

THESIS ON ECONOMICS H42

**The Role of Management Values,
Knowledge Management and Conflict
Management for Improvement of
Organisational Sustainability**

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Dissertation was accepted for the defence of the degree of Doctor of Philosophy in Business Administration on 28 November 2014

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Defence of the thesis: 9 January, 2015

Declaration:

Hereby I declare that this doctoral thesis, my original investigation and achievement, submitted for the doctoral degree at Tallinn University of Technology, has not been submitted for any academic degree.

Anu Virovere



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ISSN 1406-4782
ISBN 978-9949-23-716-6 (publication)
ISBN 978-9949-23-717-3 (PDF)

MAJANDUS H42

**Juhtimisväärtuste, teadmusjuhtimise ja
konfliktijuhtimise roll organisatsiooni
jätkusuutlikkuse tagamiseks**

ANU VIROVERE

CONTENTS

LIST OF PUBLICATIONS.....	7
The author’s contribution to the publications.....	8
INTRODUCTION.....	9
List of Abbreviations.....	16
1. THEORETICAL FRAMEWORK.....	17
1.1. Management Values and Value Systems.....	17
1.2. Change of Management Values, Real and Propagated Values.....	19
1.3. Conflict Management.....	21
1.4. Knowledge Management.....	22
1.5. Organisational Culture and Climate.....	23
1.6. Organisational Culture and Safety Management System.....	25
2. METHODOLOGICAL APPROACH.....	27
2.1. Philosophical Bases.....	27
2.2. Research strategy.....	28
2.3. Structure of the study.....	29
2.4. Research methods and data collection.....	30
2.4.1. Qualitative study.....	33
2.4.2. Quantitative study.....	35
2.5. Data analysis.....	36
3. RESULTS.....	39
3.1. Estonian Managerial Values in Organisation’s Value Systems Ensuring Sustainability.....	39
3.2. Change of Management Values in Estonian Business Life.....	40
3.3. Propagated and Real Values in Estonian Organisations According to Conflict Analysis.....	41
3.4. Formal Safety Versus Real Safety: Quantitative and Qualitative Approaches to Safety Culture.....	44

3.5. Knowledge Management – a Neglected Dimension in Discourse on Safety Management and Safety Culture	46
3.6. Managers’ Perceptions of Organisational Safety: Implication for the Development of Safety Culture	47
3.7. Development of the Organisational Self-Assessment Tool for the Identification of Real Management Values in Order to Ensure its Sustainability	48
4.CONCLUSION	51
4.1.Thesis contribution	52
4.2.Implications	54
4.3.Study limitations	55
4.4.Future research	55
REFERENCES	57
Appendix 1	71
Appendix 2.....	89
Appendix 3	107
Appendix 4	127
Appendix 5	155
Appendix 6	171
Appendix 7 Interview plan	185
Appendix 8 Summary of the articles	191
Appendix 9 Comparison of the values found in the current research with the literature management values studies	197
ELULOOKIRJELDUS.....	201
CURRICULUM VITAE	205
ACKNOWLEDGEMENTS	210
KOKKUVÕTE.....	211
ABSTRACT	214

LIST OF PUBLICATIONS

The thesis is a collection of six original publications. The publications are referred to in the text below by their respective Roman numerals:

- I. Titov, E., **Virovere, A.**, Meel, M.; Kuimet, K. (2013) Estonian Managerial Values in Value Systems in Ensuring Sustainability of Organisations, *Journal of Management and Change*, 1/2 (30/31): 66-81. **(ETIS 1.2)**
- II. **Virovere, A.**, Titov, E., Meel, M. (2011). Change of Management Values in Estonian Business Life in 2007-2009, *Chinese Business Review*, 10 (11): 1028-1042 **(ETIS 1.2)**
- III. **Virovere, A.**, Titov, E., Kuimet, K., Meel, M. (2013) Propagated and Real Values in Estonian Organisations According to Conflict Analysis. International Business – Baltic Business Development, Prause, G., Venesaar, U., Kersten, W (eds.). Peter Lang GmbH: 107-124. **(ETIS 3.1)**
- IV. Järvis, M., **Virovere, A.**, Tint, P. (2015). Formal Safety Versus Real Safety: Quantitative and Qualitative Approaches to Safety Culture – Evidence from Estonia. *Proceedings of the Latvian Academy of Sciences* (forthcoming, **ETIS 1.1**).
- V. Järvis, M., **Virovere, A.**, Tint, P. (2014) Knowledge Management – a Neglected Dimension in Discourse on Safety Management and Safety Culture – Evidence from Estonia. *Scientific Journal of Riga Technical University, Safety of Technogenic Environment*. Vol.5, pp.5-17. **(ETIS 1.2)**
- VI. Järvis, M., **Virovere, A.**, Tint, P. (2014). Managers' Perceptions of Organisational Safety: Implication for the Development of Safety Culture. *Scientific Journal of Riga Technical University, Safety of Technogenic Environment*. Vol.5, pp.18-28. **(ETIS 1.2)**.

Other publications related to the topic:

- **Virovere, A.**, Rihma, M., (2009) Ethics Auditing and Conflict Analysis as Management Tools. Working Paper in Economics, Vol.26 pp. **(ETIS 3.4)**
- **Virovere, A.**, Kooskora, M., Valler, M. (2002). Conflict as a Tool for Measuring Ethics at Workplace, *Journal of Business Ethics*, 39; 75-81. **(ETIS 1.1)**
- Valler, M., **Virovere, A.** (2010) Structural Capital as the Success Factor, Using Intellectual Capital to Increase the Competitiveness, LAP Lambert Academic Publishing.

The author's contribution to the publications

Paper I. The author assessed and described the managers' values to group them and to place the values identified in the value systems.

Paper II. The author was responsible for the general and theoretical framework of the article. The author analysed and interpreted the results of the study and participated in writing the article.

Paper III. The author of this thesis is the primary author of *Article III*, responsible for the general framework and data collection. The author conducted qualitative research, analysed and interpreted the case studies results and participated in writing the article.

Paper IV. *Article IV* is the outcome of all authors' joint contribution but they agree that the thesis author made the main contribution in particular to the core idea and composition of the publication. The thesis author wrote the article and participated in writing the theoretical part of the article, the national media analysis and the data analysis of the national Work Environment questionnaire survey and in the interpretation of the survey results.

Paper V. The thesis author participated in the further development of the reciprocal safety culture model (parts of *Relationships and Conflict Management, communication and knowledge sharing, Organisational Values*) as well as in the data analysis of the national Work Environment questionnaire survey in order to empirically test the proposed model.

Paper VI. In Article VI the author of the thesis was responsible for the general framework and participated in the analysis of the national Work Environment questionnaire survey as well as in the organisational context of safety culture as an organisational value. The author analysed and interpreted the survey results.

INTRODUCTION

The current thesis focuses on management values, their stability, changes over time and their possible changes through the conflict management and knowledge management. Values that are accepted by the employees of the organisation determine their behaviour, work satisfaction and relationships both inside the organisation and with the clients (Tuulik *et al.*, 2013; Vadi & Türk, 2009; Schumacher, 1973; Valler & Virovere, 2010; Paschek, 2009).

Management values are a **key concept** for the thesis. O'Reilly and Chatman (1996) defines values as standards or principles that are important for the person and organisation. Gini (2004) stated that values are the ideas and beliefs that influence and guide our choices and actions. According to Schwartz's (1992) theory of basic human values, the values are stable, concepts or beliefs pertain to desirable end states or behaviours, transcend specific situations that guide selection or evaluation of behaviour and events as well as are ordered by relative importance. Values perform three functions for individuals and organisations - defend against perceived threats (defensive values), facilitate adjusting to society (stabilising values), and foster movement toward self-actualisation (growth values). All these three functions of values are essential and leadership definitely plays an important role in supporting these values and creating opportunities for practicing them, creating ethical climate and sustainability of organisation (Hultman & Gellerman, 2002).

The management value system is a construct, which contributes to the sustainability of an organisation. The management values of an organisation and their stability determine the success of the organisation in the long run. They also determine the beliefs of the manager about the employees and the organisation. Moorman *et al.* (1993) point out that the most important value is fairness and it should even be one of the core values in an organisation. Collins and Porras (1994) claim that for the sustainability of an organisation it is essential that the core values stay the same. Effective leadership is about finding the balance between economic success and the well-being of employees, and at the same time, it is about the balance between the society and the owners' demands.

DeGeorge (1999) ties organisation's success more directly to ethical values, assuming that the freedom of business to make profit is limited by the values of fairness, equal opportunity, honesty and truthfulness and therefore it is justified to place ethical values above all other values. Other researchers (Mulki, 2009; Moon & Bonny, 2001) have also mentioned the importance of ethical values. Barnowe *et al.* (2003) tried ethical behaviour to social capital, based on the fact that making human relations more ethical directly increases the value of social capital. Alas and Tuulik (2004) developed the idea of importance of ethical values further. They stressed organisation's ethical competencies by which they mean a company's ability to change its activities so that they conform to a set of ethical standards, and thus, manage its own values and commitments. Therefore, when an organisation relies on ethical values, these values also appear in organisational behaviour as

ethical competencies and thereafter the behaviour of the organisation as a whole encourages employees to work harder, resulting in overall improved performance.

Empirical research in Estonian organisations indicates that the best predictors of attitude towards change are ethical values and business ideological values (Alas, 2009). The ability to use crisis and change as a productive conflict and to rely on true business ideological values in practice, would enable the organisation to make the right choices as well as to be sustainable. To understand a productive conflict we should consider conflict management strategies because they strongly influence subsequent interactions and outcomes, and conflict issues because they impact on conflicts management strategies through thoughts and feelings (De Dreu *et al.*, 1997). A well-managed conflict enables people to understand reality, accept boundaries and increase their psychological welfare (De Dreu *et al.*, 1997, p.33). Conflict studies conducted in Estonia demonstrate that Estonian leaders lack the knowledge of ethics (Virovere *et al.*, 2002; Virovere & Kure, 2001). Therefore, the willingness to resolve conflicts and understanding the usefulness of a good and motivating work climate is missing.

Somech *et al.* (2009) demonstrate that conflict management enables a group to grow into a team and therefore achieve greater productivity and readiness to change. Organisational culture and microclimate are directly influenced by a manager's leadership style and leadership values (Rahim, *et al.*, 2001, Mulki, *et al.*, 2009) and also determine how conflicts are solved.

Schein (1985, p.9) defines organisational culture as "a pattern of basic assumptions invented, discovered, or developed by a given group, as it is learning to cope with its problems of external adaptation and internal integration". Organisational culture reveals itself in the organisation's climate. Safety culture as a sub-culture of an organisation can be defined as the product of the individual and group values, attitudes, beliefs, risk-perceptions (Lee & Harrison, 2000). Safety climate refers to employees perceptions of whether safety is valued and prioritised by an organisation (Zohar, 1980; Colley *et al.*, 2013).

Identification of the research problem

Values are the ideas and beliefs that influence and direct our choices and actions (Gini, 2004). Studies differentiate the organisational values (Jaakson, 2010; Melé, 2009, 2010) and organisational culture as well as behaviour patterns of its members that create an effective and sustainable organisation. Significantly fewer studies and literature are available on how to reach the common shared values that ensure the sustainability of the organisation and such a supportive organisational culture that enables employees' wellbeing as well as conflict solving and managing. In addition, it is essential to adopt safety and employees' health and safety behaviour as organisational values and share them between all its members instead of keeping them formally on paper. Reviews of organisational values surveys have identified some common constructs related to management values; however, sometimes

ambiguity prevails in the assessment of these values, i.e. whether these are propagated or real management values.

According to results from Estonian researchers (Järvis, 2013; Reinhold *et al.*, 2009), there is a lack of appreciation of safe working environment and employee's involvement in Estonian organisations. A safe and healthy working environment is an important element of work life quality (Fugas *et al.*, 2012) and many researchers have shown strong interest in the behavioural aspects of it (DeJoy, 2005; Frazier *et al.*, 2013; Rao, 2007). Frazier *et al.* (2013) stated that the organisation's mission and values alone cannot create or change a culture, interventions at the level of an individual employee are necessary.

Despite the growing interest in knowledge management (KM) (Hislop, 2013; Podgorski, 2010; Schulte *et al.*, 2004) and conflict management studies (Rahim, 1992; 1986, 2002; De Dreu, 1997), only a few studies (De Dreu *et al.*, 1997; Jehn, 1994; Valler & Virovere, 2010) have covered the area of the possible impact of organisational conflict on tacit and explicit knowledge exchange. The author assumes that it is possible to minimise the discrepancies between real and propagated values with effective conflict management and knowledge management.

Despite the fact that much research has been conducted into management and organisational values (Tuulik *et al.*, 2013; Tuulik, 2007; Kooskora, 2013; Jaakson, 2010; Melé, 2012a,b; Klenke, 2005; Argandona, 2003), conflict (Volkema & Bergmann, 1995; Rahim, 2002; Virovere *et al.*, 2002) and organisational culture (Kotter & Heskett, 1992; Schein, 2004; Übius & Alas, 2010; Übius *et al.*, 2013), little attention has been paid to the combination of these aspects which enable us to diagnose the warning signals to issues that need to be improved and to be ready for changes and developments in an organisation. Based on the above arguments the areas under exploration in the present study are connected to several theoretical disciplines (see Figure 1).

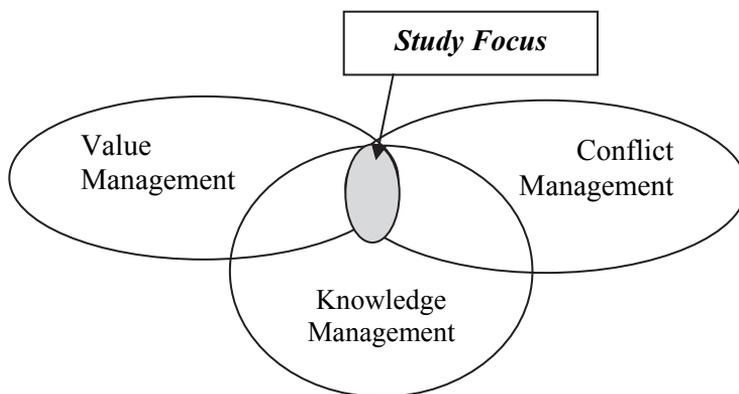


Figure 1. Conceptual framework under exploration (Source: compiled by the author)

The aim of the current thesis is to enhance the understanding of the role and importance of management values, knowledge management and conflict management in improving the organisational effectiveness and sustainability. The study focuses on how conflict management and knowledge management, as parts of the general management system, can be used for binding individual and collective learning with the goal to modify and reflect values and norms in order to integrate them into organisation's processes and structures.

Thus, the objective of this study is to analyse and understand different concepts related to management values and conflict management that an organisation needs to ensure an organisational culture which enables effective knowledge management, cooperation and collective learning. The study explores real and propagated management values and examines how these management values are implemented in Estonian SMEs based on the example of formal safety and real safety.

The result of the study offers a new approach for making the change in an organisation and developing conflict management and knowledge management as fully integrated parts of the general management system. The study proposes a practical management tool which incorporates both conflict management and knowledge management as learning instruments (and their possible effects on organisational culture and collective knowledge).

For this purpose, the current study applies theoretical and empirical evidence in examining the main research question:

How can conflict management and knowledge management be used in minimising discrepancies between real and propagated management values in order to ensure sustainability and effectiveness of an organisation as well as to improve safety culture?

The first three sub-research questions of the study help to determine which values are typical of Estonian organisations and to identify where the Estonian organisations are positioned in the value system models:

- 1. What is the relationship between management values in Estonian organisations and how can these be placed in the levels of theoretical value systems?*
- 2. What characterises the change of management values in Estonian organisations that emerged in the year of rapid growth (2007) as compared with the year of economic crisis (2009)?*
- 3. What is the role of conflict management (in particular conflict analysis) in revealing the organisation's general status and real values?*

The last three sub-research questions focused on the comprehension of the concept of organisational culture and real behaviour in the investigated companies; on the inspections and differences between propagated and real management values based on occupational safety, as an example, in Estonian SMEs:

- 4. How are real and propagated management values realised practically in Estonian SMEs based on the example of safety culture?*

5. *What is the relationship between organisational culture and knowledge management in Estonian SMEs?*
6. *How does the general management system reflect both conflict management and knowledge management as learning instruments in order to enhance safety behaviour within the Estonian manufacturing SMEs?*

Article I determines which values are typical of Estonian organisations and responds to the first sub-research question. The issues identified in *Article I* are further explored in *Article II* with a focus on the change in management values in Estonian business life in the year of the rapid growth (2007) as compared with the year of drastic decline (2009). *Article II* attempts to answer the second sub-research question. *Article III* was developed to demonstrate the differences between propagated and real management values in Estonian organisations and to answer the third sub-research question. *Article IV* aimed to tackle the fourth sub-research questions with a focus on the comprehension of the concept of organisational culture and real behaviour in the investigated companies; on the differences between propagated and real management values based on occupational safety, as an example, in Estonian organisations. The reason for choosing safety culture is to explore the difference between the real culture and the formal culture in one and the same organisation: since the real values were established based on a case study and propagated values based on the discourse analysis of the articles in the magazine *Director*, there was no possibility to compare values in one and the same company. While studying safety culture in an organisation it was possible to study the formal culture based on written documents, procedures and regulations, because safety culture is the only sub-culture of organisation culture which includes documented regulations. In order to assess the real culture the actual safety behaviour of employees was studied, interviews and surveys were conducted. The documentation of safety regulations and procedures enabled researchers to explore the difference between the formal safety culture and the real safety culture (the actual behaviour). *Articles V* proposes a model for an organisational (safety) culture with a knowledge management dimension and addresses the fifth sub-research question. *Article VI* provides knowledge on the relationships of different aspects of organisational (safety) culture and shared values among members in Estonian organisations and answers the fifth and sixth sub-research questions.

Research Methodology

The philosophical basis of this study is constructivism, which sees organisational value and culture as a socially constructed concept with a multi-dimensional nature and provides an understanding of their concepts. In constructivism, values are seen as essential in shaping the outcomes of inquiry.

The research is descriptive and attempts to provide an understanding of the real management values and the role of the conflict and knowledge management in an

organisation. The current study adopted a multi-method approach, using multiple case studies. The data were collected during the period of 2007-2009 and 2011. The main research methods were document analysis (critical discourse analysis), sixteen interviews with managers, eight focus group discussions with employees and evaluation questionnaires. In addition, on-site observations, media and company's homepage analysis were conducted.

The current study implemented analysis of the published articles in the business magazine *Director* (in issues of 2007-2009, 2011), collected 60 cases of conflicts descriptions and relevant supplementary documents such as organisational strategy and policy, plan and instructions, procedures and inspections, incidents and accident investigations, training and meeting records. For data analyses, descriptive statistical methods and factor analyses were applied.

Expected contribution of the study

The study makes the following contributions:

1. The study increased understanding of the context of Estonian management practices and values as well as of the changes of management values that emerged in the period of 2007-2009, 2011 in the context of economic crisis. The current study provides knowledge on the influence of economic crisis on an organisation, management, on working environment and valuing the employee, innovation and creativity, teamwork, risk-taking, the managers' attitudes, shared values (in particular the need for knowledge management and learning as a value) and stability of values in Estonian organisations (See *Articles I-IV*).
2. The study provides important empirical evidence of the existing real management values in Estonian organisations. The novelty of the practical part of this research lies in an attempt to group the managerial values of the organisations under study, which enables us to place them better in the levels of theoretical value systems (Melé's, Beck and Cowan's, Schumacher's value system models). Values determine and shape the organisational culture and management decisions. The author proposes definitions to management values as real values and propagated values (*See Articles I-III*).
3. The study outlines the role of conflict analysis in the assessment of the real (shared) values of an organisation (*See Article III*).
4. The study provides conceptual clarification of the role of conflict management, focusing on conflict analysis, as a research tool for revealing organisation's general status and real values as well as a learning instrument, and its possible effect on the flow of information and exchange of tacit and explicit knowledge. The author asserts that the established conflict

management procedures need to be a fully integrated part of the general management system and the conflict, like most culturally-based issues, must be recognised, acknowledged and managed in an organisation (*See Articles III-VI*).

5. The thesis develops an innovative conceptual management model for organisational (safety) culture, which served as a basis for developing a questionnaire or/and checklists, which can be used as an effective self-assessment tool in an organisation in order to manage conflict and existing knowledge as well as to change climate, and thus, organisational culture. The proposed model incorporates both conflict management as a learning instrument (and its possibility to influence the safety culture and collective knowledge) as well as knowledge management (*See Articles IV-VI*).
6. The dissertation contributes to the theory of organisational culture by analysing social capital and workplace conflicts as parts of that culture, emphasising the importance of collective knowledge and learning (*See Articles IV, VI*).
7. The present study has made two major contributions to the existing methodology. First, the study sheds new light onto the methodology for determining the real values of organisations by presenting the basis for analysing whether the real values of organisations support the sustainability and success of organisations. The second methodological contribution concerns the methodology of the evaluation of organisational (safety) culture by applying quantitative and qualitative approaches, which allows researchers to capture and analyse in detail organisational, behavioural and psychological aspects of organisational culture (*See Articles III-VI*).

Overview of the approval of research results

Results from all surveys included in the present thesis have been published and presented by the authors at international scientific conferences, following the acceptance of peer-reviewed submitted abstracts.

- Results from the study concerning the relationships between management values, employee well-being (e.g. personal growth and learning) and conflict management were presented at the 11th EAOHP (European Academy of Occupational Health Psychology) International Scientific Conference, London, UK, April 2014.
- The results from the empirical examination of the developed management model as an effective management tool for conflict and knowledge management and the theoretical framework for applying the concept of

Intellectual Capital for value-based management were presented at the Riga Technical University 54th International Scientific Conference, Riga, Latvia, October 2013.

- The results concerning empirical examination of the relationships between different aspects of real and propagated management values based on example of safety, and conflict management as a learning instrument were presented at Occupational Health and Safety: From Policies to Practice', Riga, Latvia, December 2012.
- The findings that indicated the change in values in the conditions of economic crisis and showed that economic values dominated ethical and social values were presented at the 23rd EBEN Annual Conference "Which Values for Which Organisations", Trento, Italy, 9-11 September, 2010.
- Results from the study concerning Estonian managerial values in value systems in ensuring sustainability of organisations and analysis of the results from the qualitative study were presented by the author at the International 25th EBEN Annual Conference "Work, Virtues and Flourishing", Barcelona, Spain, September 2012.
- Results from the survey concerning ethical values and conflict analysis as a management tool for evaluation of the ethical level of the organisation as well as the real situation in an organisation were presented by the author at the 22nd EBEN Annual Conference "Pathos for Ethics, Business Excellence, Leadership and Quest for Sustainability", Athens, Greece, September 2009.
- Results from the survey concerning ethics auditing and conflict analysis indicating that ethics auditing and conflict analysis provide information about ethical behaviour and managerial decisions in organisations were presented by the author at the EBEN Research Conference "Conflicts in the World of Business Ethics" Beersheba, Israel, 2009.

Abbreviations

CDA – Critical Discourse Analysis

CSR – Corporate social responsibility

IC – Intellectual capital

KM – Knowledge Management

SC – Social Capital

SMEs – Small and Medium-sized Enterprises

SMS – Safety Management System

OH&S – Occupational Health and Safety

1. THEORETICAL FRAMEWORK

1.1. Management Values and Value Systems

Sustainability and efficiency of an organisation are directly related to the organisation's values, leadership, management, and the extent to which people are motivated and committed to work. Sydänmaanlakka (2003, p.38) defined six different perspectives to management and expressed those by way of questions: How to lead yourself and others? How to manage things, technology, markets and strategy? All these six perspectives or activities must be integrated into a general management system, the effectiveness of which depends most on the leadership competences. Good leadership is based on universal values and principles. (Sydänmaanlakka, 2005, p.57).

Many researchers in business ethics have shown interest in the question of how profitability and feasibility of business ethics are connected and how to build an organisational strategy based on ethical principles (Wagner-Tsukamoto, 2008; Blanchard & Peale, 1988; Melé & Guillen, 2006). Values perform three functions for individuals and organisations – they defend against perceived threats (defensive values), help to adjust to society (stabilising values), and foster movement toward self-actualisation (growth values) (Hultman & Gellerman, 2002). Jaakson (2010) reviewed relevant surveys and differentiated three main types of values, such as survival values, ethical values and well-being values. Rokeach (1973) presented two sets of values on an individual level – the first set consisted of end-states of existence values, and the second set were “instrumental” or modes of conduct values. Mowles (2008) defines management values as a managerial instrument.

In addition, management values can be classified according to different perspectives, for instance: legal, ethical and economical (Carroll, 1979). The majority studies of organisational values have differentiated management values which are in correlation with sustainability and effectiveness (See Table 1).

All these values are essential and leadership and management play an important role in people accepting those values. Managing by values is a relatively new management theory (Blanchard & O'Connor, 1997; Sydänmaanlakka, 2005, 2007), which focuses on the role of ethics and values in leadership as well as management and in business in general. The key to business ethics is the question of how to develop people in such a way that they would be able to solve ethical dilemmas and behave morally while making business decisions (Mulki *et al.*, 2009; Melé, 2010; Connor & Becker, 1994). Each person's development and behaviour is influenced by the environment in which he or she acts and the culture and values of that environment are of prime importance. Organisational values are directly connected to management and leadership and values that managers use while making decisions (Melé & Guillen, 2006; Melé, 2010, 2012a). It is often asked why some organisations are successful and others are not. O'Reilly and Pfeffer (2000) claim that every organisation's success is based on its fundamental values

and beliefs, the main principles that the management practices are based on. In their studies of successful companies, O’Reilly and Pfeffer (2000, p.14) point out: “These companies begin with a set of fundamental values that are energising and capable of unlocking the human potential of their people – values such as fun, fairness, challenge, trust, respect, community, and family. These values are then used to develop or at least evaluate management policies and practices.”

Table 1. The list of core organisational values which enable organisational sustainability and effectiveness

Core values	Author(s)
Fairness	Moorman <i>et al.</i> , 1993
Sustainability	Collins & Porras, 1994
Flexibility, ability to thrive	
Ethical values: fairness, equal opportunity, honesty, truthfulness	De George, 1999
Ethical values	Mulki, 2009
	Moon & Bonny, 2001
Ethical values, ethical behaviour	Barnowe <i>et al.</i> , 2003
Ethical values: honesty, person’s self-respect, business ideological: quality of organisation’s product and services	Alas, 2009
Safety as value	Zohar, 1980
	Colley <i>et al.</i> , 2013
Fairness, fun, challenge, trust, respect, community, family	O’Reilly & Pfeffer, 2000
Innovation, flexibility, sustainability	Khazanchi <i>et al.</i> , 2007
Innovation, learning, creativity	Merrill, 2008
Respect, valuing of employees, justice, responsibility	Jehn, 1994; Argondona, 2003; Mulki, 2009
Creativity, innovation	Camps & Margues, 2011; Chang <i>et al.</i> , 2006
Confidence, security	Kallaste, 2010
Superior quality, service, innovation, importance of people as individuals, importance of details of execution, communication, profit orientation, goal accomplishment	Peters & Waterman, 1982
Self-directed learning, adapting to change, balance, seeking opportunities in the midst of uncertainty, utilising ability distributing rewards fairly, finding satisfaction in work, serving mutual interest, working as an owner, prizing wisdom, being authentic, seeking truth, celebrating differences, accepting people and viewing people as ends in them selves	Hultman’s values (Hultman & Gellerman, 2002)

Source: compiled by the author

An organisation’s social responsibility becomes apparent in how the organisation cares for its employees and society. Management values that managers use while making decisions can be divided into different levels of corporate social

responsibility (CSR). These are: economical, legal, ethical and philanthropic (Carroll & Buchholz, 2009; Carroll, 1979, 1991; Ferrell *et al.*, 2008; Crane & Matten, 2010; Skudiene & Auruskeviciene, 2012).

The organisational values system is a hierarchical set of values that forms the basis for any activity in an organisation. Different concepts and models are used to explore value systems of organisations (Schumacher, 1973; Melé, 2012a; Cowan & Todorovic, 2000). A value system guides and unites people, it is the foundation for developing collective thinking in an organisation (Cowan & Todorovic, 2000). The main indicator of continuous organisational success is sustainability, which is directly connected to an organisation's shared values. Companies that are classified as high performers are assumed to have a strong value-driven culture and their core values guide the decisions and actions of organisational members (Ofori & Sokro, 2010; Carroll & Hoy, 1984). Quinn and Rohrbaugh (1983) used the concept of value profile to describe the values system of an organisation. They defined the value profile as a network of organisational values with a specific orientation forming the basis of organisational culture. The sustainability of an organisation is directly connected with innovation which requires flexibility (Khazanchi *et al.*, 2007) and organisational culture that enables joint learning, experimenting and making mistakes (Merrill, 2008; Kooskora, 2013). Melé (2012a) links sustainability to ethical management using a five-level values system, the five levels of human quality: (1) mistreatment, (2) indifference toward people, (3) respectful treatment, (4) concern for people's interests, and (5) favouring mutual esteem and cooperation. Each level is characterised by certain values which demonstrate the quality of management in an organisation.

1.2. Change of Management Values, Real and Propagated Values

Andreas *et al.* (2012, p.1) discussed the effects of the economic crisis: "From a business ethics perspective the actual financial crisis has demonstrated that the mainstream neoclassical thinking, which is institutionalised both in economic theory and in business practice, could lead to abuses and misconduct since it underlines the conceptualisation of market amorality and it views the firm as a nexus of contracts with the main purpose of maximising the self-interested utility function of employees and shareholders".

The 21st century is characterised by fast changes and empirical research in Estonian organisation indicates that the best predictors of attitude towards change are ethical values (for example: honesty, a person's self-respect) and business ideological values (for example: the quality of organisation's products and services) (Alas, 2009; Alas & Vadi, 2004). The moral development of an organisation can also be used as a measure of how ethical the organisation is. Reidenbach and Robin (1991) distinguish five stages of moral development: amoral, legalistic, responsive, emerging ethical and developed ethical; a sustainable organisation is characterised by ethical leadership and moral development and

behaviour of the fourth and fifth level (Kooskora, 2013). The concepts of intellectual, social and emotional capital are also used to describe the sustainability and competitiveness of an organisation (Roos *et al.*, 1997; Thomson, 2000; Edvinsson, 2002; Stewart, 1997; Bahra, 2001). According to Thomas Stewart (1997, p. X), intellectual capital (IC) is intellectual material – knowledge, information, intellectual property, experience – that can be put to use to create wealth. It is a collective brainpower (Nahapiet *et al.*, 1998, p.245). Social capital is a part of intellectual capital. The main part of intellectual capital is relationship capital and it consists of collective actions, relationships, teamwork as well as the values and norms that those actions are based upon (Roos *et al.*, 1997; Pastoriza *et al.*, 2008). Roos *et al.* (1997) conceptualised IC as the sum of all intellectual materials – knowledge, information, intellectual property, skills, experience and learning capabilities of companies – which can be combined and utilised for competitive advantage. IC is composed of three parts – human capital, structural capital, and social capital. The intellectual capital of an organisation is the sum of its employees’ knowledge. Drucker (1999) first introduces the term ‘knowledge worker’.

Thomson’s (2000) model is based on a 6-layer model describing the organisation; the three layers (values, beliefs, feelings) at the bottom form an organisation’s emotional capital, and the top three (data, information, knowledge) form the intellectual capital (See Figure 2).

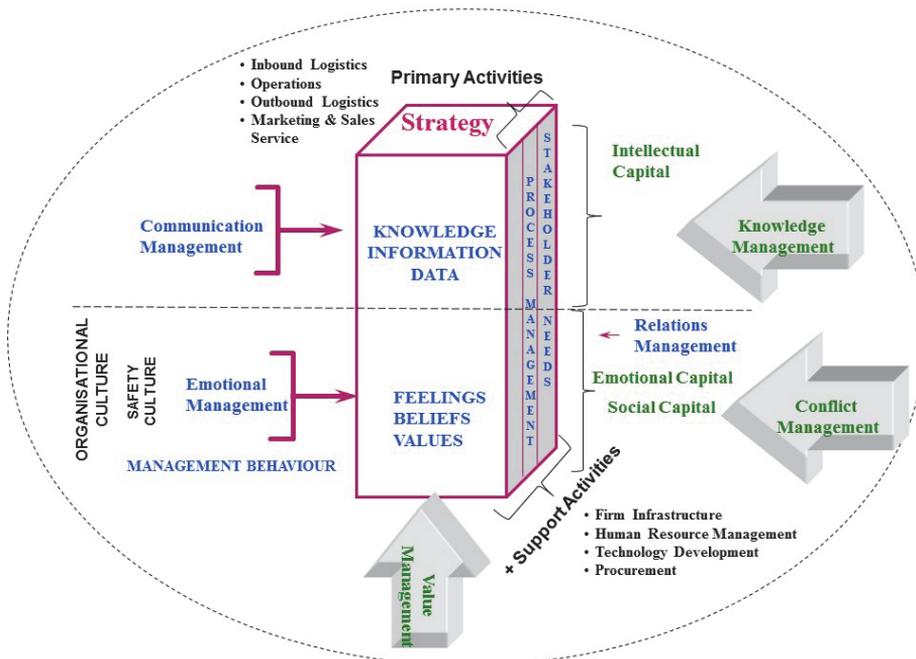


Figure 2. Conceptual framework under exploration from the Thomson’s perspective (Source: compiled by the author based on Thomson, 2000; Sharman, 1999; Sydänmaanlakka, 2003; Valler & Virovere, 2010; Ittner & Larcker, 2001)

Today's managers are under enormous pressure, especially during the economic crisis, because the rapid development of technology is forcing continuous change and new knowledge of economy requires people who are devoted to their work. The researchers (Jehn, 1994; Argandoña, 2003; Mulki *et al.*, 2009) have emphasised ethical values like respect, valuing of employees, justice and responsibility, however, at the time of crisis, ethical values have diminished remarkably. According to Northouse (2001, p.258), ethical leaders respect others, serve others, are just, are honest and build community. In order to use crisis as a possibility to develop and change economy, managers need to use ethical values.

Melé (2012a) divides organisations into five groups according to the attitude towards people; each level is characterised by certain values following of which demonstrates the quality of management.

