 12 degrees of freedom, is statistically significant at the level of p=0.00 (Table 13).

Table 13 Discriminant analysis of the content domain *PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM* between the sector groups, N=70

	Eigen- - value	Canonical - R	Wilks' - Lambda	Chi-Sqr.	df	p-value
1	0.73	0.65	0.51	44.0	12	0.00
2	0.15	0.36	0.87	8.8	5	0.12

Legend: Canonical-R-coefficient of canonical discrimination, Wilks' lambda-coefficient of statistical significance, Chi.Sqr.-Chi Square- coefficient of statistical significance, df- degrees of freedom, p- level of significance

By inspecting the factorial structure of discriminant functions, we can see the contribution of each coded variable in the discriminant power of differences. The variable ***inspection services_report authenticity*** with its numerical value of 0.92 explains the first function for the most part and represents their correlation (Table 14).

Table 14 Discriminant analysis of the content domain *PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM* between the sector groups, N=70

variable	Root 1	Root 2
awareness_environmental impact of CEMEX	-0.26	-0.92
impact of CEMEX _acceptable	0.18	0.18
environmental impact of CEMEX _reduced	-0.04	-0.10
measurement reliability_authorized institutions	0.07	0.01
inspection services_report authenticity	0.92	-0.13
eu ecological requirements_croatian ecological requirements	-0.15	0.17

Legend: ROOT- discriminant function

Centroids of the *sector groups* in Table 15 indicate how much each group participates in explaining each discriminant function and based on its sign, which groups are separated.
In the first and the only significant discriminant function, the *civil sector* differs with statistical significance in the variables of the content domain *PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM* in comparison to the *economic* and the *public sector*.

Table 15 Centroids of the sector groups in discriminant analysis

sector	Root 1	Root 2
civil	-1.30	-0.03
public	0.60	-0.35
economic	0.50	0.55

Legend: ROOT- discriminant function

SWOT analysis of the content domain *PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM*

Strengths:

- *1st question:* the analysed frequency results of all entities and the first variable *awareness_ environmental impact of CEMEX* indicate that the target groups including the representatives of *CEM/ EMP* (CEMEX employees), *BUY/SUP* (buyers and suppliers) and *SPO/DON.REC* (*sponsorship and donations recipients*) think that they are well informed and familiar with the environmental impact of CEMEX, as does the *economic sector* (16/20).
- *2nd question:* affirmative coded answer for the variable *impact of CEMEX_acceptable* was given by the representatives of the *economic sector* (17/20), who think that the environmental impact of CEMEX is acceptable, as does the majority of the target group *CEM/EMP* (CEMEX employees), *BUY/SUP* (buyers and suppliers) and *SPO/DON.REC* (*sponsorship and donations recipients*).
- *3rd question:* by analysing the frequency of the third variable *environmental impact of CEMEX_reduced*, it can be noticed that the representatives of *BUY/ SUP*, *SPO/DON.REC* and *CEM/EMP* think that the environmental impact of CEMEX has been reduced. All respondents of the target groups and the *economic sector* responded affirmatively.
- *4th question*: the analysis of the frequency results of all entities and the fourth variable code-named *measurement reliability_authorized institutions* indicates that the economic sector fully (30/30) believes the results of measurement done by the authorized institutions responsible for monitoring CEMEX, and that they find them reliable and consistent.
- *5th question*: the analysis of the frequency results of all entities and the fifth variable code-named *inspection services_report authenticity* indicates that the *economic sector* fully (30/30) believes the inspection services supervising and monitoring the legality of operation of CEMEX, and finds their reports to be authentic.

Weaknesses:

- *6th question*: the analysis of the frequency results of all entities and the sixth variable code-named *eu ecological requirements_croatian ecological requirements* indicates that 50% of representatives of the economic sector think that EU cement plants work under stricter ecological standards and that the legislation in the area of environmental protection is at the higher level.

Opportunities:

- *1st question:* the analysed frequency results of all entities and the first variable *awareness_ environmental impact of CEMEX* indicate that 93% of respondents think that they are well informed and familiar with the environmental impact of CEMEX, the whole *public sector* thinks (30/30) that they are well informed and familiar with the environmental impact of CEMEX, as does the majority of the *civil sector* (19/20).
- *2nd question*: the frequency results of all entities and the second variable code-named *impact of CEMEX_acceptable* indicate that 68% of respondents believe that the environmental impact of CEMEX is acceptable, as do the representatives of the *public sector* (22/30).
- *3rd question:* the frequency results of all entities and the third variable *environmental impact of CEMEX_reduced* indicate that 80% of respondents expressed a clear attitude that the environmental impact of CEMEX has been reduced, that CEMEX is investing in environmental protection, and that large investments in environmental sanitation and protection are evident. The majority of both *public* (25/30) and *civil sector* (15/20) expressed the attitude that the environmental impact of CEMEX has been considerably reduced.
- *4th question*: the analysis of the frequency results of all entities and the fourth variable code-named *measurement reliability_authorized institutions* was defined by a relative value of 73% of respondents of the target groups who believe the results of measurements done by the authorized institutions responsible for monitoring CEMEX, and they find them to be reliable and consistent, as do the representatives of the *public sector* that fully supports the work of the authorized institutions.
- *5th question*: the analysis of the frequency results of all entities and the fifth variable code-named *inspection services_report authenticity* indicates a relative value of 78% entities who believe the reports of the

supervising inspection services, they believe that their monitoring and supervision of the legality of the CEMEX operation are being executed professionally, as does the majority of the public sector (28/30).

Threats:

- *6th question*: the analysis of the frequency results of all entities and the sixth variable code-named *eu ecological requirements_croatian ecological requirements* indicates a relative value of merely 45% entities who think that EU does not have stricter ecological requirements than Croatia, as does the minority of the *civil sector* (9/20). The majority (11/15) of the *target group KAŠ/RES* (Kaštela residents) thinks that EU cement plants work under stricter standards, whereas the representatives of the *target group SOL/RES* (Solin residents) stated that they did not know or were not sure (12/15).

SWOT analysis of the content domain *PUBLIC CONFIDENCE IN INSTITUTIONS OF THE ENVIROMENTAL PROTECTION SYSTEM* indicates that the *strengths* (5) overcome the *weaknesses* (1) and the *opportunities* (5) overcome the *threats* (1), which supports the theory of growth.

CONCLUSION

The representatives of the interested public differed significantly depending on the target and sector group to which they belong because they do not have at their disposal a good enough set of information about the environmental impact of the cement plant. They express significant distrust in institutions of the system that monitor the operation of CEMEX, but also express the opinion that EU cement plants work under stricter ecological standards. SWOT analysis showed that the strengths and the opportunities overcome the weaknesses and the threats, which significantly supports the growth strategy. Therefore, the initial hypothesis that reads: there are significant differences between the entities of the defined target and sector groups in their attitude towards the environmental impact of the cement plant and their confidence in the institutions of the system is fully confirmed and accepted. CEMEX should continue with the existing environmental monitoring and report to the public about all activities to ensure an acceptable impact and constantly improve their own structure, reputation and image. It is necessary to constantly set new goals of environmental protection and to reduce the pressure on the environment, to build confidence in new technologies of the cement industry, and to point to examples of good practice of EU cement plants.

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