The company's success and sustainability depend substantially on organisational values and how emotional (social) capital supports organisational learning, emergence of common collective knowledge and thus amplifies the company's intellectual capital. Emotional capital forms such an environment and organisational culture where employees are motivated and committed (Valler & Virovere, 2010; Peltomäki & Husman, 2002; Thomson, 2000).

During the time of fast changes, every organisation needs creativity and innovation and the willingness of employees to embrace changes. That means creating an environment, culture and climate where creativity is made possible. A major challenge for an organisation nowadays is to create a competitive business environment and to develop an environment that enables creativity and innovation of employees (Camps & Marquès, 2011; Chang *et al.*, 2006; Merrill, 2008), as well as confidence and security regarding the labour relationship (Kallaste, 2010) and to preserve a self-sustaining safety culture (Rao, 2007; Clarke, 2006).

1.3. Conflict Management

The main activity for each organisation and governmental authority is conflict management (Likert & Likert, 1976, p.15), which enables the acceptance of common values to be reached. Management today is faced with an enormous responsibility of ensuring optimum levels of growth and productivity in an environment that is full of conflicting situations (Hocker & Wilmont, 1995). Conflict has always been widespread in society but it is only recently that it has generated much interest and has been the focus of research.

The analysis of conflict management reveals the real values in an organisation. During a study (Virovere & Kure, 2001) 2200 conflicts were researched (1997 – 2001) and the following questions asked:

What are the reasons causing conflicts? How have conflicts been solved? How many conflicts are vertical? What are the most often violated ethical principles? As a result of the research it was found that in all cases power was more important for managers than solving the conflict and the win-win result was almost never

achieved. No clear ethical principles seemed to exist. The analysis of all the conflict cases indicated that Estonian business leaders as well as employees lack emotional intelligence, in particular, they seem to lack competence to handle conflicts and empathy (Virovere & Kure, 2001).

Previous research into conflicts in Estonia (Virovere & Rihma, 2008; Virovere & Liigand, 2002) and abroad (Harigopal, 1995; Kozan & Ergin, 1999) has identified organisational issues (limited resources and their distribution, interdependence, differences in goals and in viewpoints, managerial mistakes, unclear status and communication problems) to be the most common causes of conflicts. While analysing conflicts, it is important to determine whether the conflict is solved or unsolved and as a result, we can discover which values have been used during the conflict resolution and decision making process (*See Article III*). In addition to the main characteristics of a conflict, three important aspects can be emphasised: conflict is always related to relationships, there are several parties in a conflict and there is a problem or main question that has caused the conflict (Virovere *et al.*, 2002; Virovere & Rihma, 2008; Hocker & Wilmont, 1995). Conflicts are a way of confronting reality and creating new solutions through problem-solving; a conflict is necessary for true involvement, empowerment and democracy. In the discussions of different perspectives, people voice their concerns and create solutions addressing several points of view. A conflict provides an opportunity to form and express our needs, opinions and positions. A well-managed conflict is an investment for the future. People trust each other more, feel more powerful and efficient, and believe their joint efforts will pay off. Feeling more capable and united, people are more prepared to contribute to their groups and organisations. Success in turn strengthens relationships and individuality further (Tjosvold, 1997).

The ability to use crisis as a productive conflict and relying on true ideological business values in finding the solution, would enable the organisation to make the right changes as well as to stay sustainable. To understand productive conflict it is essential to consider conflict management strategies because they strongly influence subsequent interactions and outcomes and conflict issues since they impact on conflicts management strategies through thoughts and feelings (De Dreu *et al.*, 1997). Organisational learning can happen also during conflict management when both parties' arguments are being heard, each other's needs and limitations raised during work are understood. According to research (DeDreu *et al.*, 1997; Rahim, 2002), a well-managed conflict provides a forum for integrating ideas that originally are thought incompatible.

1.4. Knowledge Management

In a modern knowledge-based society, the competitiveness and sustainability of a company are directly linked to the way of using the existing intellectual and emotional capital (Roos *et al.*, 1997; Thomson, 2000; Edvinsson & Malone, 1997). Sustainability also depends on the innovativeness of an organisation (Übius *et al.*,

2013). Merrill (2008, p.xxi) claims that the key question in innovation is collective knowledge and organisational learning. Organisational learning and effectiveness can be enhanced through an appropriate diagnosis of and the process and structural interventions in a conflict (Rahim, 2002, p.206). In order to create collective knowledge the knowledge has to be managed in an organisation (Ramírez *et al.*, 2011). Knowledge Management (KM) has to become an important managerial instrument (Bahra, 2001). According to Hislop (2013, p.49): “There is no consensus about the question of how to define KM. There are two main approaches. One of them sees KM as a set of different information and communication technologies. The other focuses on KM methods or specifically managing people who use the knowledge”.

The sustainability and readiness for innovation of an organisation are directly connected to collective learning to create shared knowledge through the exchange of tacit and explicit knowledge. Explicit knowledge comprises objective knowledge, which is impersonal; tacit knowledge is personal and cannot be fully made explicit. (Hislop, 2013; Bahra, 2001). The creation of organisation’s knowledge takes place at three levels: individual, group and organisational and is realised through four processes: socialisation (tacit to tacit), externalisation (tacit to explicit), combination (explicit to explicit) and internalisation (explicit to tacit) (Nonaka & Takeuchi, 1995; Bahra, 2001; Hislop, 2013; Nahapiet & Ghoshal, 1998; Ramírez *et al.*, 2011). All these processes have to be managed and integrated into the organisation’s overall management system.

Leadership is one of the key topics in KM (Sydänmaanlakka, 2003; 2007). In the era of fast changes, every organisation needs creativity and innovativeness of its employees in order to embrace change. That also depends on the employees’ satisfaction with their work environment, motivation and willingness to learn. Organisational learning has been defined as “the relationship between the six learning processes (intuiting, attending, interpreting, experimenting, integrating, institutionalising) and it means institutionalisation at organisational level of changes in behaviour” (Hislop, 2013, p.87). Therefore an organisation’s managerial values are the most important assets in order to guarantee the organisation’s development, competitiveness and sustainability (Zernand – Vilson & Terk, 2009; Zernand – Vilson & Elenurm, 2010). Organisations’ values become apparent in ways of solving conflicts and disagreements. It illustrates the core values and management philosophy. Values that have been accepted and shared in an organisation are linked to employees’ work satisfaction and the organisation’s competitiveness.

1.5. Organisational Culture and Climate

Organisational culture is a set of ideas – values, visions, missions, which serve as integrating centres for skills and style on the one hand, and strategy, structure, systems, and staff on the other (Tropman, 1998). Schein (1985) identified six dimensions that reflect the composition of culture: behavioural regularities, dominant values, norms, rules, philosophy, and climate. While earlier organisation

theories focused on organisation structure, strategy and control system, these have now been replaced by organisation culture as a key to understanding people's behaviour and motivation. The role of organisation culture in organisation's success has been constantly increasing, especially culture as a set of elements less visible and difficult to measure, as shared values and beliefs", which determine people's behaviour and decision-making (Melé, 2003, p.81).

Organisational culture contains different sub-cultures, like safety culture and service culture. Sub-culture is the particular set of the ideas which characterise a particular organisation or its subparts. So it is possible to define safety culture as an example of subculture, which integrates safety behaviour and skills (Lee & Harrison, 2000). Culture can be managed and created. Therefore, it is a dynamical phenomenon the development of which is influenced by the people who are the bearers of the culture.

One promising mechanism for understanding organisational normative systems is the concept of organisational climate (Schneider, 1975). An organisational climate is defined as a set of perceptions that "are psychologically meaningful descriptions that people can agree characterise a system's practices and procedure (Victor & Cullen, 1988). Organisational climate expresses the management style and the design of public areas which all help to create the atmosphere within the organisation. Ethical climate contains cues that guide employee's behaviour and reflect the ethical character of the organisation (Cullen *et al.*, 2003; Mulki *et al.*, 2009).

The term of "safety climate" refers to perception of organisational policies, procedures and practices relating to safety (Colley *et al.*, 2013; Neal *et al.*, 2000). The studies (Zohar, 2010; Colley *et al.*, 2013) show that an individual's perception of climate matters because it has an influence on their behaviour, and ultimately on the risk of injury to themselves, and their co-workers.

Corporate Social Responsibility (CSR) strongly depends on organisational culture, climate and organisational commitment (Turker, 2009; Alas & Tafel, 2008). Carrol (1991) introduced the CSR model already in 1979 and later on continued to develop it (Carroll & Buchholz, 2009). In this model both mandatory and involuntary responsibility has three aspects: social, environmental and economic. The term used for it is Triple Bottom Line (Slaper & Hall, 2011; Meel & Saat, 2012; Reede, 2005). Johnson and Scholes (1993, p.195) identified some internal and external aspects of social responsibility: "Internal aspects include issues such as employee welfare provision, working conditions, job design and external aspects include marketing and advertising standards, employment policies and community activity". CSR is an important management tool in contemporary organisations (Melé & Guillen, 2006). Übüs and Alas (2010) show a connection between an innovative climate and two facets of CSR – the firm's respect for the interests of agents and the firm's performance concerning social issues (Dougherty, 1996). It is understood that during a period of economic prosperity managers feel more responsibility towards ethical and philanthropical commitment compared to deep recess in economy when the main focus is on economic aspects. Donaldson

(2012, p.8) sums up the ethical roots of the economic crisis as follows: "What can we learn from examining the three roots of the current economic crisis, i.e., paying for peril, the normalisation of questionable behaviour, and technology shock? Were business leaders, and, yes, let us be honest, business educators, ethically responsible for much of this mess? The answer must be yes". Mulki and colleagues (2009) show in their research that employees' efforts are positively tied to ethical microclimate and job satisfaction that is in turn tied to the leadership style of the manager. Leadership research shows that leaders are responsible for the organisation's culture and microclimate. In each organisation only the values exploited by managers are accepted (Schein, 2004).

1.6. Organisational Culture and Safety Management System

An organisation's sustainability and competitiveness are directly linked to a safe working environment and the level of acceptance of safety behaviour and valuing safety in general (Rao, 2007). Employees' behaviour is tied to an organisation's management values and organisational culture.

In order to change organisational culture and values, organisational learning involving conflict management and knowledge management (KM) can be used. It enables one to turn formal values into real values and formal safety culture into a real safety culture. Thus, organisational culture and climate can be improved through learning and developing a Reciprocal Model of Safety Culture with Knowledge Management System Dimensions: it would mean an organisational change, whereas attitudes to change will become an important issue (Choudhry *et al.*, 2007; Cooper, 2000; Jarvis & Tint, 2009a,b; Geller, 1996, 2001). In fact, it is a process of organisational learning – a vital process by which an organisation can adapt to change both on individual and organisational levels (Alas, 2009); attitudes to change become an important issue.

Organisational climate has an impact on the three dimensions of organisational culture, namely the psychological, behavioural and organisational aspects of it (Frazier *et al.*, 2013; Cooper, 2000; Guldemund, 2000; Teo & Feng, 2009; Cooper & Phillips, 1994). A safety culture (a sub-unit of organisational culture) does not have a unique and universal definition (Frazier *et al.*, 2013). However, it can be defined as the product of the individual and group values, attitudes, beliefs, risk-perceptions (Lee & Harrison, 2000), competencies, norms, principles, and patterns of behaviour that determine the commitment of employees to health and safety, as well as the style and proficiency of an organisation's health and safety programmes (HSE, 2005). Collective knowledge can be conceptualised as an employees' understanding of the organisational procedures (Lee & Harrison, 2000).

KM is an important process in knowledge intensive companies, focusing on assessment, creation, transfer, and utilisation of knowledge to address specific challenges (Valler & Virovere, 2010). From the organisations' point of view, one of the key ways to increase the efficiency of collective knowledge exchange is to develop an appropriate organisational structure as well as new and more flexible ways of working.

The most common construct in the safety culture survey is the perception of leadership and management/supervisors' attitudes and behaviours around safety (Flin *et al.*, 2000; Yang *et al.*, 2009; Hopkins, 2006). Like previous research (Järvis, 2013), this suggests that leadership (management and supervisors) should spend more time on the floor with employees and build trust, which is vital for the opportunity to convert tacit knowledge into explicit shared knowledge. Management commitment also can be demonstrated by allocation of the resources in the field of occupational health and safety (OH&S).

Frazier (2013) and colleagues have addressed the necessary core organisational culture factors, for example, peer support, integrated management systems, personal responsibility, and management support for safety.

A safe and healthy working environment is an important element of work life quality (Fugas *et al.*, 2012) and many researchers have demonstrated strong interest in the behavioural aspects of safety (DeJoy, 2005; Frazier *et al.*, 2013; Rao, 2007). Researchers and practitioners have shown increasing interest in safety culture (Choudhry *et al.*, 2007; Fernández - Muñiz *et al.*, 2007). It is important that safety as a value have been fully accepted by the employees instead of being only formal (Silva & Lima, 2005). Therefore it is essential that applying these values is achieved through management principles, good practices in OH&S. Employees have become so important that management is advised to follow the principle that an organisation is successful when it is managed as a community of persons (Melé, 2012a). To assess an organisation's sustainability and competitive power the terms of intellectual capital (IC) and social capital (SC) are used. It is a collective brainpower (Nahapiet *et al.*, 1998, p.245). Social capital is a part of intellectual capital. The main part of intellectual capital is relationship capital and it consists of collective actions, relationships, teamwork as well as the values and norms that those actions are based upon (Roos *et al.*, 1997; Pastoriza *et al.*, 2008). Roos and colleagues (1997) conceptualised IC as the sum of all intellectual materials – knowledge, information, intellectual property, skills, experience and knowing capabilities of companies – that can be combined and utilised for competitive advantage. IC is composed of three parts - human capital, structural capital, and social capital. Coleman (1988) describes SC as “consisting of aspects of social structure and identifies three forms of social capital: obligations and expectations, information channels and norms that influence and encourage behaviour.” One part of SC is safety capital, which is “organisational knowledge embedded and created in the OH&S system – (it) is a long term asset into which OH&S resources can be invested, with the expectation of an – uncertain – future flow of benefits in the form of gains in worker's protection and safety” (Nuñez & Villanueva, 2011, p.58). The organisational culture is expressed through the climate in an organisation. Previous collaborative research by the authors has shown empirically that many managers have started showing an interest in safety behaviour and performance (Järvis & Tint, 2009 a,b).

2. METHODOLOGICAL APPROACH

The research object of the thesis is organisational conflicts, management's real and propagated values, knowledge management and organisational culture, which is explored from the view of social corporate responsibility and organisational sustainability. The methodology is based on the researcher's philosophical knowledge concepts. According to Keso *et al.* (2009), the methodology uses the researcher's ontological and epistemological concepts to outline the research strategy and methods.

2.1. Philosophical Bases

The philosophical basis of the study is constructivism, which emphasises people's daily routine activities and the social construction of reality (Laherand, 2008). Constructivism is not a single doctrine, it develops in parallel with many disciplines, such as psychology, sociology, philosophy, psychiatry, and information science (Flick 2004). Constructivism sees management value and culture as a socially constructed concept with a multi-dimensional nature and provides an understanding of their concepts. In addition, constructivism explores the different perspectives of individual people, based on their beliefs, values and feelings, and assumes that these are multiple constructed realities (Healy & Perry, 2000), which are created by a human's awareness and knowledge. Values in constructivism are seen as essential in shaping inquiry outcomes.

According to Mahoney (2004), essentially, the five main issues are as follow: operational activity, arrangement, myself, involvement in social and symbolic systems, and lifelong development (Laherand, 2008). Based on constructivism, rules and principles do not exist independently of our theorising about them (Mir & Watson, 2000, 2001). Constructivists argue that people experience the world through the ongoing activities.

Ontology is the study of the nature of things and of existence of interpersonal social relations and what the existence of societies is based on (Eriksson & Kovalainen, 2008). Eriksson and Kovalainen (2008) emphasised that ontology concerns the ideas about what (knowledge) exists; what the existence of interpersonal social relations is based on, and how they are formed and transformed.

According to Colliver (2002, p.50), "Epistemology has played a central role in philosophy, given the predominance of the realist view in modern science." Epistemology is the theory of knowledge and it defines how knowledge can be produced and argued (Eriksson & Kovalainen, 2008; Desouza & Paquette, 2011). Epistemology in scientific research means certain criteria for research knowledge and it defines how knowledge can be produced and argued for (Eriksson & Kovalainen, 2008; Virta, 2011).

The ontological position of this study is to consider the phenomena being researched, namely management values, conflict management, culture - as social structures or constructions, which are constantly shaped by a variety of actors working in these fields. The axiology is the overall theory of values, ethics and history of philosophy. Ethics is concerned with the analysis of ethical values, ethical decisions, acts and attitudes. Organisational ethics is an outcome of the management decisions and choices, which are based on espoused and accepted values. In the analysis of management values, organisational culture, traditions, relationships, history are also important, because every organisation shapes its values and culture in a historical context.

Axiology takes all that a step further and studies judgements about value. Hemingway (2005, p24) cited the work of Hosmer (2003), Jackson (2010), O’Hear (2000) and Raz (2003) and emphasised: “The study of values has traditionally had its roots in philosophy as the study of axiology and can be traced back to the teachings of Socrates, Plato, and Aristotle in the form of virtue ethics”.

The current study uses Hartman’s formal axiology of values (1967) that views a universal norm of human valuing based on the axiom that goodness is the fulfilment of standards. This axiology distinguishes value as being of three kinds: *intrinsic* (is focused on unique and irreplaceable individuals; focuses on the personal ethics), *extrinsic* (is focused on materials things and on practical ethics) and *systemic* (focused on rules, systems, and conceptual organisation, moral code (Connor, 2006). According to Connor (2006, p.149): “... it speaks of respect for rules, understanding of the goodness and badness of actions, and clarity of ethical principles analysing and building an ethical organisational culture, it is imperative to identify the actual structure of their value concepts, the content of their thinking about values. It is this latter which informs their decisions”. It helps researchers to explore the underlying beliefs, values, relationship, behaviour, people’s perceptions, interpretations of their life experiences and ability to learn.

2.2. Research strategy

The current research is descriptive and aims at describing and understanding of the management values and the links between such phenomena as management values and sustainability as the key factor for organisational success. The current inductive research was conducted by using qualitative case study approaches in order to explore the issues based on constructivism.

Qualitative case study was defined as the scientific research strategy for the current dissertation, because this research involves an empirical exploration of the complex phenomenon within its real life context using multiple sources of evidence (Saunders 2003, p.93). The current strategy was selected because of the research topics such as people, behaviour, relationship, management practices and values, and organisational culture. The qualitative case study is based on describing, understanding and evaluating the research phenomena and was used in order to address ‘*what*’, ‘*which*’ and ‘*how*’-questions (Yin, 1994; Voss *et al.*, 2002;

Saunders *et al.*, 2003). The aim of the qualitative data analysis is to create clarity and thus new knowledge of the focus of the research. Therefore, the current study analyses a selection of case data to explore management values and to explain the role of knowledge management and conflict management to improve the organisational effectiveness and sustainability.

In addition, quantitative, inductive research was used in order to complement and improve answers given by the qualitative study approach. A quantitative approach was applied to recognise factors that influence management values, and management of conflict and knowledge in the organisation, to measure employee and employer attitudes and perceptions towards studied issues, relationships between co-workers, employees and the employer. Quantitative methods were also used to develop a theoretical model of safety culture with knowledge management system dimensions and to test it. Bryman (2006) suggested to combine both quantitative and qualitative approaches, and above listed considerations show different angles as to why both approaches are suitable for the purpose of this study.

One advantage of using multiple methods is that it enables triangulation to take place (Saunders, 2003). The study used triangulation forms related to the use of different data collection methods within one study, to the data (cross-checking information by using multiple empirical sources) as well as to data analysis (several researchers examined the materials).

2.3. Structure of the study

The current thesis is organised as follows (See Figure 3). The introduction chapter presents the background of the research and research objectives. It also provides a short overview about the research methods, the original contribution of the study both at the theoretical and practical level as well as an overview of the approval of research results.

The thesis is divided into three main chapters. Chapter 1 presents the short introduction to the concepts and theories applied and explains the management values, value systems and the change of management values. Next, the framework for managing the organisational conflict is outlined with a focus on knowledge management and organisational culture.

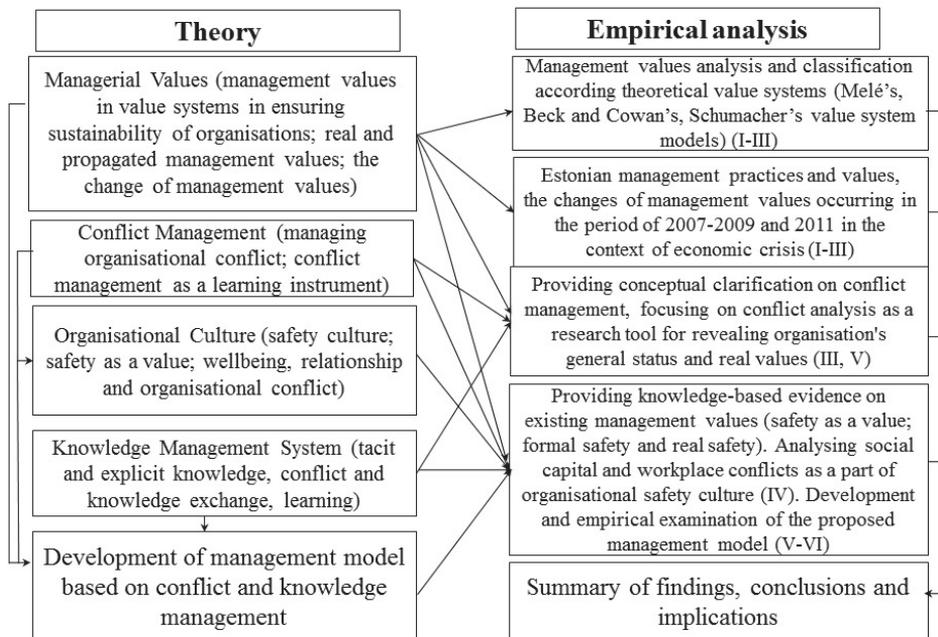


Figure 3. The structure of the thesis (Source: compiled by the author)

The materials and methods used in this research are described in detail in Chapter 2. Chapter 3 outlines the main results and applications, followed by a summary and discussion of the main conclusions of the six articles presented.

2.4. Research methods and data collection

The current study adopted a multi-method approach, using multiple case studies. As a method, it focuses on collecting, analysing, and combining both quantitative and qualitative data in a single study or series of studies. The aim of this type of research was to combine the potential of the qualitative and quantitative techniques as well as to maximise the strengths and minimise the weaknesses of both. In this research, several research methods and information sources have been used. The most important research methods were critical discourse analysis, document analysis, evaluation questionnaires, semi-structured interviews with senior managers and focus group discussions with employees. In addition, on-site observations, national media and company homepage analysis were conducted

The data collection took place during the period of 2007-2009 and 2011. The reason for selection that period was set by the objective to identify changes of management values occurring in the period of 2007 (in the year of the rapid

growth) -2009 (in the context of economic crisis. The second set of data was collected in 2009 in order to explore the changes of management values in Estonian organisations that occurred during the great financial crisis of 2008-2009, as the ensuing global economic and financial turmoil had launched changes of management values. In addition, the management values were identified also in 2011 in order to explore the stability and the consistency of the management values in the context of Estonian recovery from the recent recession.

The empirical study was conducted in eight Estonian SMEs from different branches of industry during the period from April 2009 to October 2009. Besides that, the data for this study were acquired from a national Work Environment questionnaire survey conducted by Statistics Estonia in 2009, which is a representative survey utilising employer-employee-linked data. For data processing, methods of statistics and mathematical statistics were used (in the analysis, descriptive statistical methods and factor analyses were applied). Dissertation research is described in Figure 4.

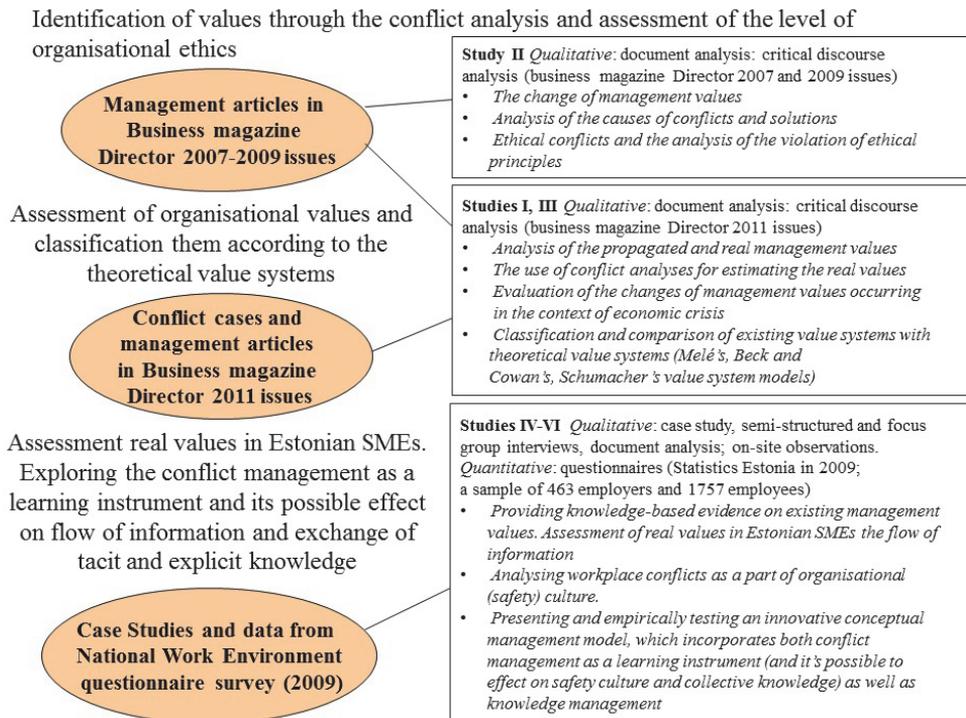


Figure 4. Description of dissertation research (Source: compiled by the author)

Appendix 8 summarises the research design in terms of the objectives, the data and methods used in the study. The order of the publications is as follows: *Article 1* examines the context of Estonian management practices and values, the links between the phenomena such as management values and

sustainability as the key factor for organisational success. In addition, the article discusses propagated management values and their placement in the levels of theoretical value systems (Melé's, Beck and Cowan's, Schumacher's value system models). *Article II* starts with the general statement that in difficult economic conditions less attention is paid to ethical values and they are substituted by economy-based values. The deep financial crisis of 2008 and the ensuing global economic and financial turmoil have caused changes in management values. The second article discusses the changes in management values in Estonian organisations that occurred in the year of the rapid growth (2007) as compared with the year of drastic decline (2009). This leads to the further exploration, in particular, to the differences between real and propagated management values in Estonian organisations. Real management values are based on the behaviour and decision-making of senior managers and guiding behavioural patterns of members (*See Article III*). In view of the importance of the differences between propagated (formal) values and real values in the organisation, further studies are described in *Articles IV, V and VI* on the example of safety culture in Estonian organisations. The reason for choosing safety culture is to explore the difference between the real culture and the formal culture in one and the same organisation: since the real values were established based on a case study and propagated values based on the discourse analysis of the articles in the magazine *Director*, there was no possibility to compare values in one and the same company. While studying safety culture in an organisation it was possible to study the formal culture based on written documents, procedures and regulations, because safety culture is the only sub-culture of organisational culture which includes documented regulations. In order to assess the real culture the actual safety behaviour of employees was studied, interviews and surveys were conducted. The documentation of safety regulations and procedures enabled researchers to explore the difference between the formal safety culture and the real safety culture (the actual behaviour). *Article IV* takes a SME perspective and explores the differences between propagated (formal) and real values, and thus provides knowledge-based evidence on existing management and shared employees' values, in particular those concerning safety culture, as for example, in Estonian SMEs. *Articles V and VI* describe an innovative conceptual model for the organisational culture, which served as a basis for developing a questionnaire, which can also be used as an effective management tool for conflict management focusing on conflict analysis, as a research tool for revealing organisation's general status and real values as well as a learning instrument. Moreover, given the lack of the theoretical work on conflict management and knowledge management,

Article VI proceeds to explore the possibilities of improving organisation culture and minimising the discrepancies between real and propagated values with effective conflict management and knowledge management.

2.4.1. Qualitative study

Written documents

The current study implemented analysis of the published articles in the business magazine *Director* (in issues of 2007-2009, 2011), collected conflict cases and relevant supplementary documents such as organisational strategy and policy, plan and instructions, procedures and inspections, incidents and accident investigations, training and meeting records. Documents were carefully analysed in order to complement and examine the data collected during the interviews. In addition, company's strategy, policy, values, vision and mission statements were analysed based on the data available from company homepages.

National media analysis

Mass media could play an essential role when planning the relevant information dissemination for the general public and for raising employees' and employers' awareness. This would imply a media re-focus towards what really matters (Moen *et al.*, 2010). In addition, national media can offer added-value presenting, discussing and analysing various opinions of practitioners, experts, trade unions and employers' federations, highlighting causes and consequences. National journals, reports, websites that contain publications and access to scientific publications on organisational culture, values, ethical behaviour and conflict management offer an essential contribution. *Article IV* explores media and public attention to several aspects of safety management system in Estonia. Thus, an Estonian media review and analyses were performed based on newsletters and journals available for the period of January 2009 - January 2013. A search was conducted via the Database of Estonian Articles Index Scriptorum Estoniae, which contains articles from newspapers, magazines and journals, serial publications and anthologies and collections from the 1990s on, allowing the full-text to be accessed in free digital archives and Web publications. Key words, such as good industrial relationship and conflict management, leadership, social capital, strategic management, safety management, employees' involvement, values, ethics and ethical behaviour, values, safety culture, health promotion and safe behaviour, were searched and only the content of those articles related to the purpose of the study were studied in Estonian, Russian, English and German (See *Article IV*).

Company homepage analysis

Organisational climate is one of the organisational components of organisational culture that is connected directly to the mission, strategy, and organisational practices. Therefore, the author carried out textual content analysis of the homepages of the eight companies included in the study in order to examine how organisational vision, strategy, mission and values reflect and express commitment

to safety as an example of management values. In addition, twenty randomly chosen company homepages of SMEs from different branches of industry and twenty five company homepages of industrial SMEs (of the most competitive fifty organisations from the Estonian Companies' Competitiveness Ranking 2012 (Estonian best enterprises, 2012) were also analysed (See *Article IV*).

Case studies

Qualitative case study methods of the present study are important to the existing scientific literature, since there is a general lack of case studies about management values, knowledge and intellectual capital management (Bürkland, 2009; Marr *et al.*, 2003) and organisational culture (Järvis, 2013; Glendon, 2008).

The aim of the case studies was to assess the real and propagated management values in Estonian organisations. In addition, the case studies were intended to promote better understanding of the management values, how Estonian organisations manage conflict and knowledge as well as to provide deeper knowledge about managers' and employees' perceptions and commitment, industrial relationships, employees' involvement.

In the beginning, 60 cases of conflict management were used in order to detect the real values. Conflict management refers to how organisation members deal with the conflict situation (See *Article III*). Further, eight Estonian manufacturing SMEs were chosen as case studies for illustration, exploration and better understanding of how safety goals and practices are realised practically as an organisational value, how managers valued it, and how they viewed their role in the improvement of organisational culture (See *Articles IV, VI*). Selection of the number of case studies is based on Miles and Huberman (1994) and Eisenhardt (1989) recommendations. An inductive approach was applied in the selected case studies, which is based on the selection of case organisations, which are to a certain extent similar to each other. The author adopted the thematic analysis as an analytical method in all qualitative case studies, which comprises collecting, describing, combining and classifying the data. Data were collected during the period April 2009-October 2009 from on-site observations, relevant documentation analysis, procedures scrutiny and interviews with managers and employees. Particular focus was on ascertaining positive aspects expected from a prescriptive organisational culture (Järvis, 2013; Frazier *et al.*, 2013; Meliá *et al.*, 2012); relationships and conflicts management (based on Melé, 2012a; Mulki, 2009; Thomson, 2000; Jehn, 1994), such as: existence of a policy emphasising safety values and actions in an organisation and shared between all employees; well-defined procedures and guidelines for all the operations integrated in work procedures; resources and investment; training and supervision; active employees' involvement in the decision-making process, task-related conflicts, ethical behaviour.

Qualitative interviews

The interview can supplement data gathered by observation and questionnaires (Bryman, 2004; Fellows & Liu, 2008). Eight semi-structured face-to-face interviews with top managers and eight interviews with safety managers were conducted in order to determine their attitudes, perceptions, values, beliefs, behaviours, knowledge and commitment. The thematic plan of the interviews is presented in Appendix 7.

The interviews were carried out in both languages, in Estonian and in Russian. Each interview with managers that lasted for two hours was completed before the employees' group interviews, carefully recorded, fully transcribed and analysed. In addition, eight focus group interviews were conducted with 22 industrial workers in order to evaluate employees' attitudes and perceptions of shared visions and values, practices, their involvement, knowledge and relationship. Each focus group interview that lasted for 45 min was recorded, then fully transcribed and analysed (*Articles IV-VI*).

On-site observations

According to Mengolini and Debarberis (2007), on-site observation could be an essential part of the methodology, which includes monitoring, capturing and analysing if the transformation and the output of the transformation comply with the organisational values and norms. Observations provide a researcher with the data about the real values in organisations, collective behaviour, for instance, to identify employees' behaviour (formal and real safety), the real management values which form managers' behaviour and decisions.

2.4.2 The quantitative study

Questionnaires

Kerlinger (1986) stated that questionnaire design is essential as item arrangement, structure, and possibility to study research questions. Questionnaires allow a researcher to obtain opinion from respondents as well as to identify core organisational culture dimensions, individual preferences, and organisational values can be assessed along the same dimensions. Delobbe and Haccoun (2002, p. 6) stated: "A questionnaire item would read the degree to which "respect for individuals" or "flexibility", for instance, are characteristics of the firm's culture".

In the current study, questionnaires were designed to assess organisational culture as shared values, to study the person-organisation fit as a predictor of work attitudes and patterns of behaviours and norms. According to Cooke and Rousseau (1988, p260), patterns of behaviours and norms can be defined as the "ways of thinking, behaving, and believing that members of a social unit have in common".

The current study used results from a national questionnaire survey, which was carried out by Statistics Estonia in 2009. Two questionnaires were administered anonymously to employees and employers from manufacturing SMEs, which were structured around norms, perceptions, attitudes, values, conflicts, responsibility, commitment, learning process and patterns of behaviour. The study comprises a

sample of 463 employers and 1757 employees who filled the questionnaires. Results from the analysis of the data are presented in *Articles IV-VI*.

2.5. Data analysis

Qualitative study

Qualitative data were used in six of the seven articles. Two first articles employ the first set of data collected from the articles in the business magazine *Director*, issues of 2007 and 2009, 2011 (*see Articles I, II, III*). The second set of data was collected through the case of conflict management in order to identify the real management values. Conflict is informative and, in particular, in the conflict resolution process the appearing behaviours and strategies demonstrate that the management values and principles exist in the organisation and conflict analysis; as a research tool, it allows researchers to reveal organisation's general status and real values. Conflict management refers to how organisation members deal with the conflict situation (*See Article III*).

Articles IV and VI employ the third set of data gathered from eight SMEs through 24 interviews (employers and employees) and case studies, on-site observations conducted in the manufacturing SMEs from four industries. The interviews followed a thematic guide (Appendix 7). Data from semi-structured interviews with senior managers and safety managers as well as from focus group interviews with employees were recorded, carefully transcribed, the researcher went through each case separately making notes and getting to know each one before conducting the analysis.

The study used researcher triangulation according to Olander (2011) and Creswell (2003), where all co-authors read the analysed data which are then discussed. In this data set, triangulation covered the source (Voss *et al.*, 2002), using document analysis and critical discourse analysis as well as interviews as primary data and observations, media analysis and company homepage analysis as secondary data, which helps in checking the consistency of different data sources with the same method.

The current study implemented *Critical Discourse Analysis (CDA)* in order to explore and identify management values from the articles in the business magazine *Director*, issues of 2007 and 2009, 2011 (*See Articles I-III*). CDA is a relatively new addition to the varieties of text analysis, a highly context-sensitive, democratic approach which takes an ethical stance on social issues. Many studies have adopted CDA to analyse dialectically related social elements, such as, social relations, social identities, values, activities, instruments, objects, time and place, consciousness (Chiapello & Fairclough, 2002; Laherand, 2008; Harvey, 1996; Fairclough, 2001; Lauristin, 2000).

The same approach has been used by Lauristin (2000) who investigated articles from two newspapers during 10 years that were collected out of certain two month issues of each year (Lauristin's analysis is centered on typical metaphors that carry the means). While CDA focuses on how language as a cultural tool mediates relationships of power and privilege in social interactions, institutions, and bodies

of knowledge (Bourdieu, 1977; Gee, 1999; Rogers *et al.* 2005), this method enables the researcher to focus on the signifiers that make up the text, the specific linguistic selections, their sequencing and layout. In addition, CDA helps a researcher find interesting patterns and disjunctions that need to be described, interpreted and explained. To ensure validity and reliability of the exploration the author applied researcher triangulation proposed by Creswell (2003), i.e., using different observers to discover or minimise mistakes that originate from the researcher's person.

The quantitative study

The data for *Articles IV-VI* were analysed using the Statistical Package for Social Science (SPSS 17.0) software. Exploratory Factor Analysis was utilised to examine the dimensions of organisational culture. The thesis study comprises a sample of 463 employers and 1757 employees who filled the questionnaire. Statistical t-test of the mean was carried out to check the entire population's likely response to the issues raised in the questionnaire, based on the sample's ratings. The significance level of hypothesis testing was set at 0.05, which means that there is only 5% probability that the relationship was due to a random occurrence. The critical rating was set at '3' because by the definitions of the rating scale, rating above '3' represented 'agree' or 'strongly agree' with the statements of the questionnaire. According to Harvey *et al.* (2002), the number of factors that comprise safety culture varies between 3 to 19 by definition. The current survey and test results show that all sixteen (16) statements are statistically significant for the employees' questionnaire and ten (10) for the employers' questionnaire. This indicates that all factors are important in determining the effects of organisational climate on organisational culture, particularly on managing collective knowledge in the organisation. The Principal Components Analysis was conducted in the Statistical Package for Social Sciences (SPSS 17.0) on 35 items (for employees) and 30 items (for employers) and resulted in sixteen factors (for employees) and ten factors (for employers) with an eigenvalue greater than one. Factor analysis was applied to the 35 factors stating the effects of positive organisational climate in order to identify the possible underlying patterns among the original variables. This method is used to uncover the latent structure (dimensions) of a set of variables by measuring correlation of the different factors (sixteen statements for employees and ten for employers) and thus weed out the ones that are not related to each other. Factor analysis allows determining the number and nature of common factors that result in correlations among the factors and to obtain an understanding of the nature and dynamics of their relationships. The combination of the factors into a principal component helps to evaluate and explain the importance of combined factors. Principal components are extracted by varimax rotation of the original variable and each consecutive component is uncorrelated to the other. The Kaiser method was used in order to pick factors with eigenvalues greater than 1.0. This method reduces the huge amount of data and separates them into a single uncorrelated component. After the application of the factor analysis, sixteen (16)

factors (for employees) and ten (10) factors (for employers) were grouped into principal components under each main category: 'organisational', 'psychological' and 'behavioural' aspects of organisational culture (See *Articles VI-VII*).

3. RESULTS

Below the results of the doctoral thesis are reviewed and the different aspects of quantitative and qualitative analyses are compared.

First, the overview of all six publications, presents their overall objectives, the main findings and contribution as well as their interrelation to the cumulative development of the main research questions: *which management values will ensure the sustainability of an organisation and how can conflict management and knowledge management be used in minimising differences between real and propagated values in order to ensure the sustainability of an organisation as well as to improve safety culture.*

The collection of publications for the dissertation is summarised in Appendix 8, which shows in detail the link between the thesis and the research questions and objectives as well as attempts to explain the originality, findings and contribution of each publication. Each of the selected publications covers and elaborates on a range of aspects related to the importance of management values, conflict management and their relation to organisational sustainability and effectiveness as well as to organisational culture.

Different methodological approaches (qualitative, quantitative, literature review and conceptualisation) were used in order to explain the basic framework and to tap into the issues of the current thesis. Moreover, different viewpoints and both large organisations and SMEs were analysed to acquire a more general and comprehensive understanding of the phenomenon.

3.1. Estonian Managerial Values in Value Systems in Ensuring the Sustainability of Organisations

3.1.1. Overall objective

Article I (see Appendix 1) determines which values are typical of Estonian organisations and attempts to group determined propagated management values in Estonian organisations and to place them in the theoretical value system models (Melé's, Beck and Cowan's, Schumacher's value system models). In addition, the article explores the links between such phenomena as management values and sustainability of an organisation. The sub-research question that this paper aims to answer is: *Which is the relationship between management values in Estonian organisations and how can they be placed in the levels of theoretical value systems?*

3.1.2. Results and main contribution

Article I identifies several essential management values, for instance, *innovation and creativity, risk-taking, flexibility, enterprisingness and learning and development.* The current research shows that collectivism related values such as *cooperation and teamwork* are important. The *social responsibility, trust,*

communication, commitment and passion values imply that cooperation is a need to feel a so-called part of the whole, either of society or an organisation.

This article is based on the understanding that corporate values are not only powerful drivers of individual and organisational performance, but are also the criteria by which decisions about priorities are made. Resulting from the analysis of the three value systems (to assess the place of management values propagated in Estonia in these systems), it is possible to conclude that in terms of propagated values, Estonia has acquired higher levels of value systems. At the same time, studies on the Estonian management sector (Enterprise of Estonia, 2011) have demonstrated that in reality Estonian organisations are at a much lower level in their management practices based on the models discussed above (Melé, Schumacher & Beck, Cowan). Estonian managers have mostly short-term financial goals and although the organisations are very different, however, the management practices are similar. In addition, insufficient attention is focused on employee development and involvement, in addition different modern management methods are not implemented. Hence, there is a gap between *real and propagated* value systems.

It may be concluded that the propagated management values express the desirable work environment for the managers rather than the existing one. This shows that in the contemporary rapidly developing economic environment, an organisation is unable to be successful and sustainable without using all of the creative potential of the employees. *Article I* highlights the importance of the management values for the competitiveness and sustainability of the organisation.

3.2. Change of Management Values in Estonian Business Life in 2007 – 2009

3.2.1. Overall objective

The issues identified in *Article I* are further explored in *Article II* (see Appendix 2) with a focus on the change in management values in Estonian business life in the year of the rapid growth (2007) as compared with the year of drastic decline (2009). It was hypothesised that in difficult economic conditions of financial crisis less attention is paid to ethical values and economy-based values will take their place. The current article attempts to answer the second sub-research question: *What characterises the change of management values in Estonian organisations that occurred in the year of the rapid growth (2007) as compared with the year of economic crisis (2009)?*

3.2.2. Results and main contribution

As a result of the evaluation of the constancy of management values in the period of financial crisis in Estonia, a certain change in management values (2007-2009) was found. The deep financial crisis of 2008 and the ensuing global economic and financial turmoil caused changes in management values, for instance, the need for knowledge management and learning as a value. This is in line with a study

conducted in Holland (2010), whereas a lack of knowledge was also deeply implicated in the crisis. The centre position is occupied by survival rather than by competition, but still sustainability is tied to innovation and creativity.

The results of the current study correlate at large with Peters and Waterman (1982) who demonstrated the importance of values like superior quality and service, innovation, importance of people as individuals as well as communication. The article points out that values such as communication and importance of people diminish during the crisis in the investigated organisation.

Moorman *et al.* (1993) emphasises that the most important value is fairness and it should even be one of the core values of the organisations; however, the present study shows that fairness as a value is decreased at the crisis period.

Article II explains Hultman's and Gellerman's (2002) point of view on fairness and honesty, whereby the occurrence of honesty is increased and occurrence of fairness is significantly decreased, i.e. it confirms that the importance of ethical values is decreased at the time of crisis.

As the current research confirms the importance of ethical values like respect, valuing of employees, justice and responsibility has diminished remarkably, the set hypothesis — at hard times economic concerns prevail over ethical and philanthropic ones — has proved right. At the same time, the will of an organisation to keep the status quo and not to use the crisis as an opportunity for positive changes stands out.

Article II concludes with the following three statements:

- De George (1999) and Bergeron (2007) demonstrated that the organisation's sustainability, employees' motivation and performance are directly related to the existence of ethical values. Thus, the significant reduction in the ethical values can be a warning sign for the company's competitiveness and readiness for changes (Alas, 2009). In addition, focusing only on profit decreases the success of the company (De George, 1999).
- It is most important in the sustainability of an organisation that the core values stay the same.
- In conclusion, when the year of 2007 was described by innovation and creativity, communication and caring as values, also valuing the employee, then in 2009 innovation and creativity remained important, but ethical values such as fairness, respect and valuing of employees lost their significance.

3.3. Propagated and Real Values in Estonian Organisations According to Conflict Management Analysis

3.3.1. Overall objective

Article III (see Appendix 3) addresses the sub-research question: *What is the role of conflict management (in particular, conflict analysis) in revealing the organisation's general status and real values?* The main objective of the study was

to demonstrate the differences between propagated and real management values in Estonian organisations and to explore the possibility to use conflict analyses for estimating, which are the real (shared) management values of an organisation.

3.3.2. Results and main contribution

The results of *Article I* showed that the propagated values in Estonian organisations were placed on the third, fourth and fifth levels of Melé’s model, but the real values were situated on all the levels of Melé’s model, whereas the higher levels were represented only through a very small number of values. According to the results of the study, even though managers knew which values should be the “right” values, they did not follow them in conflict resolution and decision-making. By placing the values that managers used for conflict resolution and decision-making (that are the real values) into Melé’s model, it was identified that the values of the two higher levels were used by the real decision-making process only in 5 out of 45 cases, whereas in 47 cases they were proceeded from the lower levels. In addition, the study results reveal that real and propagated values, located on the same level, do not coincide completely (see Figure 5). Whereas propagated values rather represent higher levels of Melé’s classification, the reality is more focused on lower level values.

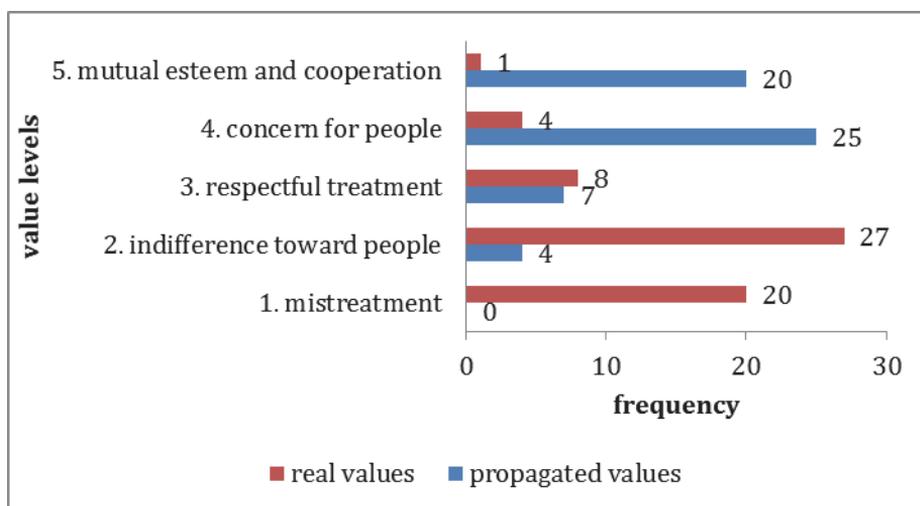
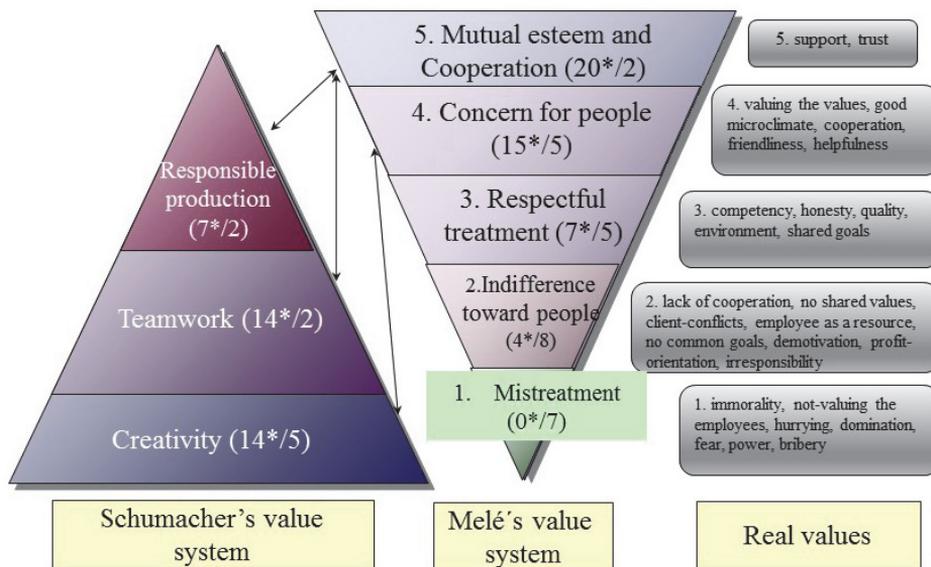


Figure 5. The propagated and real values according to Melé’s value system (Source: compiled by the author based on survey results)

The article concludes that the managers of Estonian organisations know which the right values are, but they do not try to implement them as shared values in the organisations (See Appendix 9). The analysis of conflicts showed that cooperation and teamwork were poorly valued by management in contradiction with the exploration of propagated management values where teamwork was considered very important and was directly linked with the sustainability and effectiveness of

an organisation. One explanation could be that teamwork is possible in organisations that are, according to Melé's theory, developed to the 4th or 5th level, but out of all the real values (all together 92) only 5 were located on level 4 and 5. This clearly demonstrates shortcomings in the quality of management. This article undertakes a deeper analysis of the 60 cases of conflict descriptions in order to explore the real management values. The paper describes horizontal (15) and vertical conflicts (45) in the organisations and identifies two main causes of the conflict: due to communication mistakes and differences in goals. Based on the conflict analysis, the study identified the values that caused the conflict and also those values that were used in resolving or not resolving the conflict. In spite of dominant economic environment, only one limited resources conflict appeared among the 60 analysed conflicts. No direct connection was found between the type of the conflict and the value level defined by values used in solving the conflict - irrespective of conflict type, different values were used in solving the conflict. Neither was any connection found between the size of the organisation under research (where the conflict took place) and the value level.



* propagated values

Figure 6. The comparison between propagated and real management values according to Schumacher's and Melé's value systems. (Source: compiled by the author)

The author anticipated that successful resolution of conflicts necessitates behaviours and solutions that are connected to the so-called higher values like mutual esteem and cooperation, concern for people, respectful treatment and indifference toward people.

3.4 Formal Safety versus Real Safety: Quantitative and Qualitative Approaches to Safety Culture – Evidence from Estonia

3.4.1. Overall objective

The issues identified in *Article III* are further explored in *Article IV* (see Appendix 4) with focus on the comprehension of the concept of organisational culture and real (safety) behaviour in the investigated companies; on the differences between propagated and real management values based on occupational safety as an example. The paper was developed to answer the fourth sub-research question: *How are real and propagated management values implemented in Estonian SMEs based on the example of safety culture?*

3.4.2. Results and main contribution

The publication examines differences between formal and real organisational cultures, which are based on differences between the real and the propagated management values, and evaluates safety as an organisational value in Estonian SMEs from different industries. In addition, educational programmes were evaluated in the investigated SMEs in order to highlight the social and cultural character of learning in organisations, and thus attribute the role of social capital, through which the collective learning is enabled and engaged. The author emphasises the role of the social capital as a key factor for organisational sustainability and effectiveness as well as one possible approach to enhancing the safety culture.

The results of the study contribute important empirical evidence on how SMEs address health and safety. A statistical analysis of organisational culture questionnaires shows that many organisations carry an outstanding organisational culture, positive attitudes and highly valued safety. However, this positive phenomenon could be similar to a formal, propagated and image-based approach to safety. It was explored in-depth, with focus on the differences between ‘formal’ and ‘real’ safety. At the same time, qualitative data indicate some important safety weaknesses and aspects, which should be included in the evaluation process of organisational culture. Results from the questionnaire survey revealed that employees evaluated positively all aspects of work, such as general management practice, job satisfaction and work organisation. However, employees’ involvement in different activities in an organisation was limited and weak. While social capital requires collective activities, networks, cooperation, employees’ active involvement and commitment, the results from the current survey showed a lack of social capital in SMEs in Estonia. The study also demonstrates that health and safety, employees’ wellbeing and managing the existing knowledge are not the core issues in a company. In addition, the study results demonstrated that safety is not considered as a management value and a vital factor for promotion in the company homepages as one part of the company identity (*Article IV*).

The paper recommends employees’ health and safety behaviour as organisational values to be adopted and shared between all employees throughout

the organisation and not only formally existing on paper. Reviews of organisational values surveys have identified some common constructs related to such values (*Article III*) as: described, propagated and shared or real values; formal or real values. Employees' attitudes and behaviour are based on adopted and recognised values. Therefore it is essential to apply these values through management principles, good practices in OH&S, as well as through employers' and employees' commitment to safety on a daily basis.

The current article contributes in several ways to the literature theory and methodology of safety culture. The study was the first step in the process of applying intellectual capital principles to the field of health and safety in Estonia with a special focus on KM systems and conflict management.

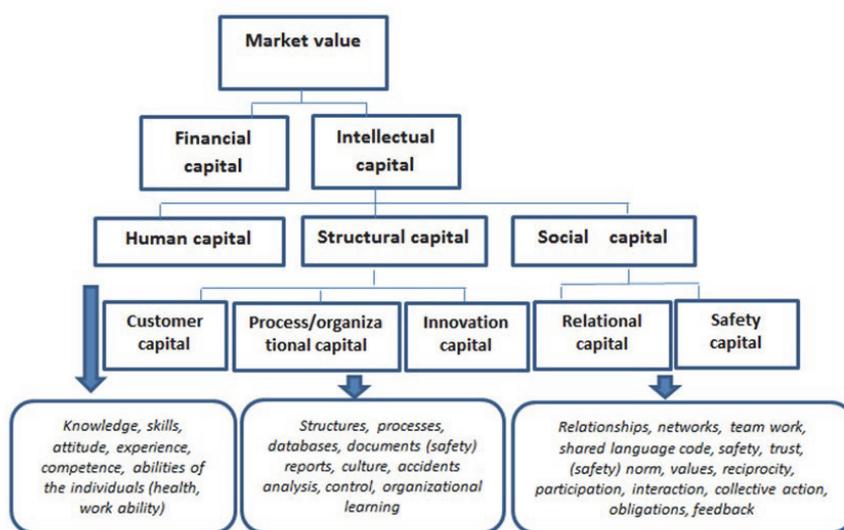


Figure 7. The intellectual capital distinction tree (compiled by the author. Source: based on Roos *et al.*, 1997)

The study (See *Articles IV, VI*) contributes to theory by proposing a possible approach to improve the organisation culture – through managing the social capital inherent in an organisation. Figure 7 demonstrates how human, structural and social capital are related to each other and connected to the intellectual capital, which ensures organisational sustainability, growth and the ability to learn.

Second, the study contributes to the methodology in terms of organisational culture research by applying integrated quantitative and qualitative approaches, which allows the capture and in-depth analysis of organisational, behavioural and psychological aspects of organisational culture, to provide an overview of the whole picture in an organisation, organisational climate (employees' perception and attitudes), shared values and beliefs that guide behaviour patterns and activities in the organisation.

3.5 Knowledge Management – a Neglected Dimension in Discourse on Safety Management and Safety Culture – Evidence from Estonia

3.5.1. Overall objective

Articles V (see Appendix 5) addresses the sub-research question: *Which is the relationship between organisational culture and knowledge management in Estonian SMEs?* Despite conceptual and empirical justification, researchers have not consistently included concepts of KM in organisational culture studies. The objective of the article was to propose a model for a positive safety culture with a KM dimension and empirically test this on a sample of 1757 employees from different branches of industry as well as to explore the possibility of using collective knowledge and conflict management in the discourse on the safety management system and organisational culture.

3.5.2. Results and main contribution

This article examines relationships between different aspects of organisational culture, presents and discusses a possible innovative conceptual model for the improvement of organisational culture consisting of KM dimensions, which served as a basis for developing a questionnaire that can be used as an effective self-assessment tool for organisational learning and conflict management.

No surveys have been conducted with a focus on conflict management as a learning instrument and its possible effect on knowledge exchange. The current study also explores relationships between employers and employees as well as co-workers, possible conflicts and solution strategies, co-workers' peer support for safety and personal responsibility, sparsely reviewed in the literature.

The results of this study indicate that safety climate has an impact on the three dimensions of organisation culture: psychological, organisational and behavioural. Under the positive safety climate, the improved employment relationship between employees and their employers and co-workers leads to a reduction in workplace conflicts and improvement in employees' satisfaction and motivation. These findings are consistent with studies (Fernández - Muñiz *et al.*, 2007; Rahim, 2002; Rooke & Clark, 2005). Good relationships also include promoting positive working environment, seeking to avoid conflict and dealing with unacceptable behaviour (Robertson & Cooper, 2011). Learning can occur through conflict management since conflict provides the opportunity to listen carefully to the arguments, feelings and needs of others (Rahim, 2002).

3.6 Managers' Perceptions of Organisational Safety: Implication for the Development of Safety Culture

3.6.1. Overall objective

The objective of *Article VI* (see Appendix 6) is to explore management and shared employees' values in Estonian organisations, to explore relationships between employers and employees, co-workers, co-worker peer support in regard to safety and to test the proposed model with a KM dimension with a focus on conflict management, using the statistical technique of the exploratory factor analysis. The current publication addresses two sub-research questions: (4) *How are real and propagated management values implemented in Estonian SMEs based on the example of safety culture?* and (6) *How does the general management system reflect both conflict management and knowledge management as learning instruments in order to enhance safety behaviour within the Estonian manufacturing SMEs?*

3.6.2. Results and main contribution

The article proposes an evidence-based model that can help to design an interactive learning environment and effective training and learning possibilities to support knowledge-management activities in the organisation.

The article analyses the results from eight case studies, which collectively contribute to a comprehensive description and qualitative assessment of the organisational culture and indicate how safety goals and practices are implemented as organisational values in manufacturing SMEs. The current research employed quantitative methods in order to explore psychological, behavioural and organisational/environmental aspects of organisational culture (employers' and employees' attitudes, perceptions toward OH&S, values, conflicts and relationships, information dissemination, risk awareness and employees' involvement).

The main contribution of the publication is statistical evidence on the positive effect of a positive safety climate in different aspects of safety culture with a special focus on managing collective knowledge and organisational conflicts within the organisation. Factor analysis was conducted to reduce the identified critical safety climate factors to sixteen for the employees (See *Article V*) and ten for the employers. Several specific features of knowledge and conflict management, such as management commitment, information dissemination, communication and workers' involvement, improvement of relationships between an employer and employees and reduction of workplace conflicts, were found to influence the positive organisational culture.

According to the results from the survey, safety is not learning-driven in the investigated SMEs. Efforts to improve future performance by learning from past performance and experience, and from the day-to-day implementation of the organisation's programmes and processes are not systematic or recognised to be of

high value for an organisation. The issues of the conflict, as part of the culture, were sensitive in all the investigated SMEs. Therefore, it was not recognised, and certainly not openly and honestly acknowledged. The subject related to the possible conflicts between employers and employees or co-workers was regarded as negative and irrelevant and, thus, rejected. This attitude is typical of the organisation that does not recognise the positive power of conflict in the innovative and learning process.

The main contribution of the study is providing the conceptual clarification on incorporated conflict management as a learning instrument and showing its possible effect on safety culture and on knowledge exchange. Furthermore, the study provides knowledge on the relationships of different aspects of organisational culture and shared values among members in Estonian organisations.

Based on the surveys, the article concludes that the integrated approaches of organisational climate assessment in the current study could provide reliable prediction of the level of overall organisational culture and real state of safety in manufacturing SMEs. This approach has the potential to improve the understanding of different features in the management system in an organisation in order to manage knowledge and conflicts. The article also suggests that the established safety management systems as well as conflict management have to be a fully integrated part of the general management system in the organisation.

3.7. Development of the Organisational Self-Assessment Tool for the Identification of Real Management Values in Order to Ensure its Sustainability

The main research question of the study was: How can conflict management and knowledge management be used in minimising discrepancies between real and propagated management values in order to ensure sustainability and effectiveness of an organisation as well as to improve safety culture? The answer to this question is presented above by reviewing answers to the sub-questions. The summary of the results of the thesis is presented in the current chapter.

The result of the study offers a new approach to making a change in an organisation using conflict and knowledge management, which are integrated into the general management system as learning instruments. It enables us to make changes both in the organisation in general and also in the organisational culture by minimising discrepancies between real and propagated management values (See Appendix 9). At the same time it enables improvement of safety culture and safety behaviour and thus obtaining an answer to the main research question. Thomson (2000, p 242) clarified the differences between the two concepts: “climate is what organisational members’ experience” and “culture is what the organisation values”. In order to change organisational culture, first organisational climate has to be changed, which means the change of business processes and languages. In other words, the change of organisational climate should focus on what people say and what they think and believe (Thomson, 2000).

Parker and colleagues (2003) explored the work climate perception in the individual level and such work outcomes as employees' attitudes, psychological wellbeing, motivation and performance. They found a distinct relationship between employees' psychological perception, motivation and work performance (Parker *et al.*, 2003). When the day-to-day language, behaviour and processes (for instance, related to safety) are in place, then a sustained change in organisational culture takes place.

In order to create an innovative working environment and change the safety culture so that it would follow all health and safety regulations, one has to start from - how concerns are voiced and how we treat work and each other. Thus, the amount of organisation's social capital is important (See Figure 7).

Social capital of an organisation consists of the cooperation and teamwork between its members, communication, socialisation, shared language, collective action and interaction. According to the study, 77% of employees consider good labour relations essential (See *Article IV*). Structural capital is composed of structure, processes, databases, culture and organisational learning. To bring about change, first the structure and the working environment has to be changed to enable teamwork and collective learning. This will change the business processes and language. According to Schneider (1975), climate includes the following elements: hierarchy, interpersonal relationships, work and support and rewards. By changing processes, managers can change a person's behaviour, attitudes and perceptions. The support of managers and co-workers is crucial (See *Article IV*). Conflict resolution methods are also important for changing the organisational climate. Analysing conflicts and listening to both parties enables us to find out differences in opinions and viewpoints, to take them into account, learn from each other and implement change.

The study examines relationships between different aspects of organisational culture, presents and discusses a possible innovative conceptual model for the improvement of organisational culture consisting of knowledge management and conflict management dimensions. This model served as a basis for developing a questionnaire or/and checklists which can be used as an effective self-assessment tool in an organisation in order to change climate, and through that also the organisational culture. The proposed model incorporates the different aspects that characterise the organisation, such as values, organisational culture, behaviour, conflicts, learning, into the general management system.

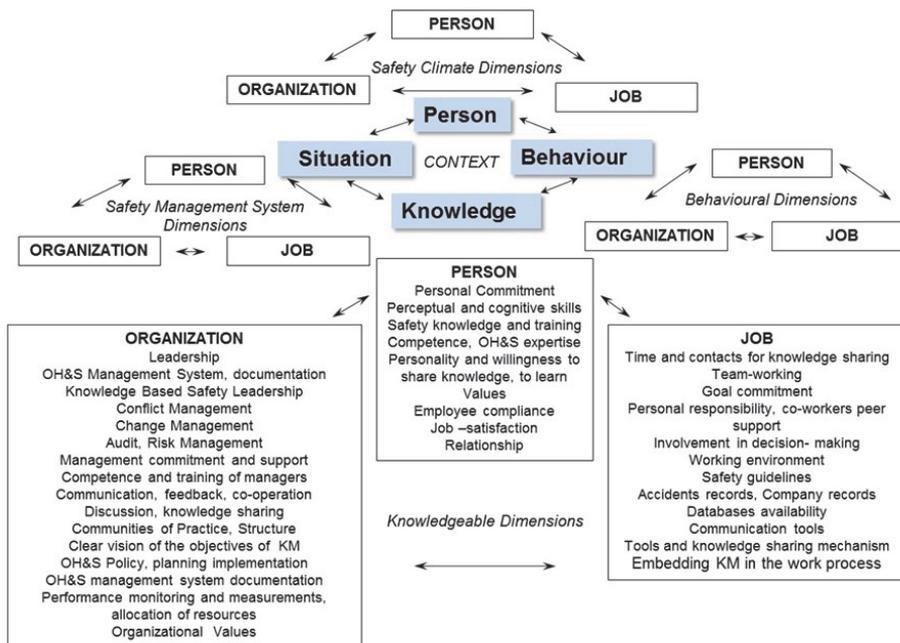


Figure 8. Reciprocal safety culture model (Source: *Article V*)

The proposed model takes into account the dynamic interrelationships between safety climate (person), safety management systems (organisation), safety behaviour and motivation for safety knowledge exchange at the organisational level. This model enables acquisition of data about different aspects (for example, essential aspects of conflicts like most culturally-based phenomena, safety behaviour) that characterise the organisation; to acknowledge and to manage these, as a result, changing the behaviour of the people. That also enables us to decrease the discrepancy between formal and real values, and thus to transform the formal culture into the real one.

The proposed theoretical model provides a valuable selective reduction of the complex reality to a few critical dimensions (knowledge management and conflict management domains which are integrated into one model), based on scientific literature, conducted research (empirical data) and relevant legislation. This has made a significant contribution to the topic concerned.

CONCLUSION

This chapter summarises the theoretical, methodological and empirical contributions of the current dissertation, discusses the limitations and possible implications. Management values are considered as the key concept for the thesis.

Management type and values that the managers proceed from in their decisions have a direct influence on organisational sustainability and effectiveness. If the starting point for managerial behaviour is the well-being of employees, their motivation, their personal needs and ethical development, then the social capital and the effectiveness of the organisation will also increase (Sydänmaanlakka 2003; 2005; 2007; Pastoriza *et al.*, 2008; Turker, 2009; Hasle & Møller, 2007).

The author emphasises the importance of existing shared values and common goals for sustainability. In addition, the emotional side is important: how employees feel themselves; and the moral and ethical sides – this ensures the motivation to work for the common goal and common well-being. Each manager will have a challenge and responsibility to solve the problem and work conflicts, to find a way how to influence employees in decision-making processes so that the decision will be ethical and will proceed from the common well-being. Therefore, the management values of leaders themselves should be ethical. Employees' attitudes and safety behaviour are also based on adopted and recognised values.

The management system determines organisational culture in an organisation. Organisational culture is deep shared conviction and values, common practices, behaviours within an organisation, and it is generally accepted that certain organisational cultures have the potential to generate sustained competitive advantages (Melé, 2012 a,b; Guldenmund, 2007; Jaakson, 2010).

The main research question was: *How can conflict management and knowledge management be used in minimising discrepancies between real and propagated management values in order to ensure sustainability and effectiveness of an organisation as well as to improve safety culture?*

The findings of the study declare that the behaviour of Estonian managers is characterised by the lack of enduring management values (See Appendix 9). Previous studies (Alas, 2009; De George, 1999; Bergeron, 2007) have demonstrated that ethical values are most correlated to sustainability, though this study shows that the economic crisis diminishes the ethical values significantly. The present study identifies the gap between real and propagated management values and explores the possibilities to use conflict management and knowledge management in order to minimise differences between them.

It may also be concluded that the propagated managerial values express the desirable work environment for the managers and employees rather than the existing (real) one. This shows that in the contemporary rapidly developing economic environment, an organisation is unable to be successful and sustainable without using all of the creative potential of its employees. The second study (see *Article II*) demonstrated that during crisis fewer employee-friendly management values come to the fore; the study showed that a crisis may not necessarily have a

negative effect on the development of management values. The managers who managed to survive the crisis feel a greater need for cooperation, teamwork and more innovative working environment. In order to create an innovative working environment and enhance the organisational culture so that it would follow all health and safety regulations, one has to start from - how concerns are voiced and how we treat work and each other (Fernández – Muñiz *et al.*, 2007; Wang, 2009). It is vital to start from the language we use, relationships and how we view the work. Thus, the amount of organisation's social capital, which includes relations, learning, communication, is important and leads to the achievements of an organisation.

It is concluded that to ensure organisational sustainability and effectiveness, management values that deal with ethical issues are recommended to be used in the first place. At the same time, work-related values (innovation, teamwork, cooperation, learning and well-being) should be defined as instrumental values, recognised and shared in an organisation.

4.1. Thesis contribution

The present thesis is innovative and valuable in several aspects. The original contribution of the dissertation in both theoretical and practical terms lies in the following:

Theoretical contributions

The current thesis increased understanding of the context of Estonian management practices and values as well as of the changes in management values occurring in the period of 2007-2009, 2011 in the context of economic crisis. The current study provides knowledge about the influence of an economic crisis on an organisation, its management, working environment and valuing the employee, innovation and creativity, teamwork, risk-taking, the managers' attitudes, shared values (in particular, the need for knowledge management and learning as a value) and stability of values in Estonian organisations.

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The thesis provides important empirical evidence of the existing real management values in Estonian organisations. The novelty of the practical part of this research lies in an attempt to group the managerial values of the organisations under study, which enables us to place them better in the levels of theoretical value

systems (Melé's, Beck and Cowan's, Schumacher's value system models). Values determine and shape the organisational culture and management decisions. The author proposes to define management values as described, propagated and real (shared) values.

In addition, the study outlines the role of conflict analyses in the assessment of the real (shared) values of an organisation.

The study provides conceptual clarification on the role of conflict management, focusing on conflict analysis, as a research tool for revealing organisation's general status and real values as well as a learning instrument, and its possible effect on the flow of information and the exchange of tacit and explicit knowledge. The author emphasises that the established conflict management needs to be fully integrated into the general management system and the conflict, like most culturally-based issues, must be recognised, acknowledged and managed in an organisation.

The main contribution of the study is the innovative conceptual management model for organisational culture, which served as a basis for developing a questionnaire or/and checklists, which can be used as an effective self-assessment tool in an organisation in order to manage conflict and existing knowledge as well as to change climate, and thus, organisational culture. The proposed model incorporates both conflict management as a learning instrument (and its possibility to influence the safety culture and collective knowledge) as well as knowledge management. The proposed theoretical model provides a valuable selective reduction of the complex reality to a few critical dimensions (knowledge management and conflict management domains, which are integrated into one model), based on scientific literature, conducted research (empirical data) and relevant legislation. This made a significant contribution to the topic concerned.

Furthermore, the thesis also contributes to the theory of organisational culture by analysing social capital and workplace conflicts as a part of that culture, emphasising the importance of collective knowledge and learning.

Methodological contributions

The present study has made two major contributions to the existing methodology. First, the study sheds new light onto the methodology for the determination of the real values of organisations by presenting the basis for analysing whether the real values of organisations support the sustainability and success of organisations. The second methodological contribution concerns the methodology of the evaluation of organisational culture by applying quantitative and qualitative approaches, which allow the capture and in-depth analysis of organisational, behavioural and psychological aspects of organisational (safety) culture.

4.2. Implications

The present thesis has several important implications for the improvement of the organisational sustainability and effectiveness as well as enhancing safety culture in Estonian organisations with a focus on management values, knowledge management and conflict management.

The thesis has increased understanding of the context of Estonian management practices and values as well as of the changes of management values that occurred in the context of economic crisis. In addition, the thesis provides recommendations how to explore and to group the propagated management values, which enables us to place them better in the levels of theoretical value systems (Melé's, Beck and Cowan's, Schumacher's value system models).

Another important implication is that the thesis proposes the methodology for the determination of real values of organisations by presenting the basis for analysis if the real values of organisations support the sustainability of organisations. The author explores the differences between existing management values and proposes definitions to management values as real values and propagated values. The study outlines the role of qualitative approach and conflict analysis in the assessment of the real (shared) values of an organisation. The second methodological contribution concerns the methodology for the evaluation of organisational (safety) culture by applying quantitative and qualitative approaches, which allows us to capture and to analyse in detail different aspects of organisational culture.

The study has contributed to the concerns of organisational culture by examining the relationships between knowledge management, organisational culture and conflict management, focusing on conflict analysis as a research tool for revealing organisation's general status and real values as well as a learning instrument. The study demonstrates how conflict management and knowledge management, as parts of the general management system, can be used for binding individual and collective learning with the goal to modify and reflect values and norms in order to integrate them into organisation's processes and structures.

The study has proposed an innovative conceptual management model for the improvement of organisational culture consisting of knowledge management and conflict management dimensions, which is served as a basis for developing a questionnaire or/and checklists which can be used as an effective self-assessment tool in an organisation in order to manage conflict and existing knowledge as well as to change climate, and thus, organisational culture.

Managers can benefit from understanding the effects and role of management values, organisational culture and shared collective knowledge for ensuring the organisational sustainability and effectiveness.

The thesis contributes to the theory of organisational (safety) culture by analysing social capital and workplace conflicts as parts of that culture, emphasising the importance of collective knowledge and learning. The findings from the current study are vital from a practical standpoint in enhancing organisational culture and safety behaviour in an organisation.

The present thesis recommends that the established knowledge management and conflict management procedures need to be fully integrated parts of the general management system, which enables us to improve organisational performance and to ensure organisational sustainability.

4.3. Study limitations

This study has some limitations to be addressed. First, there are several methodological limitations based on the use of both qualitative and quantitative approaches within the same study. The number of the explored conflict cases and SMEs is limited; in addition, the limited number of conducted interviews may represent a small sample. Thus, further research involving a larger number of organisations must be conducted. The study (See *Articles IV-VI*) was not designed for the results to be generalised to other Estonian SMEs.

The quantitative data were self-reported, which may be affected by information bias and recall bias, in particular in relation to reporting sensitive issues like work conflicts among co-workers, employees and employers and work-related illnesses (Loughlin & Barling, 1998; Pransky *et al.*, 1999; Barling *et al.*, 2002).

Second, the values identified on the basis of the journal articles are mainly not used in Estonian organisations, but rather express the trends propagated in management. Data for the three studies (see *Articles I-III*) collected from the published articles express the desired reality rather than the real situation. Finding and grouping values is subjective and largely dependent on experts, but hopefully the consensus analysis helped reduce the subjectivity. The articles, which the analysis was based on, may not be sufficiently representative of management styles since editors of the journal and authors selected the journal articles. At the same time, the topics and content of the articles are also determined by managers' expectations, experiences and needs, and global management trends. Due to the large amount of articles, this in turn increases the likelihood that the research results reveal the actual trend. Research on management values based only on articles published in the journal may not be sufficient to draw generalisations on all trends in management practices.

Although all the data in the current study have been gathered from a single country, Estonia, it can pose some limitations for generalisation of the results. The study identifies commonalities of the general management values and the need to improve the organisational culture in Estonian organisations. Despite these limitations, this study revealed findings that have both theoretical and practical significance.

4.4. Future research

The results of the current study and its limitations indicate several possibilities and new opportunities for future research.

Research of propagated management values based only on the articles published in the journal *Director* may not be sufficient to draw generalisations on all trends. Another kind of study approach would be more suitable to explore the real management values and the reasons why real values and propagated management values are so different.

Future research should focus on the understanding of how management values are used in an organisation and which factors affect their implementation in an organisation, in particular in SMEs. There is a need to conduct a survey where the data set of both employees and employers is linked in SMEs.

More research should be conducted in order to investigate, to test the presented model of organisational culture and to further validate the survey. Further studies should focus on the proposed model in practice and evaluate additional domains of organisational culture, such as management practices and teamwork climate, which enables an organisation to achieve higher levels in Melé's value system and higher organisational effectiveness.

Further research is needed to evaluate the awareness of the Estonian managers about the need and benefits of management values. In addition, an integrative approach is needed in order to understand organisational and managerial mechanisms behind organisational performance, and as such is also highly relevant to organisational safety.

The current study sheds new light on the existing problems of conflict management and knowledge management, so raising new opportunities for future research, for instance, how organisations can support learning and developing intellectual capital, the field of management practice and control.

It would also be valuable to obtain information about the relevant organisational indicators of positive organisational culture, evaluating management values and, on how these are interrelated and change over time especially in SMEs.

The role of conflict management as a tool for measuring ethics at the workplace, as the basis for adopting higher organisational values as well as its integration into the general management system, requires further study.

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Appendix 1.

Research paper I

Titov, E., Virovere, A., Meel, M.; Kuimet, K. (2013) Estonian Managerial Values in Value Systems in Ensuring Sustainability of Organisations, *Journal of Management and Change*, 1/2 (30/31): 66-81. (ETIS 1.2)

Estonian Managerial Values in Value Systems in Ensuring the Sustainability of Organizations

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Abstract

The organizational value system is a construct, which contributes to the sustainability of an organization. The sustainability of an organization is directly linked to the question of core values. Many researchers have discussed which values are most important and lead the organization to success. Employees who feel that an organization values the same things that they do will be more likely to have attachment to their organization. Thus, the organizations with their core values are determined as successful or unsuccessful. We attempt to determine which values are typical of Estonian organizations. The aim is find out where the Estonian organizations are positioned in the value system models. We use critical discourse analysis to identify the managerial values based on articles published in management journals and to fit those into the well-known value systems to predict the sustainability of Estonian organizations.

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Keywords

Organizational Values; Value System; Innovation; Managerial Values

Introduction

The aim of the paper is not to introduce new theories or methods, but rather to investigate the links between phenomena such as organizational values and sustainability as the key factor for organizational success.

A couple of decades ago a dominant understanding in management was that people are expense items first of all and that management is able to produce value added only as much as it can keep down expenses. Due to the transformed role of employees in the contemporary changing environment, the viewpoints have changed. The contribution and role of the employees in creating a competitive advantage and achieving the objectives is

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increasing. Hence, the understanding of the importance of linking the mind and motivation of employees with the main aim of the organization (achieving the managerial objectives and creating competitive advantage) is increasing. Employees who feel that an organization values the same things that they do will be more likely to have attachment to their organization (Amos, 2008). An organization's values are closely linked to leadership, development of organizational culture and motivation of the employees. The focus is above all on humans and by ignoring values it is impossible to lead people today. While in the 1990s the organizational culture and values were treated as resources that help to stay in competition (Barney, 1991), today the investigators argue that for an organization, being based on values is the issue of survival (Raich and Dolan, 2008). Increasingly, more value is attached to employees, their merits, motivation and commitment. Employees have become so important that management is advised follow the principle that an organization is successful when it is managed as a community of persons (Melé, 2012a). Numerous attempts have been made to re-humanize the workplace, for example, by "empowering" the employee (Lee and Koh, 2001). This might include, for instance, "job enlargement" and "job enrichment". For example, some car manufacturers' (the Swedish Saab and Volvo) experiments include replacing the production line with small, team-based working groups (Crane and Matten, 2010).

A value system is frequently understood as the ordering and prioritization of a set of values (principles, standards or qualities considered worthwhile or desirable) that an actor or a society of actors holds. However, the values that a group or an actor holds may fall into several different categories since the concept of values is multifaceted (Abreu and Camarinha-Matos, 2008).

Every employee brings into the organization his/her own values. These values give the organization its "face", which develops when

individual value systems are in sufficient coincidence and have a common understanding to smooth difference. Usually, in this way a small number of interrelated shared values develop instead of a particular one. These values form the organization's value system. Several authors have tried to model the organizations' value systems (Dolan et al, 2003; Lencioni, 2002; Melé, 2012a; Schumacher, 1973, etc.). Among these we have chosen three value systems – the models of Melé, 2012a; Schumacher, 1973; Beck and Cowan (by Cowan and Todorovic; 2000)). The value systems gained essential importance in the approach (theory) of humanistic organization the earliest, and the most well-known theory in this field is the value system developed by E.F. Schumacher, which is still frequently used. Melé represents the postmodern view of an organization and this is at present the newest and most essential value system model. Beck and Cowan's spiral dynamics theory is a value system model that is developed for a concrete organization. Principally, it represents the modern approach of the organization.

Authors use these models for estimating the place of Estonian managers' real values in the hierarchies of the value systems. The innovative point of the investigation: to achieve the above-mentioned goal first have to analyze these three theoretical value systems to find connections between them and their common core. Only then can move on with estimating whether the real values of Estonian managers tend to be congruent with lower or higher value levels.

The novelty of the practical part of this investigation lies in an attempt to group the real managerial values of the organizations under investigation. This enables to fit them better on to the levels of theoretical value systems. As a result of the investigation the authors offer the basis for analyzing whether the real values of (Estonian) organizations support the sustainability and success of organizations. The authors hope that this investigation could also be used by other investigators as an exam-

ple of the estimation process of the advancement of the real values of an organization.

The practical part of this research could be classified as a critical discourse analysis. As for documents, the authors use issues from 2011 of the business magazine *Director*. To ensure the validity and reliability of the investigation researcher triangulation proposed by Creswell (2003) is used.

In short, we can summarize the research tasks as follows:

- To describe briefly the context of Estonian management practices;
- To give a short overview of the three theoretical value systems;
- To analyze papers to consensually find out the managerial values described;
- To group the values and form a list of most frequent ones;
- To fit the values detected into the value systems;
- To analyze the reasons associated with the newly formed value systems.

Management Practice in the Estonian Context

Since the 1990s, after regaining independence, Estonia has been balancing on the edge of a developed and underdeveloped country. In terms of the character of production, on the one hand, many innovative enterprises exist, especially in the field of information technology. On the other hand, the majority of the workforce is engaged in low-skilled sub-contracting jobs.

Although such descriptions are usually typical of transition economies, a major concern is the insufficient readiness of Estonian organizations to change their positions in the overall value chain. The main goal of organizations in the sectors of the economy with higher productivity is to increase income. In contrast, in sectors with low and medium productivity the focus is on the efficiency of the organization by

cutting expenses (Vadi and Türk, 2009). Managerial practices of Estonian organizations are relatively conservative (Zernand-Vilson and Terk, 2009) and because Estonian organizations are managed identically, insufficient attention is paid to sectoral specificity and the organization's size (EAS, 2011). This confirms the problem that management principles and values are not in harmony with the values of a sustainable organization. This is also proved by Zernand-Vilson and Elenurm (2010) who argue that although enterprises operating in Estonia follow such Nordic management practices as management by objectives, especially in the form of a balanced scorecard, "softer" Nordic management practices, such as focusing on employee individuality and personality or self-directed work teams, do not appear as growing directions. The Estonian Development Fund's report on the Current Status of Competitiveness of Estonian Economy (Varblane et al., 2008) points out that the business models in use are not developing at a fast enough pace, new markets are not pursued and management is quite conservative.

According to the European Union innovation study, one-third of all organizations are capable of changing, one-tenth could change their position in the value chain, but 40 per cent are unable to see the need for change. These findings show the peculiar "path dependency" of organizations (Vadi and Türk, 2009). Comparisons of Estonia's innovation potential with other EU countries (based on EU innovation scoreboard data) reveal that Estonia's combined innovation index is only slightly lower than the EU average, Estonia being classified among "innovation followers" – the group of ten countries attempting to catch up with the innovation leaders (Sweden, Denmark, Finland and Germany). As for innovation dynamics, Estonia is one of the most successful in the EU, having improved its innovation scoreboard indicators by 6.6% over the past five years (Eesti Inimarengu Aruanne, 2013). Still, based on the innovation activity of Estonian organizations, innovations are predominantly made from the viewpoint of the organization

rather than from the market; firstly, innovations are versions of the product rather than a radically new product. Secondly, organizations' expenses on product innovation are low as compared to the international background and a large share of these expenses involves the procurement of new equipment rather than sophisticated innovative activities. Furthermore, cooperation with universities and research institutions for the innovation of production is low (ibid: 39-40).

Thus, although Estonia is quite successful, the country still remains on the edge: the nearest future will show whether Estonia is able to break into the core group of leading countries, or whether it will fall into the semi-periphery group. In a previous study of values (Virovere et al., 2011), the authors pointed out that the economic crisis intensified the values, which do not support sustainable growth of Estonian organizations.

Next, this study will focus on the values propagated in Estonian management in 2011, when the Estonian economy was recovering from the crisis, and discuss how these values conform to different value systems characterizing an organization's sustainability. Propagated values are the values used in the literature as well as on organizations' homepages, but which in real life, however, are not the basis for everyday behavior and management since they are not actually acknowledged. We used the journal *Director*, which covers Estonian management, management practices and contemporary management theories to find out propagated values. *Director* was chosen because there are cases about the management of organization (mostly presented by the top and the middle-level managers), which form the basis for estimating the real values prevalent in Estonian organizations.

Organizations' Value Systems

Systems are abstract models of elements and relationships, so that properties under study

must be related to the organizational level of the model. Value systems move like a joystick and glide from looking inward to focusing outward, and from attention to the individual to thinking as a collective (Cowan and Todorovic, 2000).

Despite a multitude of different views, it is assumed the value systems address the value impacts on the ways of thinking among individuals and groups. Often, different value systems compete and clash for domination over each other within an organization. None of the value systems are inherently better or worse than any other. In our analysis we used three different concepts – Schumacher's model of organization as a value system, Melé's model of five levels of human quality, and Beck and Cowan's eight value system. The common denominator for the three selected theories of the value systems is that all these proceed from a person, and the most important characteristics in all the three are the ethicality and creativity. Schumacher's model is the most technical one and focuses on the ethicality of organization of the work process. Melé surveys the matter how an employer treats the employee – is she/he treated with respect or only as a mean. Beck and Cowan proceed from the hypothesis of the mutual development of a person, organization and society, which takes place simultaneously in the three layers of the value stream (surface, hidden and higher levels).

Schumacher's Value System

More than 40 years ago, E.F. Schumacher published his famous book "Small Is Beautiful" (Schumacher, 1973) where he expressed the theses about ethical work-design. He argued: "the modern economist has been brought up to consider "labor" or work as little more than a necessary evil. From the point of view of the employer, it is in any case simply an item of cost, to be reduced to a minimum if it cannot be eliminated altogether, say, by automation. From the point of view of an employee to work

is to make a sacrifice of one's leisure and comfort, and wages are a kind of compensation for the sacrifice..." and further: "... to organize work in such a manner that it becomes meaningless, boring, stultifying or nerve racking for the worker would be little short of criminal; it would indicate a greater concern with goods than with people, an evil lack of compassion and a soul-destroying degree of attachment to the most primitive side of this worldly existence..." (Schumacher, 1973: 141-142).

Until Schumacher, the most important function of work was to produce goods and services, although since "Schumacher's Revolution" the production function has been placed at the bottom, and the creativeness of work and teamwork rose to the fore as a means for developing the sense of unity. Schumacher points out managerial functions, values that should be followed in a successful organization:

Creativity is involved in all these (managerial) values that contrast with the dull, routine working and have a developing effect on humans, i.e., all these values that push people to creative brain work. Creativity is a value that gives real meaning to human work: using the Buddhist way of thinking, Schumacher argues that the real meaning of human life is self-improvement in order to achieve enlightenment (Schumacher, 1973). Although Schumacher did not investigate the relationship between the creative function of work and an organization's sustainability, later research has confirmed the positive correlation. Merrill (2008) highlights that good knowledge management is the platform from which innovation is developed, and an innovative organization enables the rapid transfer of the knowledge that is in people's minds by using its network. Also Jaakson et al. (2011), have argued that innovativeness enables organizations to compete successfully on international markets. Thus Schumacher's ideas are still a natural attitude towards the 21st century management values: talented people who possess knowledge, skills and ideas (that is, creative capability) are considered the most valuable

intangible assets of the new economy (Moon and Bonny, 2001).

Teamwork entails all these principles and values which the employee needs to follow to enter into a positive relationship with leaders, being only their closest colleagues (team in its narrow sense) or also clients, partners, community where they act – all these relationships where persons may feel part of society rather than isolated. Schumacher comprehended the significance of teamwork, arguing that by working in a collective persons get used to perceiving themselves as a part of the whole universe; learn to perceive their unity with the universe. As in the creativity function, appreciation of teamwork has shown positive effects on enterprises' success and sustainability: Investigators found that one of the strong reasons for Japan's success, was the Japanese way of work organization where stress was upon the creative character of work and motivation of employees through teamwork (Kennedy, 1994; Crane and Matten, 2010).

Responsible production – Schumacher points out a need to change the principles and values of production, explaining that for humans, production should not be only a way of earning a living but the employees should feel that the products they make are important for society – like with teamwork, it should be possible by making a certain product to feel the connection with society. He gives an example: "In industry, we can interest ourselves in the evolution of small-scale technology, relatively non-violent technology, 'technology with a human face', so that people have a chance to enjoy themselves while they art: working, instead of working solely for their pay packet and hoping, usually forlornly, for enjoyment solely during their leisure time" (Schumacher, 1973: 147).

Spiral Dynamics and Value System

Spiral dynamics, developed by Don Beck and Chris Cowan on the basis of the late Profes-

sor Clare W. Graves' work, is an approach to understanding the development of individual people, organization and societies (Howard, 2006). The spiral dynamics and value system, an evolutionary theory, contains three layers in the values stream. Occasionally, the first layer – surface values, is most important to predict the whole organizational or persons' value system. Surface values are openly stated moral positions and behavioral rules based on religion, law, and common sense. Strategy sometimes scans surface values in mission and vision statements. A good sense for hidden values finds out the reasoning beneath surface values and exposes why long-standing beliefs, attitudes, and traditions exist in organizations (Cowan and Todorovic, 2000).

The function of values at higher levels is to fix goals, identify errors and provide guidance. In this way values are prior to emotion in shaping perception and in guiding response. Higher-level values may help to coordinate action and to resolve the paralysis of conflict. Such processes and values involve error correction, allow for growth as well as stability, and make

possible increased adaptive potential. To mitigate conflict and stress, higher level values may be modified and logically compounded to frame and select for criteria designed to resolve problems (Buchanan, 1997).

Spiral dynamics is the study of the emergence and patterns of deep values that mold strategists' worldviews, form corporate mind-sets, structure leader/follower relationships, establish decision structures, and define reality (Graves, 1996). There are eight zones along the spiral (see Table 1), designated as: beige, purple, red, blue, orange, green, yellow, and turquoise (Cowan and Todorovic, 2005). These value systems emerge in a consistent pattern and sequence according to the prevailing life conditions and challenges experienced by an individual, organization or society (Howard, 2006).

Each zone is flanked by an "entering" phase, which carries on some of the previous thinking, and an "exiting" phase, which recognizes the problems of existence (Cowan and Todorovic, 2005).

Table 1: The value system in organizations

The 8 Value Systems	The management style in the organization is:
1 Beige Automatic	(not described at organization level)
2 Purple Animistic	Family-like – you are taken care of by a good leader who upholds traditional ways. The group comes first
3 Red Egocentric	Autocratic – there is one person in charge who tells you what to do or there are turf wars between competing "powers"
4 Blue Absolutist	Bureaucratic – everyone follows the rules that are laid down to maintain order. Penalties or punishments keep misdemeanors in check
5 Orange Multiplistic	Economic – enterprising and innovative behavior gets rewarded. Constantly improving performance through finding and sharing best practices
6 Green Relativistic	Social – a supportive team of equals developing their human potential. Decisions involve consensus building, individual developmental needs are recognized and supported
7 yellow Systemic	Systemic – a competency based network where methods are adapted to the task in hand. Blending different styles and solutions to do what works
8 turquoise Holistic	Global – taking a global or worldwide view blending insights from anywhere for the good of the whole. Engaging with the energy field of the whole system

Source: adapted from Howard (2006)

Melé's Value System

From its beginning, management is focused on people to improve the efficiency, trying to achieve goals using a minimum of resources. Melé understands the management values in principle similar to Schumacher: he places "treating employees as values for their selves" first, accompanied by achieving the effectiveness and sustainability and divides organizations into five groups: (1) mistreatment, (2) indifference toward people, (3) respectful treatment, (4) concern for people's interests, and (5) favoring mutual esteem and cooperation (Melé, 2012b). Each level is characterized by certain values according to which the quality of management may be described.

Mistreatment of people is the lowest level of human quality in dealing with people. All these behaviors violate basic human rights and are, therefore, blatant injustice, contrary to the respect due to human dignity and to the Golden Rule (Melé 2012b). When people are mistreated in an organization, their motivation to work declines essentially and therefore the organization's sustainability also sinks. Also, many ethical conflicts occur at that level. The analysis of conflicts in Estonian companies showed that among ethical rights the employees' right to participation and right to job satisfaction were violated most frequently (Virovere et al., 2002). Mistreatment refers to treating people in a harmful, injurious or offensive way; hence at that level employees are neither motivated nor satisfied.

On the second level of treatment people do not receive any encouragement, emotional support, consideration or recognition. People are used to achieve economic goals; some psychological technique may be employed to obtain more profitability from them, but without any consideration beyond this utilitarian goal. Many conflicts and discontent of employees may also occur at this level. At this level organizations can answer the question "What business are we in and how shall we compete?" but

this does not engage people at an emotional level (O'Reilly and Pfeffer, 2000).

The third level is characterized by justice – give to each organization what is due, including respect and the promotion of human rights. From the management point of view, this level lacks a shared vision and common shared values (Melé, 2012a). Frequent conflicts also occur at this level, however, caused rather by a lack of mutual understanding. The study of conflicts in different companies in Estonia has shown that both managers and employees lack emotional competence based on emotional intelligence (Virovere et al., 2002).

The fourth level expresses acting toward people not only with recognition and respect, but also showing concern for their interests and compassion for their problems. The level describes the widespread understanding of excellent management; however, although attention is paid to the employees in such organizations, social responsibility is insufficiently prioritized (Melé, 2012a).

On the fifth level of human quality, concern is not limited to justice and care, but to proactively promoting a high consideration of the person and concern for personal development, mutual esteem among people, and a willingness for cooperation and service toward the common good (Melé, 2012a). This level corresponds to the values-based view of strategy in O'Reilly's (2000) approach, stating that the ability to execute strategy depends on an organization's ability to attract and retain great people and, more importantly, to use their knowledge, wisdom, and insights. At this level a willingness of cooperation and service toward the common good are revealed. Merrill (2008) argues that collective knowledge is fundamental for innovation. A new product portfolio must include a number of long-term and potentially major innovations in order for an organization to have a healthy future. Risk-taking is fundamental for innovation (Merrill, 2008).

Research Design

This research can be classified as critical discourse analysis (see a detailed description in Laherand, 2008 or Fairclough, 2002). The same principles have been used in other studies in Estonia by Lauristin (2000), in research papers published in two newspapers during 10 years, on the basis of data collected from two monthly issues each year (Lauristin's analysis is focused on typical metaphors that carry the means of translating social changes).

In a similar way, we use documents, namely the business magazine *Director* 2011 issues and articles, as the database for our qualitative study. The articles were interviews with managers of companies – a database that can be named as documents. Hirsjärvi (2005) suggests that a data gathering method based on documents, mostly along with other data gathering methods, can be used as an independent method (Flick, 2006).

To ensure the validity and reliability of our investigation we used Creswell's (2003) proposed researcher triangulation, which means using different observers to discover or minimize mistakes that come from the researcher's person. As mentioned above, articles from 2011 issues of the business magazine *Director* were used. Each of them included about 12-21 management related articles, which in our view represented important values prevailing in our business world at that time. Two researchers independently read each article and noted down the values carried by the article.

Next, the discovered values were analyzed. Values agreed upon were added to the database. Where different values appeared, our third researcher read the article too. If her opinion was the same as either of the two others, those values were added to the database; if not, the values were not added. In 2011, 21 articles revealed no clear values. The values added in the database were analyzed and similar ones were gathered together. If necessary,

the same articles were re-read to make sure that similarly named values would represent values with the same meaning. One hundred and fifty-four articles in 2011 issues were read and 514 values were written down.

The values were grouped and a common denominator was found for essentially the same ones (e.g., communication skill, communicativeness, communication, etc. were grouped as the value "communication"). Further analysis was based on the list of values that consists of the value groups where the total rate of occurrence of a value was at least seven. There are a total of 20 value groups (hereinafter values) and these values have been mentioned on 309 occasions in the articles analyzed (see Figure 2). The list of values was compared with three value system theories: Schumacher's, Melé's and Beck and Cowan's value systems. The comparison identified where the values presented in Estonian management literature are positioned on different value systems.

Based on the descriptions of value system levels, the authors involved experts to distinguish which level a value fits into the best. Considering the principles of different value systems, that every previous level is included/excluded in the next one (Melé) or the levels are clearly distinguishable or only partly coinciding (Schumacher, Beck and Gowan), the 20 most frequently found values on the basis of the articles were divided into three value systems.

A simplified scheme of the interrelations between the three value systems is provided in Figure 1. Since all the systems are made for different purposes and at different levels of generalization, the connections are contingent, but lines on the chart denote the most important parallels. Dotted line characterizes the secondary connection, which means that the connection is contingent and may not occur in all circumstances.

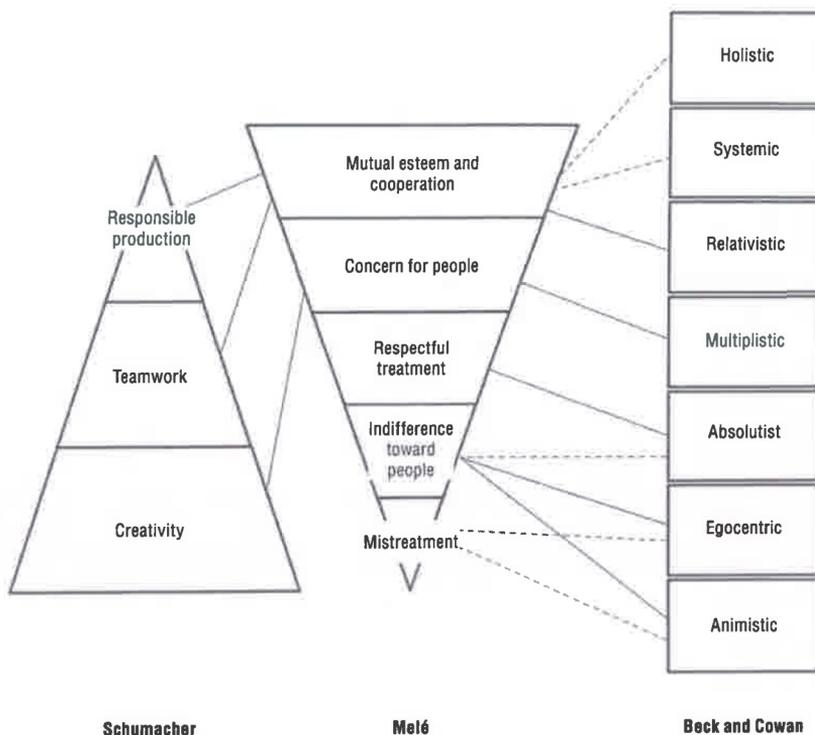


Figure 1: Connection between Schumacher's, Melé's and Beck and Cowan's value system models (according to Schumacher (1973), Melé (2012) and Howard (2006))

Results and Discussion

According to the research aim and research questions, five categories of results were included:

- Results of analysis of the propagating management values on the basis of the 2011 articles from the management journal *Director*
- Connections of the values discovered with the values describing application of Schumacher's management functions
- Positions of the values discovered in Melé's model of five levels of human quality

- Positions of the values in Beck and Cowan's model of the eight value system
- Comparison of the three value systems.

Figure 2 briefly describes the propagated managerial values.

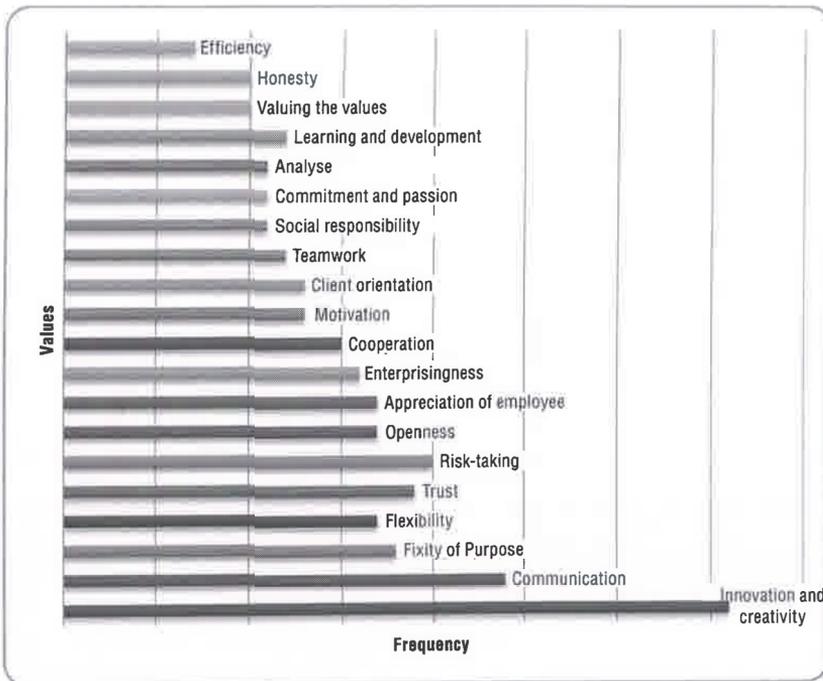


Figure 2: Organizational values and their rate of occurrence on the basis of Director 2011 articles.

Analysis of the results (Figure 2) found that enterprise managers value “innovation and creativity” the most (the rate of occurrence was more than twice the average). If we add the related values such as “risk-taking”, “flexibility”, “enterprisingness” and “learning and development” (without their co-effect we are unlikely to point out the implementation of the creativity principle), the “innovation and creativity” related group is in overwhelming majority over other managerial values. It is surprising that while in the 2007-2009 dynamics (in the so-called period of economic crisis breaking out and growing deeper) the values connected with “cooperation” became less important for the managers (Virovere et al., 2011), the current research shows that the collectivism related values such as “cooperation” and “teamwork” are important. The “social

responsibility”, “trust”, “communication”, “commitment and passion” values imply that cooperation is a need to feel a so-called part of the whole, either of society or an organization.

Looking at all the collectivism related values together, we can conclude that by 2011 the propagated value judgments had reached the hierarchy of core values of the model presented by E.F. Schumacher in “Ethical Work-Design”. “Creativeness” and the related values are in the highest position, “teamwork” and the related values take second position, and the production function associated “efficiency” (see Figure 3) is in final position. Moreover, development of such a hierarchy of managerial values was expected: it is logical to expect that during hard times organizations dare to take risks, are able to be more creative, flexible,

and sustainable because it is easier to do with a well working, friendly and trustworthy team.

Creativity	Teamwork	Responsible production
<ul style="list-style-type: none"> • Innovation and creativity • Flexibility • Risk-taking • Openness • Appreciation of employee • Enterprisingness • Cooperation • Motivation • Client orientation • Social responsibility • Commitment and passion • Learning and development • Valuing the values • Honesty 	<ul style="list-style-type: none"> • Communication • Fixity of purpose • Flexibility • Trust • Openness • Appreciation of employee • Cooperation • Motivation • Client orientation • Teamwork • Social responsibility • Commitment and passion • Learning and development • Honesty 	<ul style="list-style-type: none"> • Client orientation • Analysis • Social responsibility • Learning and development • Valuing the values • Honesty • Efficiency

Figure 3: Schumacher versus Estonian management values

In classifying the values, we assessed the values found on the basis of the articles and compared them to the Beck and Gowan's descriptions of value levels. The values are missing at the lowest level where the management style is like in a family; employees are taken care by a good leader, who upholds traditional ways and people are most motivated by respecting powerful persons (see Figure 4). Also, values that would imply an autocratic management style in an organization were absent. This result is opposite to the description of Estonian organizations' management, specifying the situations where the person in charge tells employees what to do and people are most motivated by looking good in front of their boss and getting rewards or respect.

Client orientation (13) and efficiency (7) imply that everyone follows the rules that are laid down fairly to maintain order and people are motivated and have an opportunity to perform their duty with sacrifice and honor (see Figure 4).

The most frequent values are connected to the management style in which a supportive team of equals developing their human potential and people are most motivated by participation and affiliation in a group. Consequently, we positioned these seven values at the green level (relativistic) according to the spiral dynamics system theory. In six values, we found that these are related to the management style where enterprising and innovative behavior is rewarded and people are motivated by the opportunity for success and progress (multiplistic). The authors assume that values such as flexibility, enterprisingness, commitment and passion are related to the management style as a competency-based network where methods are adapted to the task in hand and people are most motivated to work as one chooses (systemic). Only one value was positioned at the holistic or the highest level according to the spiral dynamics theory. This level is characterized by the management style of taking a global or worldwide view, blending insights from everywhere for the good of the whole. People at this level are most moti-

vated by being part of a global network seeking universal solutions to universal problems. Social responsibility of the value found on 11 occasions among the values in the Estonian

management journal implies awareness of engaging with the energy field of the whole system in organizational management.

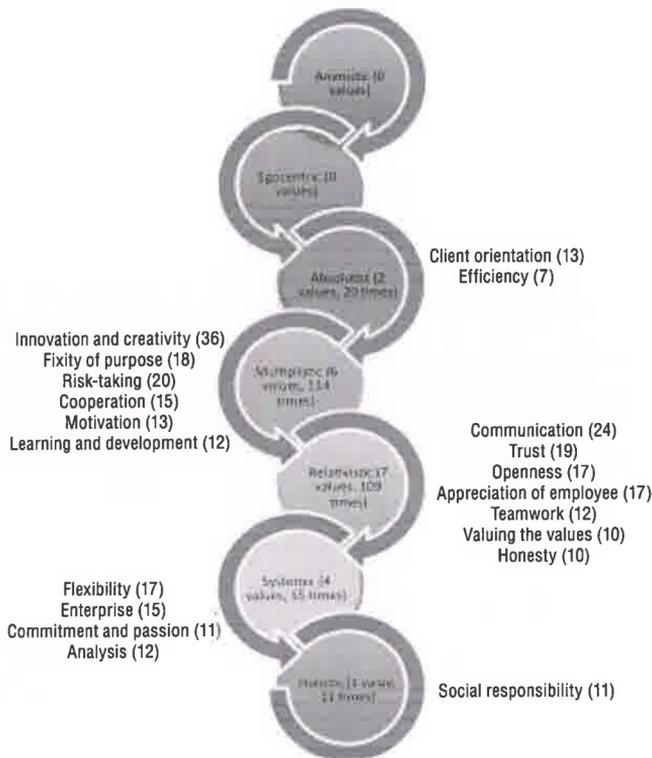


Figure 4: Beck and Cowan versus Estonian management values

Regarding the results, the shortage of values with a low rate occurrence (less than 7) or absent values is also significant. Although the values propagated in the management literature are rather high level, some values are missing. Without those, organization and management practices cannot be called either effective or sustainable in terms of contemporary management. For example, ethics was encountered on only four occasions, humbleness on one occasion, while effectiveness

was nonexistent. Efficiency was represented on seven occasions, but based, for example, on definitions by Davies and Davies (2011) (effectiveness – doing the right things, efficiency – doing things right) it is quite pointless to do wrong things right (i.e., efficiently). According to them, it is not possible to apply true value management when the prime value is not commitment (commitment was among the values found in the articles but was far from most important). Although humbleness

occurred only on one occasion, it is particularly important as a management value as well as a management competence. Humbleness is the ability to understand your own limits, learn from your mistakes and staying calm

and humble even at the movements of success. With this competence, managers openly confess the meaning of others for their success and treat people with fairness and respect (Sydänmaanlakka, 2003).

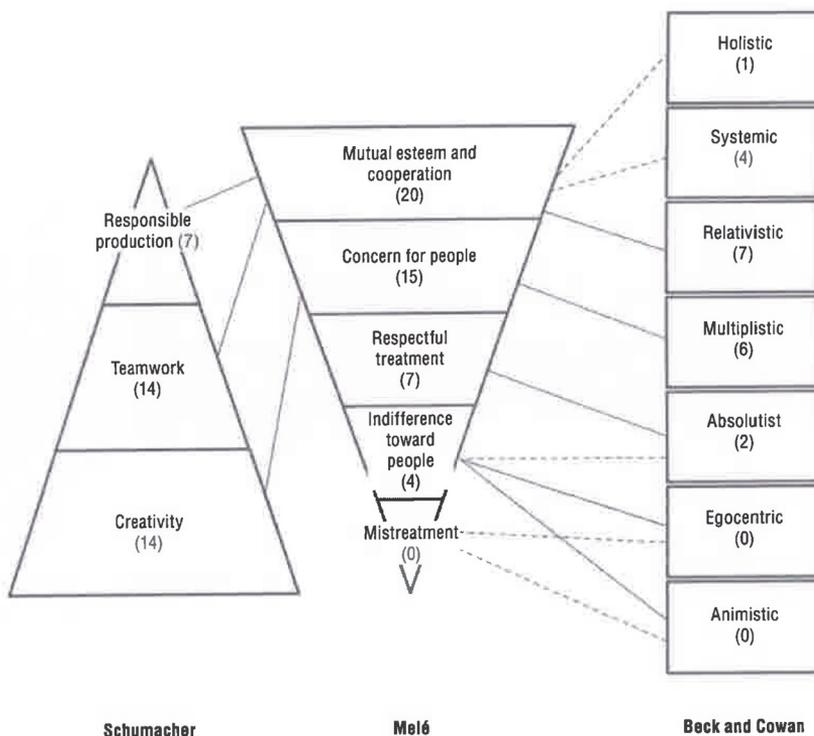


Figure 5: Connection between Schumacher's, Melé's and Beck and Cowan's value system models with the number of managerial values propagated in Estonia (in brackets).

Based on the results of grouping the values into the three value systems (Figure 5), a positive result is that values at clearly negative levels in the context of contemporary management (Mistreatment (Melé) and Egocentric and Animistic (Beck and Cowan)) are negligible. A result of the grouping of all values into the value systems was a clear concentration of values to the so-called good average level, although implying that management develop-

ment is supported in the right direction, it is not yet sufficiently a conscious activity and outdated management principles are slow to disappear. But considering that these are propagated values that may not coincide with the management practices it may be concluded that managers in Estonia need to work hard to reach the desired level also in reality.

Conclusions

This paper is based on the comprehension that corporate values are not only powerful drivers of individual and organizational performance, but are also the criteria by which decisions about priorities are made. Resulting from the analysis of the three value systems (to assess the place of managerial values propagated in Estonia in these systems) we reached a conclusion that in terms of propagated values Estonia has acquired higher levels of value systems. At the same time, studies of the Estonian management sector have demonstrated that in reality the Estonian organizations are at a much lower level in their management practices based on the models discussed above (Melé, Schumacher and Beck and Cowan). They have mostly short-term financial goals and although the organizations are very different, the management practices are similar. Insufficient attention is focused on employee development and different modern management methods are not used. Traditional work forms are mainly used in work organization.

Hence, there is a gap between real and propagated value systems. It may be concluded that the propagated managerial values express the desirable work environment for the managers rather than the existing one. This shows that in the contemporary rapidly developing economic environment an organization is unable to be successful and sustainable without using all of the creative potentials of the employees. A study by Virovere et al. (2011) demonstrated that during crises fewer employee-friendly managerial values come to the fore; the current research showed that a crisis may not necessarily have a negative effect on the development of managerial values. The managers who managed to survive feel a greater need for cooperation, teamwork and more innovative work environment.

Limitations and Future Research

The values identified on the basis of the journal articles are not used in Estonian organizations, but rather express the trends propagated in management. Although the articles also contained case descriptions, they often show the situation better than it actually is. Data for this research came from articles expressing desired reality rather than real situation.

Finding and grouping values is subjective and largely dependent on experts, but hopefully the consensus analysis helped reduce the subjectivity.

The articles which the analysis was based on may not be sufficiently representative of management styles since editors of the journal and authors selected the journal articles. At the same time, the topics and content of the articles are also decided by managers' expectations, experiences and needs, and global management trends. Due to the large amount of articles, this in turn increases the likelihood that the research results reveal the actual trend.

We omitted some negative values with a minimal rate of occurrence compared to positive values (very low occurrence) from the analysis of research results. Based on the principle that although negative values occurred in the articles, the content of the article clearly inclined the reader to admit that neither the manager nor the organization would benefit from using this value, thus, that negative value is not among the propagated values.

Research on management values based only on articles published in the journal may not be sufficient to draw generalizations on all trends in management practices. Therefore, in this paper we used a management study by EAS for comparison. To acquire applied results, a study of management practices in organizations would be necessary and to acquire better results and verify the results another study of effective management practices and management objectives in organizations is necessary.

To learn about an organization's actual micro climate and system of relations research should be continued using conflict as a tool for measuring ethics at the workplace, and on the basis of that develop methods for organizations for adopting higher values.

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Appendix 2.

Research paper II

Virovere, A., Titov, E., Meel, M. (2011). Change of Management Values in Estonian Business Life in 2007-2009, *Chinese Business Review*, 10 (11): 1028-1042 (ETIS 1.2)

Change of Management Values in Estonian Business Life in 2007-2009

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The paper deals with the change of management values in Estonian business life in the year of the rapid growth (2007) as compared with the year of hard decline (2009). The hypothesis is set that company managers do not have permanent values but they change accordingly to the change in economic conditions: in economical welfare situations business-managers more eagerly take larger responsibilities on ethical and philanthropical stages but in crisis only the lower stages (economical and legal ones) could be detained. In the paper, we firstly observe if values change in general and secondly we study if our pre-stated hypothesis holds. As the research method we use the method of critical incidents.

Keywords: core values, organizational values, economical crisis, sustainability, change of values

Introduction

In 2001, Drucker wrote:

The half century after the Second World War, the business corporation has brilliantly proved itself as an economic organization. In the next society, the biggest challenge may be in its social legitimacy—its values, its mission, its vision. The wave of distrust of business generated by the recent financial crisis has proved how right it was. (as cited in Paschek, 2009)

Importance of CSR

During the last decades, corporate social responsibility has become a more important topic in countries with developed economies. Discussions about it intensified already in the end of the 1960s with the rise of Milton

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Friedman's (1963, 1970) ideology: "There is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game". In accordance to globalization and strengthening of citizenship movement the self-consciousness of societies has risen and that has brought along the broadening of meaning of corporate social responsibility and also, sustainability has gained the leading position. The issue of sustainability has also become important due to the constant deterioration in environmental conditions and to the growth of exploitation of poor countries' resources.

On the other hand, at international climate conferences, the views of wealthy and underdeveloped countries often collide in the question of social responsibility towards nature: representatives of underdeveloped countries declare that wealthy countries have higher responsibility and must bear higher costs in protection of environment, while poor countries just cannot do it—they are not able to do more than stick to the basic survival game. The authors of this article were fascinated with the thought, how suggestible and changing are people's attitudes and way of thinking towards the change of economic conditions, for example, does the economic crisis, growing debt-load and poverty weaken the European Union's usually heightened responsibility towards nature and traditional efforts to lessen social inequity?

Importance of Values

Values are the ideas and beliefs that influence and direct our choices and actions (Gini, 2004). Values perform three functions for individuals and organizations—to defend against perceived threats (defensive values), to adjust to society (stabilizing values), and to foster movement toward self-actualization (growth values). All these three types of values are necessary and leadership definitely carries an important role in supporting these values and creating opportunities to do that (Hultman & Gellerman, 2002). Effective leadership is about finding balance between economic success and well-being of your employees, and at the same time, it is about balance between society and the owners' demands. Therefore there are values by nature dynamic and influenced by economic environment. Other authors have also drawn attention to the change of values, for example, professor Lauristin (2008) has indicated the negative change of values in Estonian liberal society where borderless market economy has turned into total sales ideology, democracy has turned into egoistic competition between political parties and state-of-law has opened its doors to large-scale bureaucracy. Prevalently, Estonian manager's leadership style does not based on long-term management values. However, the enduring leadership is important in order to assure the sustainability. Enduring leadership is leadership that outlasts and transcends the individual—has been shown by research to be a predictor of long-term success (Moon, 2001).

Influence of crises to management. Today's managers are under strong pressure, especially during the economic crisis, because the rapid development of technology is forcing continuous change and new knowledge economy requires people who are devoted to their work. This can be considered a conflict situation where successful conflict management, turning the conflict into something productive, could help implement changes faster. Empirical research in Estonian organizations indicates that the best predictors of attitude towards change are ethical values and business ideological values (Alas, 2009). The ability to use crisis as a productive conflict and to base on true business ideological values in practice, would enable the organization to do the right changes as well as to be sustainable. To understand productive conflict we should consider conflict management strategies because they strongly influence subsequent interactions and outcomes, and conflict issues because they impact on

conflicts management strategies through thoughts and feelings (De Dreu, 1997).

Conflict studies, carried out in Estonia show that Estonian leaders are lacking the knowledge of ethics and the will to resolve conflicts and understand the usefulness of a good and motivating work atmosphere. They do not realize that resolving conflicts and assisting the employees will be beneficial to the company and thereby make a major contribution to a more positive environment at work which significantly improves the employees' motivation and loyalty and the companies market position (Virovere, Kooskora, & Valler, 2002).

Influence of working environment to job satisfaction. During the time of fast changes every organization needs creativity and innovation and the will of employees to go along with the changes. That means creating an environment where creativity is made possible. Organizational culture and microclimate are directly influenced by a manager's leadership style and leadership values. Studies carried out in Estonia show that especially people with an university education were most less satisfied with management and work satisfaction was the lowest among employees who had worked for the company for four and five years (Alas, 2009). Based on these results, it is possible to conclude that there is a lack of appreciation of the working environment and workers in Estonian organization.

The Change of Management Values

In this article, we tried to follow, how has the economic crisis influence the attitudes and management values of Estonian managers: Estonia's relatively fast and successful emerge into West-European (capitalist) society has often been explained by Estonian liberal-friedmanistic economic policy. After joining EU (in 2004) both the state and society here have started to force the businesses towards broader social responsibility and triple-bottom-line way of thinking is emerging. That means that a business (its management) should feel a broader responsibility towards social and ecological environment than just a legal one. It is logical to assume that during fast economic growth and relative wealth, the managers of companies were susceptible towards that new approach. But how are things now when companies have to concentrate on survival?

Theory and Hypothesis

The Hypothesis

Traditionally, corporate social responsibility is divided into four stages (look for, e.g., Carroll & Buchholtz, 2009; Ferrell, 2008; Crane, 2010; etc.). Initially the model was proposed by Carroll soon in 1979 and advanced later (1999, 2009). The stages are differentiated as the ground ones—economical and legal, and the upper ones—ethical and philanthropical responsibilities. Logically, it could be supposed that in the situation of economical welfare business-managers are more eager to take more larger responsibilities on ethical and philanthropical stages and vice versa, in hard conditions of economical crisis it would be well enough if only the lower stages could be detained: at times of economic decline companies do not have means for philanthropic causes and also in the case of ethical considerations it is observed that they would not cause additional expenses to the company.

The Base of the Hypothesis

That hypothesis seems to be supported by several earlier researches about the behavior of international organizations while locating territories of production. Reich (1992) shows that already since 1970s a trend is emerging where multinational enterprises, which are operating in the conditions of severe global competition and

therefore are forced to innovate their production continuously keeping at the same time prices low, have nothing to do but to organize their work in the way as by placing their innovative units (research and development) in developed country, with highly educated and expensive work force, and their mass production in underdeveloped countries where the cost of work is low (as usual the lower cost of work force is accompanied with poorer labor conditions, absence of trade unions, lower safety protection etc.). This means that while locating their organization they follow (in territorial sense) Carroll's 4-level model, that higher-level responsibilities are considered only in the economically developed mother country. In poor countries, where production units are located, it is well if legal obligations are met at minimal range (according to the looser legislation base of under-developed countries) and the goal is making maximum profit. Several researches show that this is a continuous trend both in the US and EU. Also, it is mentioned that in the case of international competition it is inevitable (for example, Meel & Saat, 2000). Crane (2010) shows that a growing number of multinationals as for example major European brands (Adidas, Reebok, Marks and Spencer etc.) as well as high-profile US brands (Disney, Levi's, Nike, Wal-Mart etc.) are involved in these location-based ethical conflicts.

The influence of crisis to an organization. Talwar (2009) wrote also that, in an era of global transformation, a narrow focus on strategies for enhancing profitability will no longer be sustainable, and organizations will need to seriously address long-term geopolitical social issues to attain sustainability with the adoption of universally acceptable ethical work standards. Practicing values is an important aspect for building a successful strategy and corporate culture. Based on the banking crisis it is also possible to draw parallels between organizational values and success. For example John Holland (2010) writes in his article that:

Top management weaknesses in the failing banks were important in undermining bank SCA and increasing relative vulnerability to crisis. Top management weakened other key resources such as risk management skills at middle management and operational levels by downplaying relevant knowledge. They appeared not to have had an explicit strategy to develop human capital, structural capital and relational capital at all levels in the bank or how to use it to improve risk control and intermediation. They downplayed ideas of adequate equity, and of sufficient cash. They sought to gain the maximum benefits of leverage ignoring the impact on bank functions and risk exposure.

Values and Maslow's Hierarchy. It can be logically assumed that the same tendency that works locally (territorially) should work in the time dimension, according to the change of economic conditions. During economic recession while most of any country's population fall to lower levels of Maslow's hierarchy of needs (main problems are making a living, lack of jobs is increasing) fundamentalistic claims rise also in managerial values: compared to developed societies only legal obligations are met, philanthropic and ethical obligations will be left waiting for better times. In order to manage economical crises, there is a need to actualize Maslow's hierarchy upper needs—self-actualization and commitment, which would help to manage changes in the organization as well as to become innovative and sustainable. Based on the same logic, it can be assumed that company managers do not have constant moral certainties or values, but they shift according to the changes of economic conditions: During the good times, they tend to behave according to virtues—show up more caring, respect, valuing the employees etc.. During the recession, employees are fired more easily, in communication with the employees the managers are stricter, aggressive and autocratic. Only these values are considered that are connected to the company's economic success and sustainability.

Stability of values. On the other hand, researches that prove exactly the opposite (Collins, 2001) show that

not all managers let their moral values to be shaken by the outside environment. Especially in times of recession like in 1929, just those companies that did not cross the line beyond their main values survived. Different researches (Collins, 2003; Drucker, 1972) even prove that sticking to core values is the key issue in an organization's sustainability. In really remarkable companies change is a constant factor, but they distinguish issues that should never be changed and those that should be opened to change. They distinguish their timeless core values and constant mission (that should never change) from ways of action and business strategies that have to be changed according to the changes in the world (Collins, 2003). Due to Fukuyama (2001), the sustainability of an organization is directly linked to the question of core values, although we have shared values, they may not yet produce social capital if the values are wrong. Profit orientation as a value has been replaced with a new value of sustainability (Drucker, 2003). Also, a research by Wilson and Eilertsen about strategic planning and survival during economic recession produced results that show the importance of core values. Although in 2009, organizations have more focus on cash flow and liquidity than they did a year ago, managers are experiencing greater internal pressures or conflicts inside the organization because of the changes in business environment, leadership is using the situation to make difficult decisions, and there is more leadership steering than managers had experienced in the past, despite these pressures, two-thirds of managers are convinced that their actions during the crisis remain aligned with the values and vision of the organization (Wilson & Eilertsen, 2010).

The association between values and organization's success has also been researched as an important aspect. With reference to corporate ethical values, Hyman (1990) contends that positive employee perception of top management's values and beliefs will lead to higher performance outcomes. Bergeron (2007) concludes that individuals that perceive high congruity between an organization's ethical values and their own will feel more motivated. Schwepker (2003) suggests that congruity between the ethical values of an employee and their organization will positively influence employee's performance.

Flowingly we are trying to research how constant the organizations' management values have been in Estonia during the last abrupt changes in the economical environment: At first, we observe if values change in general; as for second, we study if our pre-stated logical assumption holds—that while the economic situation deteriorates drastically, the basis of management values change and socially responsible and ethical behavior receives less consideration.

Organizational Effectiveness vs. Values

One important aspect that draws attention to the importance of values in an organization is the connection between organizational values and organization's success. Several modern researchers have pointed out that the constancy and direction of organizational values are some of the most important aspects to predict a company's success. For example, Kotter and Heskett have written in their book *Corporate Culture and Performance*, that companies with strong adaptive cultures based on shared values outperformed other companies by a significant margin. For example, they show how valuing interest groups influence success—companies that emphasized all stakeholders—employees, customers and stockholders, and focused on leadership development, grew four times faster than companies that did not. They also found that these companies had job creation rates seven times higher, had stock prices that grew 12 time faster and profit performance that was 750 times higher than companies that did not have shared values. Collins and Porras (2003) confirm the same tendency in their book *Built to Last*, where

they compared organizations with gyroscopes which keep the organizations in balance—the main values stay changeless, but other organizational processes continue to change. They show that companies that consistently and in long-term focused on building strong corporate cultures outperformed companies that did not by a factor of six and outperformed the general stock market by a factor of fifteen. Beu, Buckley and Harvey (2003) set the organizational values even on a higher position while they say that business, as a type of society, is possible only within a certain social context of institutions, agreements, understandings and shared values.

Shared Values and Job Performance

In the case of value-based leadership, it has been discussed that in reality, all organizations are value-driven. But what is important is the fact whether the values are conscious, shared and lived, or unconscious and undiscussed. When values are unconscious and undiscussed, the culture of the organization usually reflects the personality of the leader. Unless the organization has a very evolved leader, it is unlikely that there will be an alignment between employees' personal values and the leader's values (Fitzgerald & Desjardins, 2004). At the same time, a high consensus in followers' perception of their leader does not assure that performance is in line with company expectations. Consequently, it is proposed that high work values moderate the relationship between consensus and performance (Schyns, 2006).

When values are conscious and discussed, it is likely that they are shared and lived. In this case, there is a stronger possibility that there is an alignment between employees' personal values and the organization's values (Fitzgerald et al., 2004). Westerman and Cyr (2004) analyzed personality and work environment congruence and found that value congruence was the best predictor of job satisfaction. Verquer, Beehr and Wagner (2003) also found that value congruence and turnover intent are in strong positive correlation with each other. One other important result was that when individuals' values match those of their organization, they are less likely to leave.

A whole theory has been created to explain the connections between organizational environment and the individual (the person-environment fit theory), that assumes that individuals prefer an environment that possesses characteristics (e.g., values, beliefs) that are similar to their own (Kroeger, 1995). The theory says that if people fit well with an organization, they are likely to exhibit more positive attitudes and behaviors.

Leadership and Shared Values

Therefore it is important to understand while connecting values and organizational success to each other whether the behavior of the organization is based only on the manager's or the organizations shared values. It is also important that the organizational values cannot be seen separately of leadership and management behavior. Terrence Deal and Allan Kennedy found out that leaders should not hesitate to communicate their values widely and advocate for them vigorously. They considered important that leaders create a guiding vision and shape shared values. James MacGregor Burns believes that leaders should help followers reframe their understanding of core values from self-interest to a broader view of the common good (Whitmire, 2005). Peter Drucker (2003) wrote:

The leader is visible; he stands for the organization. He may be totally anonymous the moment he leaves that office and steps into his car to drive home. But inside the organization, he or she is very visible, and this isn't just true of the small and local one, it is just as true of the big, national, or worldwide one. No matter that the rest of the organization doesn't do it; the leader not only represents what we are, but, above all, what we know we should be.

Also, Alas and Tuulik (2004) emphasized the importance of managers in strengthening the values and believed that common values can be attained through improved training and improved management practices and also by having the right leaders for the job.

We have no reason doubting the importance of behavior of managers in influencing the values of an organization but more important become the question—how important are their actions in forming organization's values in the eyes of the managers themselves. For example, based on the research of McKinsey and Co in 2009 (763 executives who responded) two most important activities for managers were “leadership (shape and inspire the actions of others) 49% of respondents and “direction” (capacity to articulate where the company is heading and how to get there) 46 % of respondents, but activity “foster a shared understanding of values” was important for only 8% of respondents. Researchers claim that ensuring shared values has become less important since the economic crisis began, while the other two qualities have become more significant (Wartzman, 2009).

Therefore, of critical importance is how much do manager's value spreading and following the organizational values inside the organization. While getting over the crisis those organizations survive that have kept to the same core values in the long run.

Consultant Kane (2009) has described how core values affect performance and managers definitely have an important role in that process. She believes that: “Managers and others throughout the organization give priority attention to what is stressed in the corporate values system and this in turn supports producing the priority results”. If the employees have acknowledged the core values they make better decisions, because they are guided by their perception of the shared values. Also, if employees share the values then they are more likely to recognize that they are an important part of the organization. They are more motivated because life in the company has more meaning for them. They work harder because they are dedicated to what is expressed in the organization's core values.

Values Which Predict Success

Peters' and Waterman's seven values of excellence. Several authors have investigated which organizational shared values predict success. Many researchers have been carried out where connections between different shared values and organizational success have been investigated. Boxx, Odom and Dunn (1991) used Peters' and Waterman's seven values of excellence, stated in 1982 (superior quality and service, innovation, importance of people as individuals, importance of details of execution, communication, profit orientation, and goal accomplishment) and analyzed their correlation to work satisfaction. Although positive correlation was found among highway and transportation managers, the results can be generalized because later researches also confirm correlations between values and work satisfaction.

Hultman's 15 values. Hultman has brought out 15 values (self-directed learning, adapting to change, balance, seeking opportunities in the midst of uncertainty, utilizing ability, distributing rewards fairly, finding satisfaction in work, serving mutual interests, working as an owner, prizing wisdom, being authentic, seeking truth, celebrating differences, accepting people and viewing people as ends in themselves), that in his opinion are particularly relevant for success in this current business climate of global competition and instant communication. Those values also happen to be humanistic values that foster wholeness and integration (Hultman & Gellerman, 2002). Hultman also stresses the importance of connection between organizational and individual values: “Effective culture is one that successfully balances individual and organizational values, that is, walking the

tightrope to success” (Hultman & Gellerman, 2002). Based on research he also claims that profits are higher when individual and organizational values are aligned. He writes that many organizational problems can be traced back to people’s values (Hultman & Gellerman, 2002).

Risk-taking value and success. Organizational success has been also tied to risk-taking. Zukerman and Kuhlman’s (2000) study show that generalized risk taking is related to scales for impulsive sensation seeking and aggression. Logically, it could be guessed that risk-taking is rather positively connected to organization’s success but based on several researches the connection seems to be indeed negative. Rauch and Frese (2002) show that high risk-taking is negatively associated with business success, Estola (2004) found that risk-taking is a contributory factor to the unethical in business. Based on theory another value that is negatively correlated to organization’s success is concentrating of profit—Amos and Weathington found that there are general negative connotations associated with organizations that individuals perceive as only valuing profit (Amos & Weathington, 2008).

Ethical Values and Success

Correlations between ethical values and different constructs (devotion, work satisfaction) have been studied relatively much also they have proven to have positive correlation with organization’s success. For example, Hunt, Wood and Chonko (1989) discovered a positive association between corporate ethical values and organizational commitment, Singhapakdi, Kraft, Vitell and Rallapalli (1995) proved that those employees who exhibited a greater degree of belief in corporate ethical values placed more importance on ethical approaches and social responsibility, thus leading to the overall increased effectiveness of the organization. In the next study Singhapakdi, Rao and Vitell (1996) found that an organization that appears to have ethical values shared by its employees is relying on the ethical reasoning of its decision makers.

DeGeorge ties organization’s success to ethical values more directly, assuming, based on the study, that the freedom of business to make profit is limited by the values of fairness, equal opportunity, honesty and truthfulness (DeGeorge, 1999) and therefore setting ethical values on the first place above all other values. Others have also mentioned the importance of ethical values. Barnow, King and Krumina (2003) tied ethical behavior to social capital, based on the fact that making human relations more ethical directly increases the value of social capital. Alas and Tuulik (2004) develop the idea of importance of ethical values further, stressing organization’s ethical competencies by which they mean a company’s ability to change its activities so they conform to a set of ethical standards, and so, to manage its own values and commitments. Therefore, when an organization bases its actions of ethical values they also appear in organizational behavior as ethical competencies and thereafter the behavior of the organization as a whole influences the employees to work harder and finally the performance of the organization rises.

In different researches especially one value has been demonstrated as an important ethical value, which is fairness (Moorman, Niehoff, & Organ, 1993; Clemmer, 1993; Oliver & Swan, 1989). On one hand fairness is important as an organization’s core value, but employee’s perception of how fairly he or she is treated can become even more important. Perceived fairness is a key antecedent to commitment, job performance and job satisfaction. The value of employee-centeredness can also be discussed through two aspects. The importance of people as individuals’ value facet significantly related to job satisfaction. This circumstance indicates that

employees who perceive their organization as valuing employees as individuals report higher job satisfaction (Amos & Weathington, 2008).

Research

Research Methodology

This research can be called critical discourse analysis (more information about this in Laherand, 2008, pp. 329-330, or Fairclough, 2002, pp. 91-116). The same principles have been used in other researches in Estonia by Lauristin (2000)—investigating articles appearing in two newspapers during 10 years that were collected out of certain two month issues of each year (Lauristin's analysis is centered on typical metaphors that carry the means of translating social changes).

In a similar way, we use documents, namely business magazine *Director's* 2007 and 2009 issues as the database for our qualitative study. In 2007, Estonian economy was in the phase of fast growth, quite fast inflation accompanied that also. Wages (and prices) rose, there was lack of work force, not lack of work. It could be guessed that in that kind of environment the managers of companies were considerate towards their employees (valued them relatively highly) and acted also more broadly responsible towards other interest groups (taking higher stages of model of Corporate Social Responsibility).

In 2009, Estonia was already in deep economic crisis, lack of work was serious, companies had hard time selling their products both here and outside markets, several companies had gone into bankruptcy, both wages and prices had stagnated—we guessed that in that kind of situation the values of entrepreneurs (in Estonia: managers of companies but also co-owners) would comply with lower stages of model of Corporate Social Responsibility.

As it can be seen we used magazine articles in our study. The articles were interviews with managers of companies—that kind of database can be named as documents. Hirsjärvi (2005) suggests data gathering method based on documents, mostly along with other data gathering methods but it can be used as an independent method also (Flick, 2006, pp. 245-246).

To ensure validity and reliability of our investigation we used Creswell's (2003, pp. 196-197) proposed researcher triangulation which means using different observers to discover or minimize mistakes that come from the researcher's person, like it was said above, we were reading the articles from business magazine *Director's*, issues of 2007 and 2009. Each of them included about 10-30 business related articles that in our view represented important values of that particular time in our business world. Two researchers read independently each article and wrote down the values that the article carried. One hundred and fifty seven articles in 2007 issues were read and 401 values were written down. One hundred and sixty five articles in 2009 issues were read and 340 values were written down.

Next the discovered values were analyzed. Values inside the article that we agreed upon us added to the database. If different values appeared, our third researcher read the article, too. If her opinion was the same as either of the two others those values were added to the database, if not, then these values were not added. In 2007, there were 27 and in 2009, 30 articles that did not show any clear values. The values added in the database were analyzed and similar were gathered together. If necessary the same articles were re-read to make sure that similarly named values would actually represent values with the same meaning. The results of research are shown in the Appendix A.

Discussion

This research showed an important change of values in the period of 2007-2009 (see Appendix) that can be described by Estonian economy reaching deep economic crisis, coming from very fast economic growth. That was also accompanied by very fast growth of unemployment (the number of unemployed people doubled in a year—2008 IV quarter, 53,500 people, and 2009 IV quarter, already 106,700 people. Estonian population is approximately 1.3 mil). In the beginning of 2010, unemployment continued to rise. This has been the highest level of unemployment in Estonia in 12 years (Toomark, 2010).

For many companies, it was more useful to go into bankruptcy than to continue working. In 2009 in Estonia 1,055 businesses and 14 non-profit organizations were estimated unable to pay their debt which meant that the number of bankruptcies rose compared to 2008, 2.5 times, in numbers 623 companies. Statistics show that every 133th business, that is 0.75% of all businesses in Estonia went into bankruptcy (Karner, 2010).

Innovation and creativity. If we analyze the change of values (see Appendix A), then we can bring out both important changes and also those values that were left at the same level and were mutually important both in 2007 and 2009. Innovation and creativity turned out to be very important. They are directly connected to fast changes in the society and the need to stay in competition and keep up with the fast development in technology.

Innovativeness, creating something new is also named as most important by professor Lauristin (Raun, 2010), who states that these are the keys of bringing a country and an organization of the crisis. In her words, it is clear that innovativeness is needed in Estonia, but it is another question if we can meet those needs. According to our research, creativity and innovation are important values by the number of times they appeared, but their change in time was not noted. If we talk about knowledge management as a management instrument in a modern organization, innovation being presented as a value must be considered as an important issue, because the innovation views and creativeness are the significant parts in process of knowledge management development.

Risk-taking. Economic crisis brings out the need to rising professionalism and risk-taking. If in economy taking risks is seen as a possibility to achieve higher results, then this study also confirms that in difficult economic conditions taking risks may mean ignoring ethical principles and laws. In order to use the risk to come out of the crisis one must in full awareness use the principles of risk management. Risk management can thus be defined as a systematic application of management practices to identifying, analyzing, treating, and monitoring uncertainties to better advice crisis management (Robert & Lajtha, 2002).

The rise of professionalism and courage to risk as values and using knowledge management is connected to the opportunity to use the situation for one's own advantage, and therefore be more competitive in the market. The point of view is the courageous survive. The crisis gives an extraordinary possibility to change both organizations and economic structure. Managers who miss the opportunity to use the crisis for long-term changes not only waste a good possibility, but also make re-appearance of other crises possible (George, 2010).

Teamwork. The possibility for long-term changes is connected to crisis management and knowledge management. Knowledge management itself will not solve the problems. The active involvement of top management and the board and the exercise of their power on these knowledge matters are vital. As knowledge is vital the organizations need active teamwork by employees and management to implement changes. At the same time, research showed that in times of crisis, the importance of teamwork as a value has diminished greatly. Therefore, it is contradictory that knowledge management is important for coming out of the crisis but at the same

time Estonian managers do not value one of the main competencies of using it—teamwork. The reasons of lack of teamwork can be uncertainty and fear of losing one's job. Therefore, everybody is concerned about keeping the status quo instead of actively searching for new opportunities. The same results are backed up by the fact that communication as a value diminished because teamwork means communication. It is difficult to conceive of how such learning, knowledge and regulation can control or change human nature, especially greed.

Motivation and valuing the employee. Analyzing these values that changed remarkably in negative direction, motivation and valuing the employee must be pointed out. The diminishing of these values can be explained by the fact that having a job became a value of its own during the time or crisis and being motivated while having a job was elementary. Simply put it means that for employees the content of the job, job environment, management activities and other factors that influence work motivation and satisfaction became less important because lack of work-force that described the earlier period had been replaced by massive lack of work. Changed economic conditions brought out sparingness and saving as values that represent in general the whole operations of an organization—the main savings were made in employee wages (in 2009 III quarter, Estonian average salary was 11,770 crowns. The drop in annual average salary was 5.9%. Still in 2008, the rise in average salary was 14.8%, average salary began to drop in the I quarter of 2008 (Toomark, 2010)), number of jobs, expenses on trainings and other employee-related costs. Because of that responsibility for the employees diminished as the employers often felt they had power over them (many possible new employees around). Although courage and risk as values appeared more often, it seems contradictory that aggressiveness and competition diminished. This tendency can be explained by several cartel agreements occurring during these times (Prangli, 2008).

Crisis management with full awareness. To use crisis as a possibility to develop and change economy, it is necessary to use crisis management with full awareness. Crisis management is broader in scope and can be defined as a set of ongoing and systematic processes for identifying, analyzing, and treating business crises by applying management practices (Mitroff, 1994). Crisis management frameworks can be categorized according to those that focus on why crises happen, which is termed operation-oriented frameworks, and those that focus on how crises impact organizations and the tasks that need to be performed in order to lessen their impact, which is termed process-oriented frameworks (Wang, 2009).

If we analyze the differences among negative values that appeared it shows that in the earlier period overbuying and overbidding, brutality and shrewdness were condemned. But in 2009, more organization-centered behaviors were brought out as negative values—too much profit-centeredness, lack of mission, not trusting employees and too little creativity.

Results and Conclusion

In this paper, we researched the constancy of management values in times of economic crisis. We started out with the hypothesis that in hard economic conditions less attention is paid to ethical values and economy-based values will take their places. At the same time, several earlier researches made us doubt that hypothesis. They said that those companies whose core values and mission stayed constant in long term survived any crisis better. In this research we followed the change in management values in 2007 (time of rapid economic growth) and 2009 (deep crisis in economy).

Moorman points out that the most important value is fairness and it should even be one of the core values of the organizations, but at the same time our research shows that the fairness as a value is decreased at the time of crisis. Comparing the values discovered by our research to values brought out by Peters, Waterman and Hultman, we can admit that four values of Peters et al. were also discovered in our study—superior quality and service, innovation, importance of people as individuals, communication. But in our study communication and importance of people diminish during the crisis. Other values, important by Peters et al.—importance of details of execution and goal accomplishment did not show up as significant in our study. Comparing our results to Hultman's important values we can mention fairness and honesty, whereby the occurrence of honesty is increased and occurrence of fairness is significantly decreased—it confirms the decrease of importance of ethical values in the time of crisis.

The management values analysis 2007 versus 2009 shows a certain change in values but does not bring out the need for knowledge management and learning as a value. Also Holland (2010) claims that knowledge and lack of it was also deeply implicated in the crisis and in many of the above problems, and hence addressing these issues will be part of the solution.

What are the conclusions of that research? We must admit that there has been an important shift among management values in the period of 2007-2009. In the centre position, there is survival, not so much competition but still sustainability is tied to innovation and creativity.

Sustainability in a society, in Estonian economy coming out of the economic crises means that our economic structure also needs a change to be competitive. If Estonia has clearly approached the EU and developed countries economies characteristics in some ways, then we cannot say that about our economic structure's dynamics unfortunately (Terk, 2007). James Collins and Jerry Porras of Stanford University (2003) found that the main differences between the visionary companies (companies that survived the economic crisis) and the control group with which they were compared were in their approach to values. All the visionary companies had a powerful sense of their identity and what they wanted to achieve. Managers in global business can help their firms to be successful and to minimize ethical conflict in several ways. The most important in sustainability of an organization is that the core values stay the same.

Surviving is also connected to opposite values, saving and frugality on one side but also courage and risk on the other. Diminishing competition seems illogical but it can be explained by making cartel agreements that represents growth in unethical behavior. Cartel agreements are connected to the need to lessen the competition on the market and therefore ensure the survival of your own organization but at the same time this activity shows ignorance of ethical values. At the same time, other researches (Alas, 2009) show that having ethical values present in the organization is an important prerequisite for employees to go along with changes.

As the research confirms the importance of ethical values like respect, valuing of employees, justice and responsibility has diminished remarkably, the hypothesis that was set—in hard times economic concerns prevail over ethical and philanthropical ones—is proved right. At the same time the will of an organization to keep the status quo and not to use the crisis as an opportunity for positive changes points out.

In conclusion, it can be said that the year 2007 is described by innovation and creativity, communication and caring as values, also valuing the employee, stability and intentionality. In 2009 innovation, creativity and caring remain important but ethical values as fairness, respect and valuing the employee lost their significance.

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Appendix A

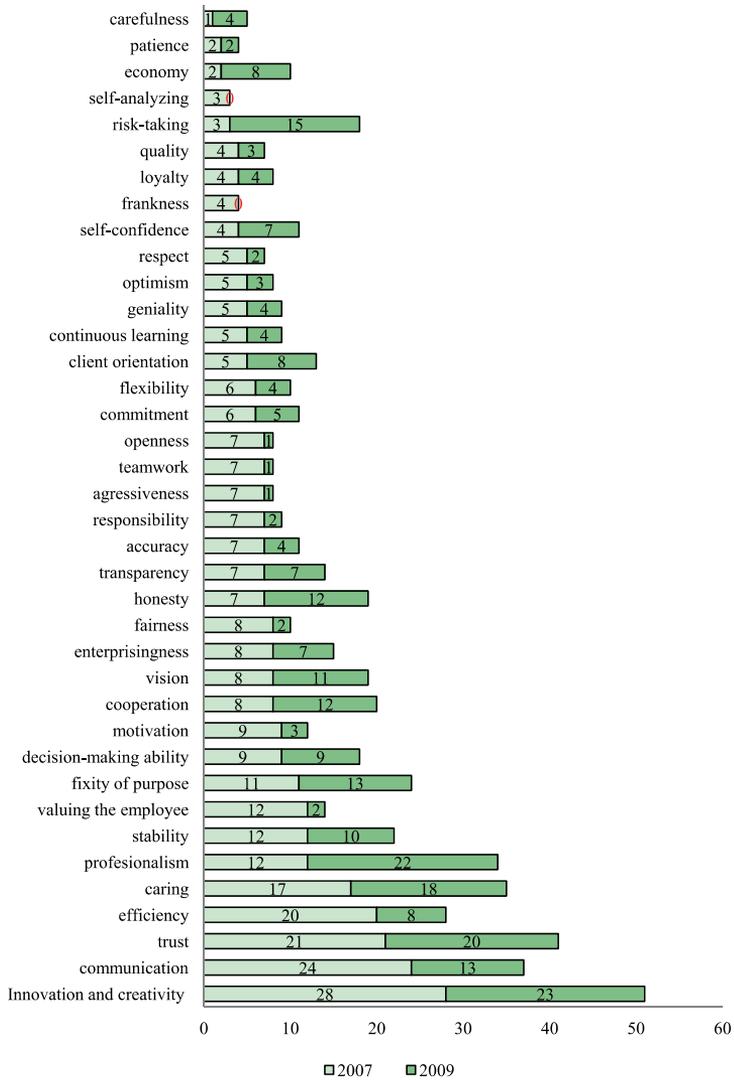


Figure A1. Change of management values in Estonia in business life between 2007-2009, by the frequencies of the occurrence of values.

Appendix 3.

Research paper III

Virovere, A., Titov, E., Kuimet, K., Meel, M. (2013) Propagated and Real Values in Estonian Organisations According to Conflict Analysis. International Business – Baltic Business Development, Prause, G., Venesaar, U., Kersten, W (eds.). Peter Lang GmbH: 107-124. (ETIS 3.1)

PROPAGATED AND REAL VALUES IN ESTONIAN ORGANISATIONS ACCORDING TO CONFLICT MANAGEMENT ANALYSIS

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ABSTRACT

The main indicator to continuous organisational success is sustainability, whereas sustainability of an organisation is directly connected to the shared values of it. Authors suggest three groups of organisational values: described, propagated and shared or real values. Most talk in organisations is about propagated values but the important question is whether the propagated and real values of an organisation match. Otherwise the culture and the actions of the organisation are not in harmony with each other. The main aim of the article is to demonstrate the differences between propagated and real values in Estonian organisations. The authors point out the possibility to use conflict analyses for estimating, which are the real (shared) values of organisation. As the investigation methods case study (case-analyses) and critical discourse analyses are used.

In the ideal, propagated and real values ought to coincide, but the results of our research demonstrate that while propagated values in Estonian organisations are on higher levels of value systems, then the real values are usually placed on the lower level.

One of the results of the study is that Estonian managers know and speak about values that are important for remaining/becoming sustainable, but in real life they do not follow these values. The results of our research confirm the need for a change in this field.

Key words: Values, organisational values, described values, propagated values, real (shared) values; value systems, conflict management.

INTRODUCTION

The command-and-control approach to management has become less and less viable in recent years. Globalisation, new technologies and changes in how companies create value and interact with customers have sharply reduced the efficacy of a purely directive, top-down model of leadership (Groysberg and Slind, 2012). Still the old managerial methods and paradigms are hard to disappear and in reality the development of value-centred way of thinking is slow. Lencioni (2012) said that there are two parts to the equation of organisational success, being smart and being healthy. According to Lencioni (2012), on the smart side of the equation are the elements of strategy, marketing, finance and technology. On the healthy side of the equation are minimal politics, minimal confusion, high productivity and low turnover. Business leaders mostly focus on the smart side of the equation, and just don't pay much attention to the healthy side (Lencioni, 2012). At the same time no common

understanding about the definition of “good management” that also considers the principles of “being healthy” is present. Melé says that an essential part of “good management” is ethics and considering the manager’s action and its dynamism, that is, the effects of such action and the subsequent consequences for future actions”. (Melé, 2012a). In order to lead the organisation to success with smaller amount of rules, policies and with greater flexibility more attention should be paid to the organisational values.

Authors suggest three groups of organisational values: described (which exist only formally), propagated (which managers regard to be right) and shared or real values (which are factually used in managerial practise). Described values are the least option for an organisation to deal with values. Usually it only means naming the values. Propagated values are the values that managers regard to be right; real values are those that the managers factually use in their managerial practice, decision-making and conflict management.

One important guideline for developing good management is given in the literature about organisational values. In general it carries two approaches – philosophical and anecdotal – and in both cases managing values has been tied to the success of the organisation (Buchko, 2007). The companies that are classified as high performers are assumed to have a strong value-driven culture and their core values guide the decisions and actions of organisational members (Ofori and Sokro, 2010). And again the most important part in value management lies among the managers. For example Collins presents a five-level managerial classification (Collins, 2000, 2011) where the highest, fifth level is characterised by following they share core values, they don’t need to be tightly managed, they understand that they do not have a job - they have responsibilities and they do what they say and they will do it 100 percent of the time.

An organisation’s value system reflects the patterns of conflict and compatibility among values, not the relative importance among values. Hocker and Wilmont (1995) defined a conflict emphasising the independence of parties involved – a conflict is a communication process between two individuals who are dependent on each other and both sense mutually discrepant goals and intrusion into reaching their goals (Likert, 1976). “The strategies and principles used by a society and all its organisations for dealing with disagreements and conflict reflect the basic values and philosophy of the society“ (Likert, 1976).

Often in organisations the values are described and an effort made to propagate them to the employees and integrate in everyday actions. A more complex question remains how to evaluate if the desired values have imprinted themselves in the organisation. One way of evaluating if values have been imprinted is through conflict management practices. The analysis of conflict management demonstrates which the real values in an organisation are.

Previous conflict researches in Estonia (Virovere and Rihma, 2008) and abroad (Harigopal, 1995) have presented the most common causes of conflicts due to organisational issues (limited resources and their distribution, interdependency, differences in goals and in viewpoints, managerial mistakes, unclear status and communication problems). While analysing conflicts it is important to determine whether the conflict is solved or unsolved and then we discover which values have been used during the conflict solving and decision

making process. In addition to the main characteristics of conflict three important aspects can also be brought out: conflict is always related to relationships, there are several parties in a conflict and there is a problem or main question that has caused the conflict (Virovere and Rihma, 2008).

The main aim of the article is to demonstrate the differences between propagated and real values in Estonian organisations. Up to now there have been many investigations about organisational values, and from the other hand also investigations about conflict management. But there is a gap in connecting of these two phenomena. The authors of the present paper proceed from the hypothesis that the real (shared) values of an organisation reveal themselves in the behaviour and decisions of the managers and in how they manage conflicts. Therefore through investigation of the conflict-cases we can find out which are the real values in the organisations. For testifying the hypotheses we at first focus on the investigation of the cases of conflict-management in Estonian organisations to find out which are the real values the managers proceed from. As follows, we analyse the values the Estonian managers propagate: these are the values they consider to be right. As by comparing these two groups we can find out how essential is the gap between real and propagated values in our organisations. We believe that such an investigation makes it possible to create development-systems for the organisations to minimize the gap between propagated and real values and to harmonize the management of organisations.

2. Theoretical Framework

2.1. Conflict as a research tool for revealing organisation's general status and values

A comprehensive review of the conflict literature yielded this consensus definition: conflict is a process in which one party perceives that its interests are being opposed or negatively affected by another party. (Wall and Callister, 1995) Deutsch (1973, 1980) proposed that individual values affect everyone's expectations, interactions and outcomes as they deal with conflict. Conflict as a research tool is a very informative phenomenon for revealing an organisation's general status. A conflict is the result of a closer leading to a contact stimulus and a reciprocal stimulus, which is perceived as a threat for the respective security or identity (Cappellin, 2011).

Usually people don't believe that conflict might be a good thing. According to Lencioni (2012) arguing and discussing issues (solving a conflict) tend to form stronger and healthier teams. The conflict management is a major function of every organisation, including business firms and governmental agencies. (Likert, 1976) Conflict solving style is directly linked to the microclimate of an organisation. (Volkema and Bergman, 1995)

Conflicts are a way of confronting reality and create new solutions through problems and conflict is necessary for true involvement, empowerment and democracy. Through debating different perspectives, people voice their concerns and create solutions responsive to several points of view. Conflict provides an opportunity to form and express our needs, opinions and

positions. (de Dreu and de Vliert, 1997) A well-managed conflict is an investment for the future. People trust each other more, feel more powerful and efficient, and believe their joint efforts will pay off. Feeling more able and united, people are more prepared to contribute to their groups and organisations. Success in turn further strengthens relationships and individuality. (Tjosvold, 1997) The consequences of positive conflict – strong relationships, productivity and individuality – have to be managed. (de Dreu & de Vliert 1997) Through conflict management we can find out what is the organisation's culture, values and microclimate. Inappropriately managed conflicts at the organisational and individual level have resulted in dysfunctional consequences for both, while effectively managed conflicts have contributed to mutual survival, growth and well-being (Harigopal, 1995). The essential elements of each conflict and methods of resolving them reveal a lot about organisational culture, workplace relations and ethics.

The conflict study carried out in EBS (Estonian Business School) shows that many conflicts in Estonian's organisations have been left unsolved or have been solved by using power over the employees and they have often left the company. (Virovere and Liigand, 2002) As we want to evaluate organisations at the level of competitiveness, ethics and success originated from theories of intellectual capital (Roos et al., 1997), internal marketing (Ballantine and Christopher, 1995) and business ethics (Chryssides and Kaler, 1996), the success and goal achievement of an organisation depends on how the people inside the organisation are treated. Conflict management strategies show vividly how employees are treated in the organisation and thereby it is possible to demonstrate the values that the organisation exploits. Values and value-driven leadership have received a lot of attention in the last decade. Companies are defining their values in the same way as individuals are seeking theirs (Sydänmaanlakka, 2007)

The appearance of certain type conflicts in an organisation depends on people's beliefs and values. While solving the conflicts managers' real values become essential. Constructive conflicts are connected to organisation's development. Failure tolerance and giving the employee an opportunity to learn from mistakes has been found to be a building block of organisational innovativeness. (Jaakson et al, 2011) Also constructive conflict handling and free expression of opinions is positively related to innovation (Leavy, 2005, Bhates and Khasawneh, 2005, Dobny, 2008).

In the case of constructive conflicts it can be seen that while solving the conflict all parties' interests, needs and values have been taken into consideration. Sydänmaanlakka introduces principles of ethical leadership, which provide a foundation for the development of sound ethical leadership. According to these principles ethical leaders respect others, serve others, are just, are honest and build community. To be an ethical leader, we must be sensitive to the needs of others, treat others in ways that are just and care for others (Sydänmaanlakka, 2003). In Mele's opinion the willingness of managers to serve others with a sense of selflessness, and even self-sacrifice is important. This requires concern for other people, helping them to achieve worthy objectives. (Melé, 2012a).

Conflicts are an important source for new solution and they should not be suppressed, even though they are emotionally difficult. Bringing conflicts upfront assumes trust and trust is also at the core of employee participation (Bhates and Khasawneh, 2005)

2.2. Values in organisations

The word “values” is used often but its unanimous definition is difficult. The concept of organisational values has no single and widely accepted definition (Ofori and Sokro, 2010). Values can be observed at different levels (individual, organisational and group values), they can be differentiated by the degree and place of exposure (Schein 2004, Gini 2004, Lencioni, 2012), scope (Rokeach, 1973) and other characteristics. Even more complexity to value research is added by using words as “principles”, “beliefs” etc as synonyms to “values”. (Ofori and Sokro 2010, O’Reilly 1989, Debrah and Quick, 2006). The confusion continues until agreement about common instruments and concepts will be reached (Connor and Becker (1994). Extensions as – exposed values, shared values, core values, stated values etc – are also widely used while describing organisational values.

Although there is a lot of confusion using the concept of values common understanding has been reached in some aspects - the values cannot be seen or heard and can only be observed in how they manifest themselves through attitudes, preferences, decision making, and other behaviour. If values are not passed on they cease to exist, values have to be kept constant. (Schein, 2004; Rokeach, 1973; Edvardsson et al. 2006).

Different values that are hierarchically bound create a value system. There are several value systems, most known of them probably the Schumacher’s model of organisation as a value system, Melé’s model of five levels of human quality, and Beck’s and Cowan’s eight-value system. A value system is frequently understood as the ordering and prioritisation of a set of values (principles, standards or qualities considered worthwhile or desirable) that an actor or a society of actors holds. However, the values that a group or an actor holds may fall into several different categories since the concept of values is multifaceted (Abreu and Camarinha-Matos 2008). Every employee brings into the organisation his/her own values. These values give the organisation its „face“, which develops when individual value systems coincide sufficiently and have a common understanding to smooth the difference. Usually, in this way a small number of interrelated shared values develop instead of one particular value. These values form the organisation’s value system. None of these value systems is internally better or worse than any other.

The existing distribution of values / systems are not uniquely related to the levels of awareness within its organisation values. According to previous studies and results, for this research, organisational values are divided into three groups – described, propagated and shared (real) values (figure 1) – that are mutually hierarchically bound. Described values are the least option for an organisation to deal with values. Usually it only means naming the values without concentrating on their propagation to the employees or implementing them in everyday practices. Propagated values is the second level where trying to communicate described values to the employees or using them in everyday actions are present. The third and highest level of values is shared values. In that case describing values and propagating

them to the employees has been successful – values are used in real work and decision-making processes. In every organisation only those values are accepted that are exploited by management.

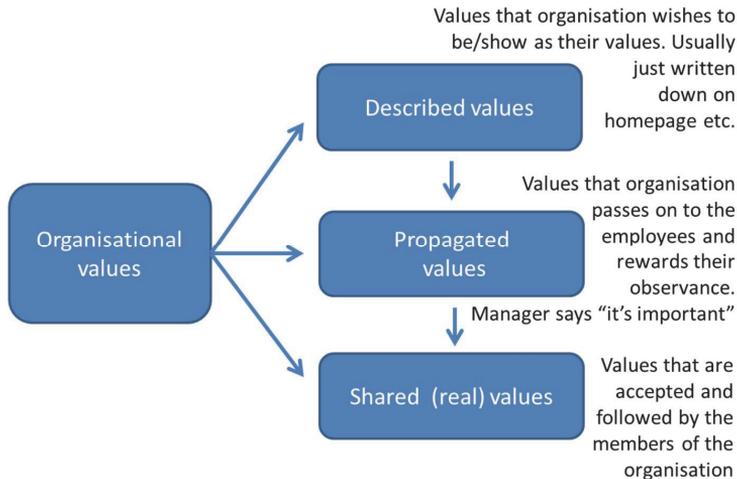


Figure 1. Simplified hierarchy of organisational values. Source: compiled by the authors.

It is possible and necessary to manage organisational values and strong culture and inner agreement on the values guarantee the success of the organisation (Martin and Frost, 1999). An important role in managing values lies on the management of the organisation because values are means of influencing behaviours without the need to resort to formal structures, systems, strategies, or control mechanisms (Viinamäki, 2012). Leaders should create a clear definition of organisational sustainability values, which is consistently communicated and reinforced throughout the organisation. It is also the tasks of managers to guarantee that the values are in harmony with each other (Driscoll and Hoffmann, 2000) and also with the organisation's mission, vision and strategy (Jaakson, 2010). Variance in values is one of the sources of conflicts. Value congruence exists when there is no conflict between the various elements in a value system. Value congruence predictably produces positive outcomes and affect that will result when an individual's values are congruent with those of other persons or entities (e.g. a supervisor or an organisation). (Klenke, 2005)

In the context of value systems it can not be said that the value is good or bad, it is very difficult to give an estimation of whether the values of the organisation are useful or not. In this study the Mele's Value System is used to compare the described and real values of the organisations. From its very beginning organisations and their managers has been focusing on people to improve the efficiency, trying to achieve goals using minimal resources, "treating" employees as values for their selves", and achieving the effectiveness and sustainability are the phenomena that accompany the first value (Melé, 2012b, Schumacher, 1973). Melé divides organisations into five groups according to the attitude towards people in them. In

management, five levels of human quality in dealing with people can be distinguished: (1) mistreatment, (2) indifference toward people, (3) respectful treatment, (4) concern for people's interests, and (5) favouring mutual esteem and cooperation (Melé, 2012a). Each level is characterised by certain values following of which characterises the quality of management.

Mistreatment of people is the lowest level of human quality in dealing with people. All of these behaviours violate basic human rights and are, therefore, blatant injustice, contrary to the respect due to human dignity and to the Golden Rule (Melé 2012a). When people are mistreated in an organisation their motivation to work declines essentially and therefore also the organisation's sustainability sinks. Also many ethical conflicts occur at that level. The analysis of conflicts in Estonian companies showed that among ethical rights the employees' right to participation and right to job satisfaction were violated most frequently (Virovere et al. 2002).

On the second level of treatment there is no external mistreatment, but people do not receive any encouragement, emotional support, consideration or recognition. People are used for achieving economic goals, maybe employing some psychological technique to obtain more profitability from them, but without any consideration beyond this utilitarian goal. Many conflicts and discontent of employees may occur at this level. (Mele, 2012a).

The third level is characterised by justice – give to each what is due, including respect and the promotion of human rights. From the management point of view, this level lacks shared vision and common shared values. Frequent conflicts also occur at this level, however, caused rather by lack of mutual understanding. (Mele, 2012a) The study of conflicts in different companies in Estonia has showed that both managers and employees lack emotional competence based on emotional intelligence (Virovere et al. 2002).

The fourth level expresses acting toward people not only with recognition and respect, but also showing concern for their interests and compassion for their problems (Melé, 2012a). The level describes wide-spread understanding of excellent management; however, although attention is given to the employees in such organisation, social responsibility is not sufficiently prioritised. However, while taking care of each employee's well-being and interests, one must not forget the common goals and sustainability of the organisation.

On the fifth level of human quality concern is not limited to justice and care, but to pro-actively promoting a high consideration of the person and concern for personal development, mutual esteem among people, and a willingness for cooperation and service toward the common good. This level corresponds to the Values-Based View of Strategy in O'Reilly' (2000) approach, meaning that the ability to execute strategy depends on an organisation's ability to attract and retain great people and, more important, to use their knowledge, wisdom, and insights. At this level a willingness of cooperation and service toward the common good are revealed. Merrill (2008) argues that collective knowledge is fundamental for innovation. A new product portfolio must include a number of long-term and potentially major innovations in order for an organisation to have a healthy future.

3. Research Design

For discovering the propagated values we used articles published in a leading Estonian managerial magazine „Director“ (year 2011). For detecting the real values we used cases of conflict management. Conflict management refers to how organization members deal with the conflict situation.

Based on the results of a study by EAS and professional practice reports (EAS 2011, Titov, Kuimet, Meel (forthcoming)) it can be seen that so-called higher values are not used by Estonian organisations. The higher values are values which are described in the top of the value hierarchies (systems). The main aim of the article was to demonstrate the differences between propagated and real values in Estonian organisations according to Mele's values system (hierarchy). To investigate either of these value groups we had to use different research methods. To discover the real values we chose conflict analysis as the research tool, because conflict is very informative - in the conflict resolution process the appearing behaviours and strategies demonstrate the values and principles present in the organisation and that allows us to see the status of the organisation in general. The basis for gathering data included student papers that described real conflict situations in specific organisations. The choice was made from analyses of conflict situations written in 2011. The students had to describe a conflict that took place in a specific organisation, analyse the cause, type and resolution (or unsettlement) of the conflict. The sample constituted of 39 TUT (Tallinn University of Technology) and 21 EBS (Estonian Business School) student papers. While analysing the cases we paid attention to the issue of resolution of the conflict. We anticipated that successful resolution of conflicts necessitates behaviours and solutions that are connected to so-called higher values like mutual esteem and cooperation, concern for people, respectful treatment and indifference toward people. Altogether 60 conflict descriptions were analysed. According to the size of organisations that were the base for the conflict descriptions the sample divided into three groups – small enterprises (24), medium size enterprises (9) and large enterprises (27). In 15 organisations horizontal and in 45 organisations vertical conflicts took place. To reduce subjectivity at least two members of our research group read each conflict analysis. Based on the conflict we discovered the values that caused the conflict and also those values that were used in resolving or not resolving the conflict.

For discovering propagated values we used critical discourse analysis frequently used for qualitative studies (look for ex. Laherand 2008 or Fairclough 2001 or Lauristin 2000): as the documents for our study we used above-mentioned magazine articles. To ensure validity and reliability of the investigation, similarly to real values finding process, we used researcher triangulation proposed by Creswell (2003): two of us read independently each article and wrote down the values that the article carried. Next the discovered values were analysed. Values in the article that we agreed upon us were added to the database. If different values appeared, the third of us read the article by oneself. If her opinion was the same as either of the others, those values were added to the database; if not, the values were deleted. In 2011, there were 21 articles that revealed no clear values. The values added in the database were analysed and similar ones were gathered together. If necessary, the same articles were re-read to make sure that similarly named values would represent values with the same meaning. One

hundred and fifty four articles in 2011 issues were read and 514 values were written down. The values were then grouped and a common denominator was found for essentially the same values (e.g. communication skill, communicativeness, communication etc were grouped as one value: communication).

After the ascertaining the real and propagated values, was determined on which Melé's level (mutual esteem and cooperation, concern for people, respectful treatment, indifference toward people, mistreatment) those values were positioned. Melé has used 10 principles in the areas of human rights, labour, the environment and anti-corruption (principles of the UN Global Compact) (Melé, 2012:a) while describing his levels. To guarantee better compliance the authors of this article used the same principle descriptions while placing the values on Melé's levels.

4. Results

Depending on the type of conflict two types appeared most frequently – conflicts due to communication mistakes and due to goal differences. In spite of dominant economic environment only one-limited resources conflict appeared among 60 analysed conflicts. No direct connection was found between the type of the conflict and the value level defined by values used in solving the conflict - irrespective of conflict type different values were used in solving the conflict. Also no connection was found between the size of the organisation under research (where the conflict took place) and value level.

Figure 2 presents the number of propagated values and real values on the levels of Melé value system. If the propagated values rather represent higher levels of Melé's classification then reality is more focused on lower level values. Still, extremes have not been met in either case – propagated values cannot be found on the lowest level (level 1 that is described by mistreatment) and based on the real values organisations have not reached the highest level (level 5 that is described by mutual esteem and cooperation). On the opposite side the other extremes have been met – in the case of real values unfortunately the lowest level i.e. mistreatment has appeared significantly and in the case of propagated values enough values can be pointed out that show the highest level i.e. mutual esteem and cooperation. As Melé's system describes growth towards ethics then based on that we can say that the managers of Estonian organisations know which the right values are but they have not been accepted/imprinted in the organisations.

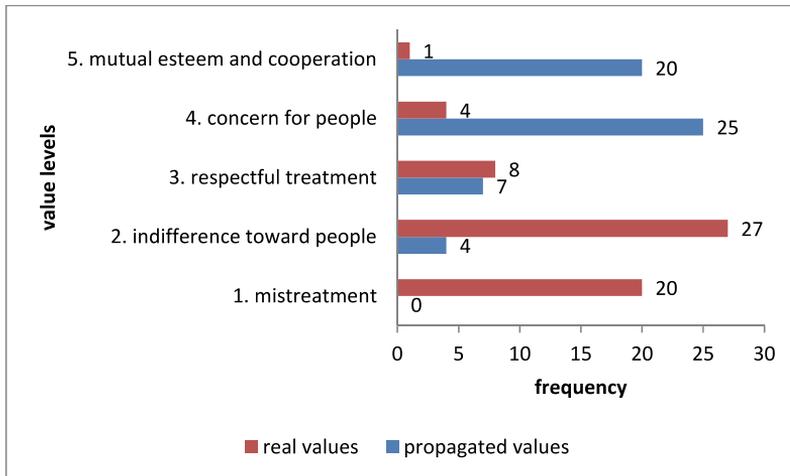


Figure 2. The propagated and real values according to Melé’s value system. Source: compiled by the authors.

Table 1 shows which values have been used to describe the levels of Melé in both studies. Although Melé does not use values while describing the value system levels the results of the current study enable to show each level by describing specific values. Although the goal of the propagated and real values research was not to find specific values that comply with certain Melé’s levels a preliminary list of values still has been developed due to the methods of research (to find values that describe certain situations). According to the goal of this research it can be seen that while the number of values that describe different levels is totally different among the propagated and real values (except 3rd level) then values that were used to describe one or another level partly overlap. For example in both studies values like – cooperation, valuing the values (meaning that the presence and acceptance of both individual and organisational values by everyone is important) – were used to describe the 4th level. In the case of the 3rd level “honesty” has the same meaning by words but also “goal-orientation” and “shared goals” refer to similar values.

Table 1. The examples of found propagated and real values describing the Melé’s value system. Source: compiled by the authors

Levels of Melé’s values	propagated values	real values
5. mutual esteem and cooperation	innovation and creativity, flexibility, commitment, courage, teamwork, passion	support, trust
4. concern for people	social responsibility, valuing the values, trust, motivation, openness, cooperation, entrepreneurship	valuing the values, good microclimate, cooperation, friendliness, helpfulness
3. respectful treatment	honesty, communication, goal-orientation	competency, honesty, quality, environment, shared goals

2. indifference toward people	analysing skills, no learning, lack of client orientation, efficiency, routine	lack of cooperation, no shared values, client-conflicts, employee as a resource, no common goals, demotivation, profit-orientation, irresponsibility
1. mistreatment		immorality, not-valuing the employees, hurrying, domination, fear, power, bribery

In the case of each conflict we determined if it was a vertical or horizontal conflict. We expected that a vertical conflict would be directly linked to management thereby demonstrating management quality. Out of 60 conflict cases 43 were vertical conflicts. This clearly demonstrates shortcomings in the quality of management.

5. Discussion and Conclusion

The changed nature of business environment has brought along the rising importance of people as creators and thinkers. From the point of view of organisations it becomes more important to create an environment that supports teamwork, innovation and development of collective knowledge. Our investigation points out the difference between propagated and real values in Estonian organisations: it lies mostly in the fact that while people-centred values are being propagated then based on real values it can be said that employees are being treated as a resource and the person who does the work is not valued. The same problem has been arisen by several previous Estonian management studies. For example the 2011 Estonian management field research claims that management principles and values are not in harmony with the values of a sustainable organisation, management is authoritarian and employees are not being involved (EAS, 2011). This is confirmed also by a study by Zernand-Vilson and Elenurm (2010) arguing that management practices, such as focusing on employee individuality and personality or self-directed work teams do not appear as growing directions. Estonian Development Fund's report about the Current Status of Competitiveness of Estonian Economy (Varblane et al. 2008) points out that the business models in use do not develop fast enough, new markets are not pursued and management is quite conservative. Vadi and Türk (2009) show in their 2007 Estonian managers' survey, which the leaders of Estonian organisations often lack managerial competencies and they cannot value or manage innovation.

While in studying propagated values it was clearly seen that teamwork as a value was considered important. But in the conflict analysis the same results did not appear. Based on the conflicts researched we can say that common interest among the group, department and even the organisation is often missing. Also, the understanding of everyone's necessary input while reaching the final goal is missing. The results of the research show that teamwork that is highly valued as a propagated value appears significantly less as a real value. The explanation can be that teamwork is possible in organisations that are (according to Melé's theory) developed into 4th or 5th level. Thus, Estonian organisations have a huge growth area in the field of managerial practices and also value based management. That has also been confirmed by previous studies (EAS, 2011; Übius and Alas, 2010, Zernand-Vilson and Elenurm 2010).

While in the propagated values “cooperation” appeared very often, another possible problem can be that although organisations often declare teamwork as their strength it is not the case in reality – teamwork only applies to work and projects which are done physically at the same time and location but essentially no teamwork or cooperation criteria (interest towards work, synergy, harmony in work process) is met. As a positive result of the study it can be brought out that only a few cases of all cases analysed were placed on Melé’s first level. That means that Estonian organisations are hopefully overcoming the entrepreneurial problems of the developing country – manipulation, knowingly bending and not following the law (i.e. violation of laws).

It is also a logical result that propagated values are more ethical in essence than the real ones. That shows accordingly that Estonian managers in general know what important values are. It also may point to a possible problem that managers have learned to give „correct“ answers and remain a proper outlook but in reality these values are not being used. It has to be taken into account that implementing values can take years and as changes in raising and training Estonian managers are only recent the results can appear after many years. Conflict is a good tool for researching real and accepted behaviour because the results present the reality.

Based on the results of the research it can be said that in the case of the organisations under investigation we are not dealing with good management organisations according to Melé’s value system levels. While good management is a prerequisite of creation of sustainable organisation we can say that in the year 2011 the real values in Estonian organisations do not support the wish of sustainable organisations and sustainable economy. First and foremost too little attention is paid to creation of positive and strong organisational culture, management lacks following people-centred values in leading people.

In the ideal case propagated and real values ought to coincide but the results of our research demonstrate that while propagated values are on higher levels of Melé’s value system i.e. 4th and 5th level then real values are usually placed on the 2nd level of Melé’s system. Values reflect management and management quality in an organisation directly. Thereby the results of the studies described in this article support Maaja Vadi and Kulno Türk’s notion made after researching Estonian organisations in 2007 that the managers of Estonian organisations lack managerial skills (Vadi and Türk, 2009).

Since in the conflict analysis the biggest number of organisations placed on the 2nd of Melé’s value system and in the case of propagated values Estonian organisations are placed on the 4th and 5th level we can say that managers of Estonian companies lack the skills to behave in accordance with propagated values and do not include propagated values in everyday management practices.

What we can conclude from our investigation: Estonian managers know and speak about values that are important for remaining sustainable but in real life they do not follow these values. The results of our research confirm the need for a change in this field.

As it was shown in the theoretical overview up to now there have been many investigations about organisational values, as well as investigations about conflict management. But there

was a gap in connecting these two phenomena which our research aimed to fill. Therefore for the first time through investigation of the conflict-cases the real values in the organisations were found out.

We believe that using a conflict as a tool justified itself. Based on the knowledge gained from this research it would be possible to create training programs for managers and use the knowledge for developing business and management study programs.

Limitations and future research

The authors are aware that the propagated values identified on the basis of the journal articles do not show their utilisation in Estonian organisations, but express rather the trends propagated by management. Although the articles also contained case descriptions, they often show the situation better than it actually is. Data of this research comes from articles that express desired reality rather than real situation. We also understand that regardless of the fact that at least two members of the research group analysed each case study some subjectivity may be present in the evaluations. That is due to the analysers' life experience, knowledge and personal values. Finding and grouping values is inevitably subjective and largely dependent on experts, but hopefully the consensus analysis helped to reduce the subjectivity.

Another possible problem in analysing the propagated values is the issue that the articles, which the analysis was based on, may not be sufficiently representative for management styles since editors of the journal and authors selected the journal articles. At the same time, the topics and content of the articles were decided also by managers' expectations, experiences and needs, and global management trends. Because of the large amount of articles, this in turn increases the likelihood that the research results reveal the actual trend.

Also the gathered conflicts may not be representative enough and the choice of conflict to be described naturally depends on the describer. To minimise that problem the describers were beforehand thoroughly instructed on principles of choosing and describing conflicts. Another problem with gathering conflicts lies in the situation where the describer describes the conflict from his/her point of view. But as there are always several parties involved in a conflict the personal values and notions of the describer can influence the outcome. We omitted from the analysis of the research results some negative values with the minimal rate of occurrence compared to positive values (in general, occurred once only). Based on the principle that although negative values occurred in the articles, the content of the article clearly inclined the reader to admit that neither the manager nor organisation would benefit from using this value, therefore that negative value is not listed among the propagated values.

So further we could look for reasons why propagated and real values differ so much. In next researches it would be interesting also to find out how values are managed in organisations if conscious organisational culture development is practiced; also to investigate how much

Estonian managers know about the benefits and need of values management and what could be the reasons why certain values are propagated but did not follow in reality.

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Appendix 4.

Research paper IV

Järvis, M., Virovere, A., Tint, P. (2015). Formal Safety Versus Real Safety: Quantitative and Qualitative Approaches to Safety Culture – Evidence from Estonia. Proceedings of the Latvian Academy of Sciences (forthcoming, ETIS 1.1).

**FORMAL SAFETY VERSUS REAL SAFETY: QUANTITATIVE AND
QUALITATIVE APPROACHES TO SAFETY CULTURE –
EVIDENCE FROM ESTONIA**

Marina Järvis*, Anu Virovere ** and Piia Tint ***

ABSTRACT

This paper examines differences between formal safety and real safety in Estonian small and medium sized enterprises. The data reveal key issues in safety culture assessment. A statistical analysis of safety culture questionnaires shows many organizations with an outstanding safety culture and positive safety attitudes. However, qualitative data indicate some important safety weaknesses and aspects which should be included in process of evaluation of safety culture in organization.

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KEYWORDS: Occupational Health and Safety, Social Capital, Safety Culture, Organizational Values, Knowledge Management.

INTRODUCTION

A safe and healthy working environment is an important element of work life quality (Fugas et al., 2012) and many researchers have shown a strong interest in the behavioural aspects of safety, while safety culture and safety climate have become an essential cornerstones of modern thought about occupational health and safety management in organizational culture (DeJoy, 2005; Frazier et al., 2013; Rao, 2007). One of the biggest challenges for organization in today's competitive business environment is to create and preserve a self-sustaining safety culture (Rao, 2007). Researchers and practitioners have shown increasing interest in safety culture and in possibilities' to maintain and improve it because of its impact on safety outcomes such as occupational accidents and fatalities, safety behaviours (Choudhry et al., 2007; Fernández-Muñiz et al., 2007). Safety culture (a sub-unit of organisational culture) does not have a unique and universal definition (Frazier et al., 2013). However, it can be defined as a the product of the individual and group values, attitudes, beliefs, risk-perceptions (Lee and Harrison, 2000), competencies, norm, principles, and patterns of behaviour that determine the commitment of employees to health and safety, as well as the style and proficiency of an organization's health and safety programmes (The Health and Safety Executive, 2005). Cultural assumptions and propagated values are typically the basis of an organization's mission and 'vision statements' which should be a reference for appropriate conduct for all employees in organization. Frazier et al. (2013) stated that this is not always the case, the organization's mission and values cannot create or change a culture alone. Interventions directed at the individual employee level are necessary. It is essential that employees' health and safety behaviour as organizational values are adopted and

shared between all employees throughout the organization and not only formally existing on paper. Reviews of organizational values surveys have identified some common constructs related to such values (Virovere et al., 2013) as: described, propagated and shared or real values; formal or real values. Employees' attitudes and safety behaviour are based on adopted and recognised values. Therefore it is essential, that applying these values is achieved through management principles, good practices in occupational health and safety, as well as through employers' and employees' commitment to safety on a daily basis.

Many organizations claim to have a serious commitment to safety and they show relevant good safety performance, accident records. However, this positive phenomenon could be similar to a formal, propagated and image-based approach to safety and needs to be investigated in-depth, focusing on the differences between 'formal' safety and 'real' safety. Meliáa et al. (2012) investigated differences between descriptive and prescriptive safety cultures, and analysed the effort of the construction industry to convert formal safety into real safety in a large plant. An in-depth safety culture analysis showed how a very positive prescriptive safety culture as described by questionnaires may not be enough to reveal important safety culture flaws and fix underlying safety risks.

The present article examines differences between formal safety and real safety in Estonian small and medium sized enterprises from different industries and discusses one of the many possible approaches to safety culture - through managing the safety social capital inherent in organization. This study is a first step in the process of applying intellectual capital (IC) principles to the field of occupational health and safety (OH&S) in Estonia with a special focus on knowledge management (KM) systems as an umbrella for capturing a range of organizational concerns towards health and safety. This article concerns organizational safety culture and the structure or architecture of employees' and employers' attitudes to safety as part of that culture, as well as the ability to learn, which also should mean changes in worker's behaviour in order to enhance safety culture. The article proceeds as follows: First, we introduce the concept of IC as the stock of knowledge and skills that an organization is able to generate and use in its OH&S management system to build safer and healthier workplaces. Also this section reviews the content of social capital (SC) and its relationship to shared knowledge and safety culture in the organization. Second section outlines the methods used in the research. The last sections present an analytical overview of the existing Estonian organisational safety culture, which requires consideration of both SC and safety managements system in organizations. Safety as an organizational value is evaluated and the differences between formal safety and real safety are assessed. In addition, safety programmes are evaluated in small and medium sized enterprises (SMEs) in order to highlight the social and cultural character of learning in organizations, and thus attribute the role of SC in safety knowledge exchange. The authors' recommendations and argument conclude with a view of SC and organizational learning concepts toward OH&S in the light of on-going problems of safety culture in Estonia.

1. Organizational safety social capital and safety culture

In this section intellectual capital (IC) and social capital (SC) are described. In addition, the terms and concepts of knowledge management (KM) and safety culture are also presented.

Organizational sustainability may be assessed and evaluated through its IC and SC. According to the sociological view of learning, individuals in organizations

continuously obtain, combine, modify and use knowledge through their everyday cooperation and interaction (Chang et al., 2011). Nahapiet and Ghoshal (1998) have stated that organizations have potential and capabilities for developing, creating, sharing and utilizing knowledge and IC, as well as the development of and cultivation of SC are likely to realize a competitive advantage. Roos et al. (1997) conceptualised IC as the sum of all intellectual materials – knowledge, information, intellectual property, skills, experience and knowing capabilities of companies – that can be combined and utilised for competitive advantage. IC is a collective brainpower, which can be developed through the processes of sharing and the combination of knowledge (Bahra, 2001). In order for the IC to succeed within an organization, the sharing of knowledge needs to be managed effectively. Knowledge development in an organization is dependent and influenced by the organization's SC (Davenport and Holsapple, 2006). Therefore, the organization encourages development of SC and, hence provides possibilities and creates a structure for sustained interaction, conversations, socialization, teamwork and cooperation between its members in order to create the new IC and knowledge. Nahapiet and Ghoshal (1998) stated that there are four main conditions which must exist in an organisation that enhance SC and stipulate the creation of new IC through exchange: (1) opportunity (access to parties for combining/exchanging IC), (2) expectation of the creation of value (anticipation of value through combining/exchanging IC), (3) motivation to combine/exchange IC and (4) capability. SC is frequently described and defined as one of the three subcategories of IC (See Figure 1), a) human capital (consisting of the employees' and manager's knowledge, skills, experience and abilities of the individuals) and b) organisational or structural capital (covering the structures and processes within the organisation, referring to knowledge institutionalised within databases, documents, manuals and culture) and c) SC (consisting of valuable relationships, networks) (Camps and Marquès, 2011; Nahapiet and Ghoshal, 1998). Edvinsson and Malone (1997) suggest that corporate value does not arise directly from any of its IC factors, but only from the interaction among all three.

According to Putnam (1993) SC has the following features: active participation in social networks, reciprocity, trust, and respect for social norms. Fukuyama (2001) defines SC as instantiated informal values and norms, which enable and promote cooperation between members. At the same time, Fukuyama (2001) emphasises that just existence of the collective norms, asset and values does not necessarily develop and create SC in organizations. SC as the organizational process requires bringing people together, creating interdependence through integration and specialization (Davenport and Holsapple, 2006). Coleman (1988) describes SC as “consisting of aspects of social structure and identifies three forms of social capital: obligations and expectations, information channels and norms that influence and encourage behaviour”. In addition, he makes the comparison of SC with other forms of capital, such as human capital and physical capital, and outlines that SC is productive, less tangible, partially fungible and partially specific to a setting, being embodied in the relations among persons.

The current research employed the definition and modified model provided by Nahapiet and Ghoshal (1998) with respect to safety, which consists of structural, cognitive, and relational dimensions of SC.

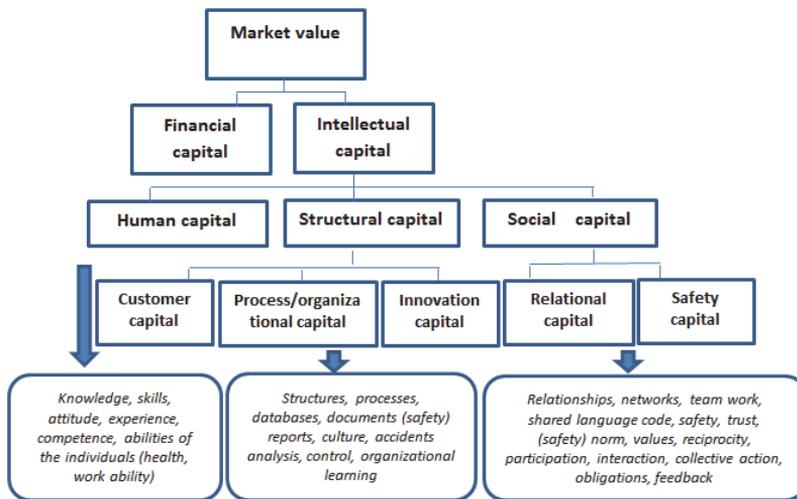


Figure 1. The Intellectual capital distinction tree (based on Roos, et al., 1997).

The authors have elected to adopt this definition and framework because it clearly demonstrates the interrelationship between SC and intellectual capital, through which the collective learning is enabled and engaged. In addition, their framework provides a relevant interpretation on how SC can be used for development of IC in an organization (Bolino et al., 2002; Koh et al., 2012). The *structural component or dimension* of SC consists of connectedness, networks, employees’ participation and behaviour (Harpham et al., 2004). The most important “properties of the social system and of the network of relations as a whole” (Nahapiet and Ghoshal, 1998, p.244) include: network ties, which provide the channels for relevant information transmission and it is a social relations that provides information benefits in the form of access, timing and referrals; network configuration within a set of relationships and existence of appropriable organization structure, which is created for one purpose that may be applied and used as a valuable resource for another purpose (Davenport and Holsapple, 2006; Koh and Rowlinson, 2012). The *cognitive component or dimension* of SC comprises: shared norms, sanctions, goals (Coleman 1988; Putnam 1995), shared representations, meaning and vision, social trust, perceptions of support, social cohesion and attitudes, shared interpretations and understanding between the members of a network (Fukuyama, 2001; Koh & Rowlinson, 2012; Nahapiet and Ghoshal, 1998) that facilitate coordination and cooperation for mutual benefit. Examples here are shared language and codes, shared collective narratives and ontologies. An important facet of the *relational component or dimension* of SC comprises: trust that is developed among members; personal relationships that members develop among themselves through a history of interaction (Davenport and Holsapple, 2006). This dimension of SC is derived from organization’s culture and sub-culture, such as safety culture, and includes: norms, obligations and identification (Davenport and Holsapple, 2006; Nahapiet and Ghoshal, 1998). At the same time, communication, participation in decision-making, sharing valuable knowledge and sharing attitudes and view-points (Davenport and Holsapple, 2006), employees’ involvement in processes, as well as social good relationships and conflict management are an essential factors that promote trust. In order to achieve the collective and shared goals and visions as well as attitudes and understanding between the members of a network, an effective KM

system is required and presumed. KM is an integrated, systematic approach which can also be used to describe the structures, processes, techniques, methods, and cultures developed to improve the creation, identification, management, sharing and utilization of an all organisation's resources/assets, including data bases, documents, policies, procedures as well as expertise and experience of individual workers (Alvesson, 2004; Roos et al., 1997). The KM system is an umbrella for capturing a range of organizational activities in order to manage the integration of human, structural and social capital in order to enhance learning and performance in organization (See Figure 2). Organizational learning is a process during the organizations share, create, spread, and expand their knowledge, connecting from groups to organization (Chang et al., 2006). This is also a tool for development of Communities of Practice (CoP) and potentially gives a possibility for employees to exchange explicit and tacit knowledge. According to Hislop (2005), CoP is realised in informal groups of people who have a particular activity in common, and as a consequence have some common values, knowledge, and a sense of community identity.

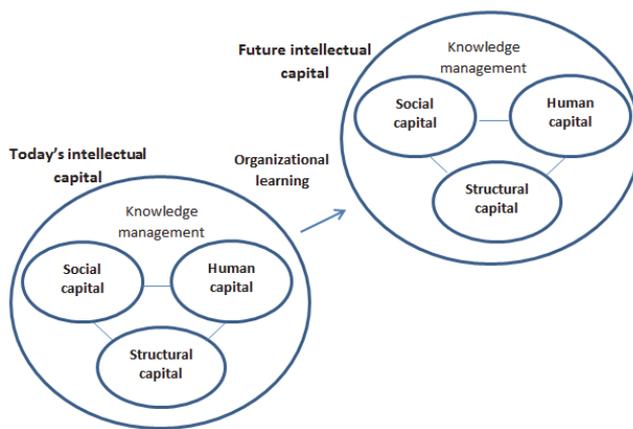


Figure 2. Intellectual capital grows with use and requires Organizational learning (Seemann, et al. 2002)

Jashapara (2011, p 47) has stated, that from an interdisciplinary perspective, KM can be also defined as: “the effective learning process associated with exploration, exploitation and sharing of human knowledge (tacit and explicit) that use appropriate technology and cultural environment to enhance an organization's IC and performance”. Therefore, a KM system is needed for accumulation of the SC and shows its effect in the creation and transfer of knowledge in organisation. An essential characteristic of knowledge is that it only generates value for the organization when it is used effectively (Seemann, et al., 2002) and shared (Järvis and Tint, 2008).

SC has emerged as an area of the interest to a large number of researches and has been studied at different levels, including organisational (Burt et al., 2000; Chang et al., 2011; Coleman, 1988; Loosemore and Lam, 2004; Koh and Rowlinson, 2012; Nahapiet and Goshal, 1998; Nuñez and Villanueva, 2011; Rao, 2007), communities (Putnam, 1993), individuals and their behaviours (Burt et al., 2000; Lindström et al., 2003) and nations (Fukuyama, 2001). Researchers from different disciplines have investigated the relationship between organizational knowledge and SC (Chang et al., 2011; Peltomäki and Husman, 2002). Felício et al.(2012) investigated relationships

between SC and human capital in SMEs. The positive effects of SC connections to KM was studied by Burt et al.(2000) and Nahapiet and Ghoshal (1998); CoP (Gherardi and Nicolini, 2000; Wenger, 2000), knowledge transfer (Wei et al., 2011), organizational learning (McGrath and Sparks, 2006); improving creativity and innovativeness (Camps and Marquès, 2011; Chang et al., 2006).

The description and characterization of SC, when applied to working life describes the situation that in Europe used to be described with the words: ‘good job – good workplace’ (Järvis and Tint, 2009b). It is widely recognized that safer and healthier workplaces are, along with competitive advantage, one of a firm’s major objectives, as they can improve productivity, boost employees’ morale and reduce costs (Nuñez and Villanueva, 2011). At the same time, the occupational health and safety (OH&S) practices are rarely considered within the resources of IC of the organization. Several researches have tried to provide some preliminary evidence on the role of organizational knowledge in building safer and healthier workplaces (Gherardi and Nicolini, 2000; Nunez and Villanueva, 2011; Podgorski, 2010; Smith-Crowe et al., 2003; Zohar, 1980) and in enhancing safety culture. At the same time, relatively little is known about how organizations influence and deal with the formation of safety culture with respect to SC among their employees. However, there are some surveys investigating the concept of SC for OH&S (Chang et al., 2011; Gherardi and Nicolini, 2002; Koh and Rowlinson, 2012; Rao, 2007); organizational knowledge and SC (Koh and Rowlinson, 2012; Nuñez and Villanueva, 2011; Rao, 2007). For example, Chang with colleagues (2011) examine the influence of SC on knowledge sharing, which in turn enhances patient safety. Koh and Rowlinson (2012) investigated a relationship approach to managing construction project safety. The results from their study highlight the fact that the project organisational processes, team practices, and quality of relationships between participants shape the team capability in safety management.

1.1. The concept of safety social capital

In the field of industrial safety, knowledge is the central resource in the achievement of the goals of occupational health and safety management (OH&S). OH&S is a functional subsystem of the organization, which adopts and applies of tools, ideas, principles and aspects of general business administration (Nuñez and Villanueva, 2011). Reiman et al. (2005) stated that an organization has a high potential for safety and positive and strong safety when the following criteria are met in the organizational activity: safety is a clearly recognised value and understood as a complex and systemic phenomenon; safety is integrated into all daily activities; organization is mindful in its practices and activities are organised in a manageable way; occupational hazards and core task requirements are clearly understood as well as responsibility is taken for the safe functioning of the whole system; safety is learning-driven. Many companies want to enhance their safety culture or some aspect of safety behaviour and to try to find enhanced ways forward. It is clear, that organization safety through technical design and management of physical or tangible resources/ assets, such as safer technology, regular audits and proper risk assessment; use of less hazardous chemicals and the elaboration of safe procedures, safety policies and guidelines, is relevant but obviously it is not enough. In the context of the management of OH&S, special attention should be given to intangible resources/ assets of an organisation, obtained through human OH&S experience and practice in the workplace. Safety knowledge can be conceptualised as an employees’ understanding of the safety procedures (Hoffman and Morgeson, 1999). According to Edvinsson and Malone (1997) and Sveiby (1997), intangible assets of an organisation

consist of the immaterial sources of value related to employees' capabilities, competence, skills, organisational and safety culture, the company's image, an organisation's resources and way of action and the relationships. Workplace safety as a form of organisational expertise, which can be viewed as a situated practice, an emerging property of a social-technical system, the result of a collective process, a 'doing' which involves people, interaction, technologies as well as social relations (Gherardi and Nicolini, 2002). It is therefore situated in the system of on-going practices has both explicit (for instance, accident records, theories, safety regulations and guidelines etc.) and tacit (for example, safety engineer's experience, occupational hazard recognition, perceptual and cognitive skills) dimensions. When people solve complex problems in the field of OH&S, they bring knowledge, skills and experience to the situation, and as they engage in problem-solving they share their internal knowledge with others, so that tacit knowledge is converted into new tacit and explicit knowledge. According to Jacobson (2006), generally, knowledge sharing refers to exchange knowledge between members in organisation and focuses on human capital, whereas knowledge transfer focuses on structural capital and the transformation of individual knowledge to group or organisational knowledge, which becomes built into process, products and services. The process of knowledge sharing creates new knowledge inside the receiver, in the use, and sharing of tacit knowledge (Järvis and Tint, 2008).

Safety SC can be defined as an instantiated informal safety norm, assets and collective values that promote interaction and cooperation between members in organization in order to maintain an OH&S management system as well as to achieve the highest standards of occupational safety. Safety capital is "organizational knowledge embedded and created in the OSH (occupational health and safety) system – (it) is a long term asset into which OSH resources can be invested, with the expectation of an – uncertain – future flow of benefits in the form of gains in worker's protection and safety" (Nuñez and Villanueva, 2011, p 58). Rao (2007) pointed out that safety SC is urgent and indispensable to organization in order to create and sustain a positive safety culture. According to Nuñez and Villanueva (2011), the dynamic process of creation of safety capital (through combination and exchanging knowledge and skills in the field of OH&S, intervention) requires planning of resources, control and feedback systems in order to improve employees' learning and self-determination, effectiveness. The contribution of OH&S interventions to the components of safety capital consist: occupational risk assessment; competence and training; proactive hazard control and prevention; management of change; emergency preparedness and response; performance monitoring and measurement (Nuñez and Villanueva, 2011).

The authors argue that understanding safety knowledge development and transfer, particular those related to SC, is an essential in the field of OH&S. Although some researchers have investigated and pointed to the positive relation between human capital, reduction of accidents and good working relationship, for example in construction (Koh and Rowlinson, 2012), insufficient attention has been paid to the relationship between SC and safety culture as well as to KM in the field of OH&S performance; how SC manifests itself in SMEs. There is little known how employers and employees receive, analyse, share and use information and knowledge in the field of OH&S. Even though some researchers have proposed models and new concepts in KM in the field of OH&S (Podgorski, 2010; Rao, 2007; Sherehiy et al., 2006), there is no evidence about the applicability and roles of their models in the field of OH&S.

2. MATERIALS AND METHODS

Since OH&S is the multidisciplinary and complex field, some researchers (Clarke, 1998) have argued that safety culture cannot be completely understood through traditional quantitative methods, which attempt to break down a phenomenon in order to study its individual components. Safety culture therefore requires also the use of qualitative methods (Health and Safety Executive, 2005). Qualitative methods (content analysis, observation, interviews) are very often used as a starting point of investigation as they may help to develop conceptual frameworks. This research employed quantitative methods in order to explore employers' and employees' attitudes, perceptions toward OH&S, values, conflicts and relationships, information dissemination, risk awareness and employees involvement. In addition, qualitative methods were used in order to focus on a limited number of case studies and individuals, producing in-depth information, to investigate real safety situation in SMEs, with the intention to bring understanding to the concept of safety culture and real safety behaviour in investigated companies. Thus, a qualitative study approach allows studying the complexity of factors – they are related to workers, their behaviour and interactions with the safety management systems of the organisation. The substantive parts of the paper present recent comparative survey evidence from quantitative and qualitative safety survey.

2.1 Sample

A national questionnaire survey was carried out by Statistics Estonia in 2009. The objective was to gather information about psychological aspects of safety culture – how employers and employees feel, which attitudes they have and how they value working environment, and environmental – what an organization has and does in the field of OH&S. Two questionnaires measuring safety attitudes, perceptions, values, conflicts and relationships, information dissemination, job satisfaction, responsibility and commitment, risk awareness, working conditions and safety measures were administered anonymously to employees and employers from SMEs from different branches of industry. The questionnaire also included additional items not relevant to the present research and article.

A special feature of the survey is that it is first linked data set of both employees and employers in SMEs exploring *inter alia* issues of employees' involvement, representation, responsibility for workplace safety and health, employers' commitment to safety; importance and relevance of the safety requirements and procedures, training and information; how safety is valued and appreciated throughout investigated organization. For the current article the survey comprises a sample of 463 employers and 1757 employees who filled the questionnaires and participated in the study. In the sample were correspondingly men (52%) and woman (48%). Approximately a half (54.2%) of the sample is less than 49 years old and 45.8% are 50 years old and more (Table 1).

Work experience is an important characteristic of this sample. A noteworthy 48% have worked at the same company for 1-5 years. The higher response rate was from the organizations with less than 50 employees (Table 2). We found that companies with less than 250 employees to be more reluctant to respond to the questionnaire, which leads to a lower response rate from this type of firm.

Table 1. Distribution of sample data by age and work experience

WORK EXPERIENCE, YEARS	No OF EMPLOYEES	SHARE, %
Less than 1 year	27	1.5
1 to 5 years	842	47.9
6 to 10 years	365	20.8
11 to 15 years	241	13.7
16 to 20 years	125	7.1
More than 20 years	157	8.9
TOTAL	1757	100

EMPLOYEES' AGE, YEARS	No OF EMPLOYEES	SHARE, %
Less than 25	90	5.1
Between 25 and 49	863	49.1
More than 50	804	45.8
TOTAL	1757	100

Table 2. Distribution of Sample by activity, Size

ACTIVITY SECTORS, Industry	POPULATION	RESPONSE RATE, %
Agriculture, forestry, fishing	39	80.1
Mining industry	47	70.9
Processing industry, textile-, chemical-, paper-, plastics-, wood-, metal industry	49	58.9
Electricity-, gas supplier	40	71
Water supply; sewerage; waste- and pollution treatment	43	66.8
Construction	51	55.8
Wholesale business, retail business. Machinery, vehicle reparation	56	57.1
Transport, warehousing	32	56.6
Other manufacturers	27	55.8
Health care, social assistance	79	64.5
TOTAL COMPANIES	463	63.8

SIZE (no. employees)	No OF COMPANIES	RESPONSE RATE, %
5-9	150	27.6
10-49	197	34.9
50-249	110	19.5
More than 250	6	18
TOTAL COMPANIES	463	100

2.2 Safety interviews with senior management and employees. Case studies

The case studies were intended to promote better understanding of the rationale of current safety culture in Estonian manufacturing SMEs, the development of needs, obstacles, and the changes that have occurred in the field of OH&S, particularly after Estonia became a member of EU. Results from qualitative studies by Järvis and Tint (2009 a, b, c) were used in order to complement and verify the results gained from safety survey. The exploratory study was based on workplace visits, semi-structured interviews with safety and senior managers as well as focus group interview with workers. Interviews were carried out in 8 selected enterprises from different branches of industry (the metal industry (3), textile industry (2), manufacture of devices and plastic processing industry (2), and printing industry (1), from various geographical parts in Estonia. There were carried out eight semi-structured face-to-face interviews with senior managers in charge of production operations, quality sections of their companies and eight interviews with safety managers. The study focused specifically on the perceptions of senior managers, exploring their attitudes, knowledge in OH&S, their commitment to safety, cooperation with OH&S specialist (occupational health physicians). The objective was to build up a picture which took into account not only how safety management is organized, implemented and maintained, but also how safety goals and practices are realised practically as an organizational value, how managers valued it, and how they viewed their role in improvement of safety culture. The interviews were conducted in Estonian and Russian languages. Each interview with managers lasted an average of 2 hours and was recorded. Interviews were then fully transcribed and analysed. All individual interviews with managers at enterprises were completed before the worker's' group interviews occurred. Data for this exploratory study were gathered from 8 focus group interviews with 22 industrial workers (13 males and 9 females). A simple random sample was selected from workers employed at the SMEs. The objective was to gather information about workers' attitudes and perceptions to OH&S, shared visions and values, safety practices, knowledge, and their involvement in safety management. Each focus group session lasted an average of 45 min and was recorded. Interviews were then fully transcribed and analysed. Every effort was made to protect the privacy, confidentiality, and anonymity of individuals and organizations participating in this study (Järvis and Tint, 2009a). The selected enterprises were SMEs (less than 250 workers), from different branches of industry. The enterprises were located in different parts of Estonia; however the majority were in or around the capital and western part of the country. The data from these enterprises were used for assessment the state of the safety culture as well as to examine problems specific to SMEs in the OH&S system. Relevant supplementary safety documents such as safety strategy, plan and instructions, risk assessment, safety rules and procedures, safety record, including incidents and accident investigation, meeting records were also carefully analysed in order to compliment and verify the data collected during the interviews. In addition, company's strategy, policy, values, vision - and mission statements were investigated based on the data available from their homepages.

2.2 Literature review

Active interest in OH&S requires that the workers and employers, OH&S professionals have the right information at the right time to make decisions affecting health and safety (Järvis and Tint, 2008). To support professionals, employers and employees, a good knowledge infrastructure is needed. According to Hugenholtz et al. (2007), knowledge infrastructure can be regarded as the sum of all sources and means

which is available to find relevant new knowledge for problems at hand. The process of knowledge transfer at the state level in Estonia was analysed in recent years (Järvis and Tint, 2008). According to the study results the main ways of knowledge transfer in the field of OH&S in Estonia are via CoP, the internet and training.

In order to investigate media and public attention to the OH&S, safety culture and SC in Estonia, a literature review was performed and newsletters and journals available for the period of 2009- January 2013 were analysed. A search was conducted via the Database of Estonian Articles Index Scriptorum Estoniae, which contains articles, from newspapers, magazines and journals, serial publications and anthologies and collections from the 1990s on, allowing the full-text to be accessed in free digital archives and Web publications. Key words: occupational health and safety, safety culture, occupational accident and disease, risk assessment, safety management, health promotion, conflict management, employees' involvement were searched and only the content of those articles related to health and safety were studied in Estonian, Russian, English and German languages.

3. RESULTS

3.1 Companies Safety Response

Case studies were performed in SMEs from different branches of industry. The enterprises were from different parts of Estonia, however majority were located in or around the capital and western part of the country. Methods which have been used as follow: safety walks, direct observation, risk assessment, safety documentation overview, safety rules and procedures scrutiny as well as in systematic interviews. Special attention was paid to ascertaining positive aspects expected from a prescriptive safety culture (based on Frazier et al, 2013; Meliá et al., 2012), such as: existence of a safety policy emphasizing safety values and actions in organization and shared between all employees; well-defined safety procedures and guidelines for all the operations integrated in work procedures; safety resources and investment; specific safety training and supervision; accidents and near-misses investigation; active employees' involvement in OH&S activities and health promotion. Company safety response refers to the state and process of safety. In detailed working environment and conditions in the investigated SMEs were analysed and presented in previous research (Järvis and Tint, 2009a,b,c; Järvis et al., 2010; Reinhold and Tint, 2013). In all the investigated Estonian enterprises written safety procedures for work operations and safety instructions were established. Most of the occupational hazards were assessed, evaluated and under the control. Noise, indoor climate and improper lighting conditions were identified as the main occupational hazards in the mechanical, plastic and printing industry. In addition, wood dust was the major problem in wood processing industry (Reinhold and Tint, 2013). Most of the investigated companies showed rather a positive attitude towards contributing to safety: developing safety practices and written work procedures, risk assessment, investigating occupational accidents, providing safety training for the employees. However, the main shortfalls of the OH&S system were discovered: the absence of a safety policy, poor quality of risk assessment, weak accident investigation and reporting procedures; the absence of near-miss reporting procedures. In addition, knowledge about OH&S was different in various enterprises. The authors identified insufficient safety training of new workers in 8 enterprises. During workplace visits and the interviews, gaps concerning how safety knowledge transferred were analysed. Some safety knowledge transfer barriers found in all investigated enterprises were

emphasised, such as lack of time and willingness to share information and expertise. Based on the case studies, it is possible to say that safety was not valued throughout all investigated companies due to lack of everyone's commitment to safety. Employees were not willing to talk about safety issues and they did not participate much in OH&S activities. Therefore strong safety communication problems exist in many enterprises (Järvis and Tint, 2009a; Järvis et al., 2010).

3.2 Safety Survey

3.2.1. Organizational commitment to safety

The substantive parts of the article present comparative survey evidence from the questionnaire safety survey of employers and employees. Visible commitment by senior management regarding safety includes interest, active participation and time for meetings, provision of resources for OH&S and Occupational Health Services (OHS) for employees; organization of risk assessment and accident investigation feedback, physical presence in the workplace, participating and supporting OH&S training, involvement employees in OH&S activities. The results of 5 items about organizational commitment to safety (See Table 3) give an overview of the general results. All items give a positive view of senior management commitment and show that safety is given high priority by the management. Safety survey shows that safety is considered as a real interest for the organizations in Estonian SMEs, even more important than production, receiving business objectives and investment. To the question about the main motivation to deal with OH&S issues, 43% of employers stated that the employees' health protection, followed by compliance with law and regulations were the main reasons for managing OH&S.

Table 3 Items related to company commitment (employers' responses)

Items	N	Employers, %
This company deals with OH&S in order to provide for employees' health protection	199	43
This company worries about safety because it is required by Law	144	31
Safety is important in order to enhance efficiency and productivity through the prevention and reduction health problems	93	20
Safety is essential for increasing employees' motivation	13	3
This company worries about safety as a matter of public image and good reputation	9	2
Do not deal with OH&S	5	1
Total	463	100

In response to the question about the ‘most important considerations as an employer’, 96% of respondents reported that good and safe working conditions, employee job security (94%), motivating payment (89%) are the most essential reasons. In addition, work organization according employees’ desires and needs (74%); employees’ independence and the right to make decisions (73%), as well as close supervision and controlling of employees (66%) were also mentioned as factors. When asked to rate OH&S in terms of importance on a scale of 1 to 5 (where 5 is very important), along with other workplace issues, employers and employees place greater importance on safe working conditions, employees’ awareness about the organization’s activity and work organization, good relationships and job security issues as the most important aspects in working life. Employees rate motivating payment as the second important workplace issue (96%). Both, for employees and employers on the other hand, work by itself and possibility for development were much further down the scale. They rated highly issues such as job security, good relationships between employer and employees, the balance between work and home life; employees involvement in decision making process regarding work organization and working conditions. Employees and employers both rate an interesting job, career and opportunity for development as the less important factors in working life (See Figure 3).

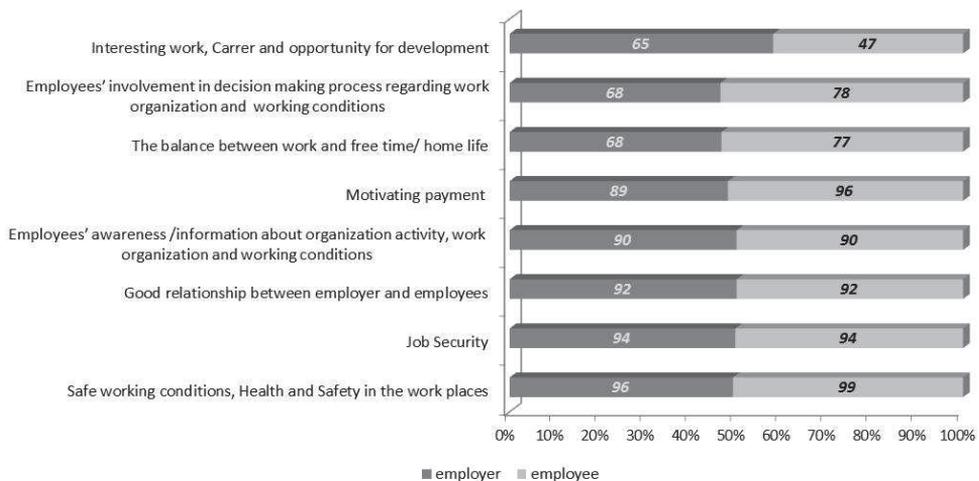


Figure 3. Importance of different aspects of working life. (Question: Q: Please tell how important is each aspect for you ..?)

Employees and employers share common perceptions of responsibility for managing OH&S and thought that this is ‘everyone’s responsibility’, which is a positive sign related to safety culture. 81% of employers and 76% of employees considered that they are equally responsible for the OH&S and only 14% of employers and 16% of employees identify health and safety issues as being the primary responsibility of the employer and only a minority of respondents (6 %) feel the individual employee is liable for controlling risks. To the question to employers about who is actually dealing with OH&S in the organization, a majority of employers (85%) said that they are dealing with this themselves, half (54%) of employers report that they also had a safety manager and safety council (17%) in dealing with OH&S. At the same time, the qualitative survey data revealed that traditionally in all investigated companies, this task is delegated to the safety managers, human resource managers or, even to accountants (Järvis and Tint, 2009a).

3.2.2. Working conditions, employers' and workers' perceptions of safety

The vast majority of the employees (66%) and employers (77%) feel that they work in a safe environment. However, 15% of employees and 22% of employers could not identify how safe their working environment is. Employees (18%) are more likely to consider the workplace risky than their employers (9%) who actually have formal responsibility for OH&S within their organizations. Most of the employers tend to underestimate risk and do not believe that their employees are exposed to any dangerous occupational risk. The results from the current survey are in line with Woolfson et al. (2008) and Alvensson (2004) who demonstrated that safety management is still inadequate, especially in SMEs, due to time constraint and lack of knowledge. Employers and employees showed a good awareness about possible risks in their work places. When asked in detail about specific common occupational hazards of the workplace, employers and employees mention broadly the same issues, but they perceived occupational safety risks differently (See Figure 4). Employers listed more occupational risks exist in their organization, such as ergonomics related to work with computer (81%), risks in use of machinery and electrical devices (53%), and manual handling of heavy loads (73%). Employees reported that repetitive movement (57%), inappropriate microclimate (extremes of temperature) (46%), noise (38%) followed by poor lighting (24%) are the most important hazards within the workplace.

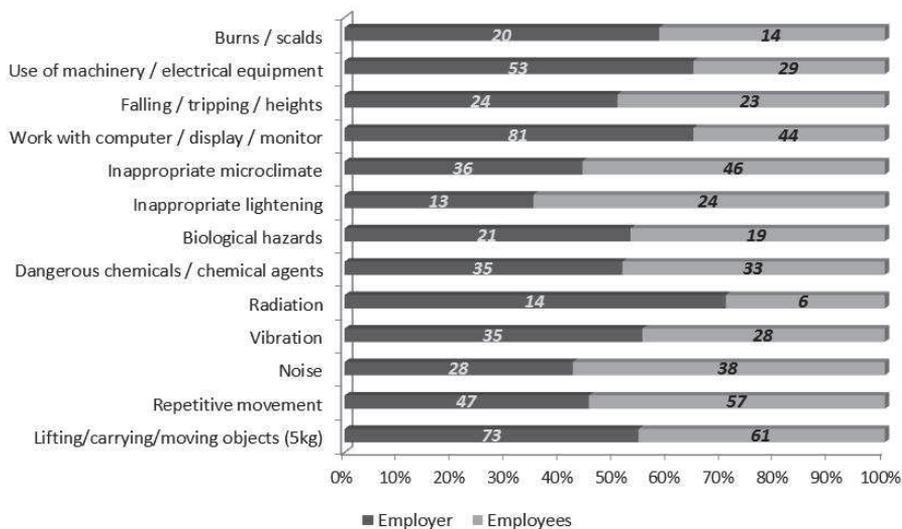


Figure 4. Factors which present a problem in your workplace?

To make a relative assessment of safety measures, employers and employees have a similar hierarchy of concerns; in particular, two main prevention measures (proper and safety task performance and work organization according to employees' capabilities) appear to be applied in majority of SMEs. The employers and employees responses demonstrated a relatively good awareness about different safety measures. The questionnaire enables us to analyse the practices of prevention and the intervention activities used in the companies investigated. Case studies demonstrate that daily OH&S management activities applied in the investigated companies were

equipment maintenance, inspection of premises, provision of personal protective equipment, risk assessment (evaluation occupational hazards). However, although risk assessment was performed in all investigated 8 companies, the authors identified some shortages in quality of risk assessment and efficiency of safety measures (Järvis et al., 2010).

Next, authors address the central issue of employees' involvement and encouragement in OH&S activities.

3.2.3. Employees' involvement and workplace relations

The relevant Estonian legislation and the European Framework Directive on OH&S require that all employees and their representatives be informed of the risks to their health and of the safety measures required. Generally, information and representational channels via individual safety representatives takes place in smaller enterprises, while (indirect) via elected representatives meeting together with employer representatives' in health and safety committees occurs in larger enterprises (Woolfson et al., 2008). According to Estonian legislation, safety council is legally mandated in enterprises of more than 50 employees. In the investigated SMEs, more than half of employers (51%) and only 43% of employees reported that safety and health workers' representative is elected in their organization. The questionnaire study reveals that, for employers (40%) and employees (50%), it is very essential that employees be informed about organization activity, work organization and working conditions. However, only 17% of employees were very satisfied with amount of provided information about these issues. Safety culture presumes effective communication and employees' safety participation and involvement in OH&S activities. While around all, employees (91%) stated that there is vital for them to be able suggest and be involved in decision-making process concerning work organization, training, payment, safety and working conditions, 53% of employees reported that they cannot give their opinion in training and further training, and 30% reported they cannot manifest their opinion in any of the topics. There are some aspects which are more important for employees than for employers, for instance: to be involved and participate in decision-making processes (correspondingly, 33% employees and 14% employers), to be informed about general organization activity and work organization as well as about working conditions (50% employees and 40% employers); while employees (64%) value job stability more than employers (43%). Although, for more than a half of employees (77%) good relationships are very important in organization, only 2% of employees stated that they have a 'very good' and 50% 'rather good' relationship with colleagues while 42% of employees reported a very good relationship with their employer. There is potential for the occurrence of conflict. However, only 22% of employers declared that conflicts with employees took place, 98% of employees reported that they never had any conflicts with their employers. From these results, it is possible to conclude that conflicts might exist and are more likely between co-workers than between employees and employer. This can be also one reason for dissatisfaction of employees with their relationships at work. According to employers' opinion, there are three main causes of conflict in the workplace: noncompliance with the duties and agreements, poor information transfer and employee absenteeism. Additional possible work-related causes of the conflict have not been investigated. Employers (65%) said that the main methods used in order to solve problems are discussion with employees and reprimand. There is a contradiction of results however, because only 9% of employees reported that they discuss the problem with employers in order to solve the conflicts. Virovere, et al.

(2001) identified similar factors in separate articles on workplace conflict in 2001: lack of provided information, a lack of teamwork as well as unclear work procedures and rules.

3.2.4. Ability to learn

The ability to learn is central for enhancing safety culture through a continuous learning process, which requires transfer and exchange the information. It involves the organization’s ability to recognize problems related to OH&S, to implement solutions, and to monitor the effects of the solutions, provide feedback. According to results from our questionnaire, employees are generally content with the amount of OH&S information and training they receive. 80% of employees said that amount of OH&S information they receive from their current employer was ‘enough’, and half of respondents (51%) feel their safety training also to be ‘very or rather sufficient’ (See Figure 5). However, only 30% of employees stated that they have a possibility to continuously complement and improve their knowledge, while only 29% of employees used such opportunities and participated in relevant training, 24% attending conferences and courses during the last 12 months. Only 35% of employees feel that they do not have any possibility for training and receiving new information in their organization. On the other hand, only 10% of employees were very satisfied with opportunities for development, and 12 % with possibilities for receiving new knowledge. At the same time, half of the respondents (50%) stated that the possibilities for training and receiving new information, as well as opportunities for development at work, are limited. One third of the employees (35%) reported that their job does not require any creativity and new knowledge.

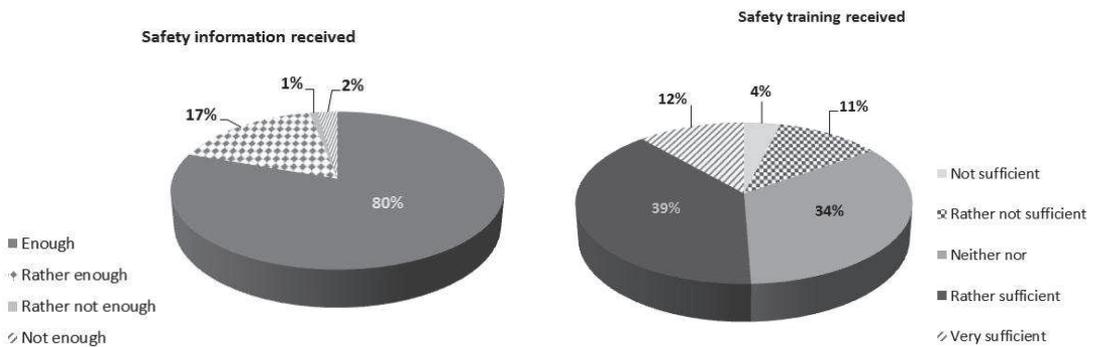


Figure 5. Safety information and training available in organization (Questions: “Do you think the amount of information you receive from your current employer about OH&S issues is ..?” and “Do you think the amount of safety training you receive from your current employer is..?”)

Since in 2009 there was a difficult economic situation in Estonia, it is possible to conclude that at that time, to keep a job was much more important for the employees. The safety survey demonstrates that majority of employers (87%) evaluated the level of knowledge of employees who are dealing with OH&S in organization as very or rather good and sufficient. According the responses received from the employers, from the personnel responsible for OH&S workers (72%) participated in OH&S training and conferences during the last 12 months and more than a half of employers (55%) said, that responsible workers also exchange the OH&S information with other enterprises, while 54% receive relevant information from the labour inspectorate. The main sources of OH&S information are professional literature (94%), published

guidelines and regulations (93%). The questionnaire survey enables us to examine the level of knowledge and amount of training received in the field of OH&S by employers. However, qualitative survey evidence indicates that employers in Estonian SMEs do not receive any special safety training. Respondents were also asked to identify from which sources they generally receive OH&S information. A total of 89% of employees reported that they receive OH&S information from their employer or supervisor. This result is in line with research carried out in three Baltic countries (Estonian, Latvia and Lithuania) by Woolfson et al (2008). Employers (82%) also declared that OH&S information was generally provided by employer or supervisor. However, according to present questionnaire, only 4% of employees and 6% of employers stated that generally employees received OH&S information from workers' safety representatives.

3.3 Main findings from safety interviews

The results from the interviews with senior managers and employees are presented in Järvis and Tint (2009a). Our results coming from the content of the safety interviews show similar results to those obtained by the questionnaire study and also make it possible to indicate and identify important safety flaws:

- The management of health and safety hazards at work is not included in management practice, corporate risk management or strategic management.
- There is a lack of management awareness and commitment to safety. It has to be highlighted that only one of the interviewed managers usually participates in safety meetings (Järvis and Tint, 2009a). Seven of eight interviewed senior managers did not receive any safety training.
- Employers considered working environment in their enterprise as safe (Järvis and Tint, 2009a, b). In all investigated enterprises written safety guidelines and procedures exist, but their fulfilment was not periodically updated and monitored. However, written safety guidelines and rules do not guarantee that employees understand all information and thus will be able to foresee all risks in their working environment.
- In four companies, there was a lack of real safety talks and cooperation between some supervisors and their workers. In three companies, employers and employees stated that they accept unsafe behaviour of employees in order to accomplish production goals, and even, willing to compromise on safety for increasing production. In addition, the authors evaluated unsuitable programme of work and an unrealistic daily required working load, which is impossible to achieve during the shift. This is unacceptable from the safety point of view as well as from labour rights and decreases employees' motivation.
- In some companies there were established a formal but not used safety programs, like a strictly formal use of preventive observations and audit. Unsafe jobs, supervisors' and employees' unsafe behaviour (working without safety devices)
- Interviewed employees said that they have all necessary technical and personal protective equipment and they were provided with OHS. At the same time, employees said that senior managers do not show interest in the safety of workers and do not participate in safety meetings and there is no information available about discussions of OH&S issues at the top management level. One employee said: *"Generally we do not discuss OH&S issues with my colleagues. According to my opinion, all the system (training, risk assessment*

etc.) in our enterprise is formal and exists just on paper.. ” (Järvis and Tint, 2009a)

- Insufficient and formal safety training provided for employees, especially for the new employees. There are several gaps of safety knowledge transfer (Järvis and Tint, 2009a, b).

Many of these flaws were checked during the observation and documentation analysis as well as in several interviews.

Fear of litigation does not come out as a major concern in the survey. All interviewed managers stated that the need to meet legislation and maintain good profit is main reason why organisations are taking OH&S management seriously. To the question about need to maintain a good business and a positive reputation in the community, media and industry, six of eight managers suggested that they do not much worry about it, because OH&S issue does not attract media attention in Estonia. These results were confirmed by public media survey carried out by the authors in 2002-2009 (Järvis and Tint, 2009a) and 2009-2013.

3.3.1. Company’s homepage analysis

The authors carried out textual content analysis of the homepages of the eight investigated companies in order to examine how organizational vision, strategy, mission and values reflect and express commitment to safety and safety culture. In addition, twenty randomly chosen company homepages of SMEs from different branches of industry were also investigated. Altogether, eleven companies’ homepages contain issues related to OH&S and two were companies included in case studies. The example of the statement available from homepage: “health and safety goals are highly appraised and paramount, we ensure that employees will be informed about whether and how health and safety goals have achieved”.

In order to get comparison data, the authors randomly chose twenty five industrial SMEs of the most competitive fifty enterprises from the Estonian Companies’ Competitiveness Ranking 2012. Together, 309 companies were compared against each other in the category “The Most Competitive Small and Medium-Sized Enterprise” and “The Most Diversely Competitive Company” whose competitiveness is simultaneously based on its size, dynamism (speed of development) as well as efficiency (Estonian best enterprises, 2012). The objective of the homepages analysis was to evaluate how important OH&S was for those companies and how essential a factor its promotion/ advocacy is for the companies’ competitiveness in Estonia. Survey results show, that topics related to OH&S were mentioned only in three companies’ homepages of the investigated twenty five companies. For instance, one statement as follows: “We recognize the importance of the improvement of working environment and occupational safety”.

It is impossible to make any conclusions about the attention devoted to safety inside the investigated companies, the presence or absence of safety culture or poor safety. However, it is possible to surmise that OH&S is not a company’s core issue and safety is not considered as a vital factor for promotion/ advocacy in the companies’ homepages as one part of the company identity.

3.3.2. National media analysis

This chapter is based on text content analysis. The authors draw on a strategic overview of publicly available documents, e.g. newspaper articles, articles from trade unions, magazines. The literature survey shows, that topics related to occupational

accidents and incidents, safe working environment, good industrial relationship and conflict management, workers' health, SC and leadership were mentioned only in 3 to 21 articles published between 2009-January 2013. Altogether in 2009-2013, 261 articles about the topic 'occupational health' were published (215 articles in journals, 42 in newspapers and 4 in collections) and 160 on 'occupational safety' (112 articles in journals, 46 in newspapers and 2 in collections) as well as 75 about 'occupational accidents' (42 in journals and 33 in newspapers). There was no publication found in 2009-2013 about 'safety culture', 'occupational health services', 'personal protective equipment', 'occupational hazards'. The number of mentions of such topics in media is small, for instance, an article on topic 'strategic management' more than 1100 articles were found, but they do not include OH&S issues, and only 22 include issues of knowledge management.

OH&S management as on part on management was also a neglected topic in the media. It is interesting that 'safe behaviour' was published in 34 publications, however 'ethical behaviour' which also should mean and include fulfilment and implementing of safety requirements and rules, was not mentioned in any publication. At the same time, the issue of 'ethical management' was published in 1152 publications. This can be explained based on the relevant situation in Estonia. Many organizations were under focus of media scrutiny because of a series of political and financial scandals, like unethical and corrupt behaviour as well as illegal use of finance, investments, financing of the election campaign of a political party, unethical providers of finance (Kerner, 2010; Meikar, 2012; Toots, 2012). Aspects like ethics, ethical behaviour, values and corruption received much attention in public media. According to the literature survey conducted on the topics of 'employee involvement' (368 articles), 'employees participation' (341 articles) these topics were less important for employers in 2009 as well as interesting for publication purposes, as authors expected. There were found 1671 publications about 'working environment', however only 3 of them contained term 'safe working environment' and 20 of them were related to 'risk assessment'. This result is in a line with employers' and employees' opinions from the interview, that subject of safety and safe working environment does not attract media interest in Estonia.

Mass media could play an essential role when planning the health and safety information dissemination for the general public and for raising employees and employers' awareness. This would imply a media re-focus towards what really matters (Moen et al., 2010). In addition, national media can offer added-value presenting, discussing and analysing various opinions of practitioners, experts, trade unions and employers' federations, highlighting causes and consequences of the occupational accidents and incidents. There can be an essential contribution of national journals, reports, websites that contain publications and also contains access to scientific publications on safety culture, SC; OH&S issues. One of the most effective channels is a regularly published newsletters and journals where OH&S issues are widely and extensively dealt with (Järvis and Tint, 2008, 2009a). However, the professional journal 'Estonian Newsletter on Occupational Health and Safety', which was the main national journal and channel for regular dissemination of information and knowledge in order to support professionals and provide valid, up-to date and relevant information, was closed in 2010. Since that time, there is little information available for OH&S professionals at a local level in Estonia.

DISCUSSION

The results of the current study contribute important empirical evidence on how small and medium business worksites address OH&S. Although significant progress has been made in the field of OH&S, there are still challenges ahead.

Results from the questionnaire survey revealed that employees evaluated positively all aspects of work, such as: general management practice, job satisfaction and work organization. However, employees' involvement in different activities in organization was limited and weak. While, SC requires collective activities, networks, cooperation, active employees' involvement and commitment, the results from the current survey showed a lack of SC in SMEs in Estonia.

Analysis of the safety culture questionnaires shows many SMEs with an outstanding safety culture and positive safety attitudes. Safety training, safety work procedures, relevant information provision, communication and supervision – all important aspects of the organizational life are viewed from the OH&S perspective and were positive, which Meliá et al. (2012) called 'prescriptive safety culture'. In order to explore and verify the 'real' situation in SMEs, direct case studies and interviews were conducted. Qualitative approaches to safety assessment, provided by safety interviews, observation and documentation analysis indicate some important safety flaws. The authors would like to emphasise that the results from the quantitative and qualitative research cannot be generalized to other SMEs and play an illustrative role.

The study reveals essential aspects which should be considered in process of evaluation of safety culture, like organizational, human and social perspectives in safety. It is clear, that a quantitative approach using a reliable and valid tested questionnaire can provide an overview of the safety climate (employees' perception and attitudes) and an overall safety organizational picture. However, safety documentation and questionnaires tend to reflect only 'formal' procedures in the organization. It is not enough in order to understand the 'real' state of the safety, procedures, the shared and active values and beliefs that guide behaviour patterns and OH&S activities in the organization. Therefore, integrated approaches should be used, which allow employees and employers to declare and reflect some important safety flaws.

In order to avoid an 'illusion of safety', it is vital to focus less on paperwork (formal safety rules) and more on implementing organizational structures which allow for managers and employees to interact and cooperate, to learn from safety practice and experience. The authors take the community of practice (CoP) as a source of safety culture and as the privileged focus of learning and transmitting practical safety knowledge. To do so, managers must spend time in CoP and build trust among the members, which is vital for the opportunity to convert tacit knowledge into explicit shared knowledge. Therefore, CoP can provide a possibility for learning, sharing values among members of the CoP, through which organization can grow and develop new intellectual capital.

Acknowledgements

The authors gratefully acknowledge the valuable comments and suggestions made by Charles Woolfson and assistance provided by Elviira Povel during the preparation the article.

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Appendix 5.

Research paper V

Järvis, M., Virovere, A., Tint, P. (2014) Knowledge Management – a Neglected Dimension in Discourse on Safety Management and Safety Culture – Evidence from Estonia. Scientific Journal of Riga Technical University, Safety of Technogenic Environment. Vol.5, pp.5-17. (ETIS 1.2)

Knowledge Management – a Neglected Dimension in Discourse on Safety Management and Safety Culture – Evidence from Estonia

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Abstract. The current study proposes a model for a positive safety culture with a knowledge management dimension and tests this on a sample of 1757 employees from Estonian SMEs in different branches of industry, using the factor analysis. Despite conceptual and empirical justification, researchers have not consistently included concepts of knowledge management in safety culture studies. This paper explores the possibility of using Knowledge Management in the Occupational Health and Safety Management System. The paper reports on an empirical examination of the relationship between safety climate and safety culture through a knowledge management dimension with a special focus on the management of safety knowledge. The results of this study indicate that a safety climate has impact on the three dimensions of safety culture, namely psychological, behavioral and organizational aspects of safety culture. This paper supplements Cooper's Reciprocal Model of Safety Culture with Knowledge Management System Dimensions. Several specific features of knowledge management, such as communication, personal competence and responsibility, were found to influence the relationship between a safety climate and a safety culture. Thus, an effective assessment tool for the evaluation of knowledge management dimensions of safety culture could be proposed based on the results of this study.

Keywords: Knowledge management, organizational values, safety assessment tool, safety climate, safety culture.

I. INTRODUCTION

Occupational health and safety (OH&S) has attracted much interest through the years for economical and ethical reasons, but the ways of approaching the problem have changed [1]. Interest in evidence on the economic aspects of OH&S is growing. Recent studies have revealed that occupational safety as part of enterprise's business strategy helps to decrease accidents, illnesses, reduce absenteeism, turnover rates and increase profits and productivity, and create jobs [2]; [3].

Safety through controlling the physical aspects and technical hazards is still entirely relevant to ensuring safe and healthy work systems, but in itself it is now regarded as insufficient in order to reduce accidents. As part of safety management system (SMS), it is important to focus on managerial and organizational factors as well as to understand the human contribution to major accidents and disasters. Attention in recent years has shifted towards better understanding of the psychological and social preconditions for worker's unsafe behavior and accident causation. Researchers and practitioners have shown increasing interest in safety culture and in the possibilities to maintain and improve it because of its impact on safety outcomes such as

occupational accidents and fatalities, safety behaviors [4]; [5]; [6]; [7], absenteeism, productivity, work methods, quality, commitment, loyalty and work satisfaction [8]; [9]. Safety behavior is also one of the main issues (together with situations and person factors) identified in the model of safety culture as the key factor which is applicable to the accident causation chain at all levels of an organization [8]; [10]. Positive safety culture requires not only stronger institutional pressure [9], a change of mentality and an authentic commitment from organizations [5], where all employees and the employer commit and participate in health and safety activities, but also relevant organizational structure in order to share values and practical safety knowledge. In addition, the positive cultures require special organizational structure which will enable people communicate directly and, thus, exchange (tacit and explicit) knowledge as well as collective learning [11]. Safety knowledge can be conceptualized as an employees' understanding of the safety procedures [12]. According to some researchers [13]; [14], intangible assets of an organization consist of the immaterial sources of value related to employees' capabilities, competence, skills, organizational and safety culture, company's image, organization's resources, way of action and relationships.

Despite the growing interest in Knowledge Management (KM) studies, only a few studies [15-18] have been conducted in the field of OH&S. There is potential for organizations to learn, adopt and apply best practice, knowledge and information in the area of OH&S from other companies and various state authorities [19]. As such, this study investigates how safety knowledge is managed as an antecedent of safety culture.

This article examines relationships between safety climate and safety culture, presents and discusses a possible innovative conceptual model for the improvement of safety culture consisting of KM dimensions that incorporate both tacit and explicit safety knowledge and understanding based upon 'Communities of Practice' (CoP). The authors emphasize the importance of CoP as sources of safety culture and as the 'one important focus' of learning, transmitting practical safety knowledge as well as sharing values among members of CoP, through which an organization can grow, learn and develop new intellectual capital.

This article concerns organizational safety culture and the structure or architecture of employees' attitudes to safety as part of that culture, as well as the ability to learn, which should also mean changes in employees' behavior in order to

enhance safety culture. First, the authors define the safety culture and safety climate and review the modified Cooper's model of safety culture with KM aspects. Section 2 outlines the methods used in the research. The last section presents results, an analytical overview and discussion of overall safety culture in Estonian manufacturing small and medium-sized enterprises (SMEs). The authors hope that the presented evidence-based model will help to design an interactive learning environment and effective safety training and learning possibilities to support knowledge-management activities in the organization.

Safety Culture and Safety Climate

The term 'safety climate' had appeared several years earlier than safety culture in the investigation of safety attitudes in Israeli manufacturing [20]. Since that time, both terms are widely used and differently defined by researchers [6]; [21]; [22]. According to Flin, the most widely accepted definition of safety culture is from the nuclear power industry: "the safety culture of an organization is the product of individual and group values, attitudes, perceptions, competencies and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization's SMS [23].

According to Zohar, safety climate is a summary of "perceptions that employees share about their work environment" [20, p. 96]. Safety climate can also be defined as the perceived state of safety of a particular place at a particular time [24]; [25]. It is therefore relatively unstable and subject to change depending on the features of the operating environment. Later on, Zohar suggested that safety climate relates to shared perceptions with regard to safety policies, procedures and practice [26]. Wiegmann with colleagues stated that although literature has not presented a generally accepted definition of safety climate, it is possible to identify commonalities with safety culture, such as: safety climate is a psychological phenomenon, sensitive to state of safety at a particular time and closely concerned with intangible issues such as situational and environmental factors as well as being a temporal phenomenon, a 'snapshot' of safety culture, relatively instable and subject to change [22, p. 124].

It is possible to say that safety culture is expressed through the safety climate in an organization. Previous collaborative research by the authors has shown empirically that many managers have started showing interest in safety performance and their conclusion is that intervention should be directed towards workers and worker behavior [27]; [28]. A safety culture (a sub-unit of organizational culture) does not have a unique and universal definition [4]. However, it can be defined as the product of the individual and group values, attitudes, beliefs, risk-perceptions [29], competencies, norms, principles, and patterns of behavior that determine the commitment of employees to health and safety, as well as the style and proficiency of an organization's health and safety programs [30].

Model of Safety Culture and Knowledge Management Aspects

Safety as a form of organizational expertise is therefore situated in the system of on-going practices that has both explicit and tacit dimensions. Safety knowledge can be

conceptualized as an employees' understanding of the safety procedures [12]. KM has become an important process in knowledge intensive companies over the past few years, focusing on assessment, creation, transfer, and utilization of knowledge to address specific challenges [19]. From the organizations' point of view, one of the key ways to increase the efficiency of safety knowledge exchange is to develop an appropriate organizational structure as well as new and more flexible ways of working.

Existing models of Safety Culture are described and analyzed in depth in previous research [31]. Reviews of safety culture surveys identified some common aspects, for instance: management concern and commitment, personal responsibility, peer support for safety, employees' involvement in health and safety activities, and the SMS [4]; [21]; [24]. According to Cooper's model, the concept of safety culture contains three elements, which are related to people, their behavior and their interaction with the safety management system within an organization: internal psychological factors (safety climate), external observable factors – organization (SMS) and job (safety behavior) (see Fig. 1) [8]. In addition, all the elements of this model can also be broken into exactly the same reciprocal relationships, thereby allowing the multi-faceted nature of the safety culture construct to be systematically evaluated.

Other researchers [6]; [32] have also proposed models to illuminate the concept of safety culture. The main and only difference between Geller's model and Cooper's model is that the term 'environment' is used in the former model, while the term 'situation' is used instead in the latter model [9]. The dynamic and interactive relationships between persons, environment and behavior were proposed in a "Total Safety Culture" model by Geller, which estimates 10 core values for the attainment of a total safety culture [32]. The safety culture model presented by Choudhry with colleagues [6] was based on Geller's model and on Cooper's model in the context of the construction industry, with the distinction that the construct environment in Geller's model and situational in Cooper's model are incorporated into a new construct – situation/environment – in order to reflect not only the situational aspects of the organization but also the specific conditions of the construction project. Empirical examination of the relationship between a safety climate and a safety culture on construction sites was also performed by Teo & Feng [9] and the model was proposed to describe the relationship between safety climate and the overall safety culture in construction organizations.

Although the dissemination of safety information and knowledge are important aspects for the effective and successful managing of health and safety in the organization, little attention has been devoted to the process of safety knowledge exchange. In order to fill this gap in the literature, based on previous empirical research and literature review, Jarvis & Tint [31] proposed a new reciprocal safety culture model with a new construct – 'communities of practice' – shared knowledge in order to reflect not only specific organizational (situational/ environmental), behavioral and

psychological aspects of safety culture, but also include knowledge management aspects that incorporate both tacit and explicit safety knowledge and understanding. Thus, the concept of CoP is important in addressing not merely employees' behavior, practices and norms, but simultaneously the role of management within the organization in providing a facilitating and enabling climate of safety through which safety cultures can be embedded in organizational practice.

The focus on the continuous two-way flow of influences, vertically within the organization, is complemented by the attempt in the CoP approach to capture that horizontal dimension of knowledge management lies not exclusively in the possession of management, but is generated in day-to-day practices of task-based tacit understanding of good safety behavior by employees themselves at all levels within the organization. This model is based on Cooper's [8] Reciprocal Safety Culture Model, with added Knowledge Management

Dimension, which can allow an in-depth study of the impact of Knowledge Management on the development of safety culture processes (see Fig. 2).

The model proposed takes into account the dynamic interrelationships between safety climate, SMS, safety behavior and motivational strategies for safety knowledge exchange within CoP at the enterprise level.

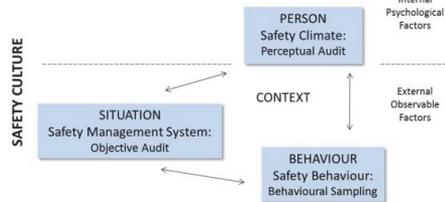


Fig. 1. Reciprocal safety culture model [8].

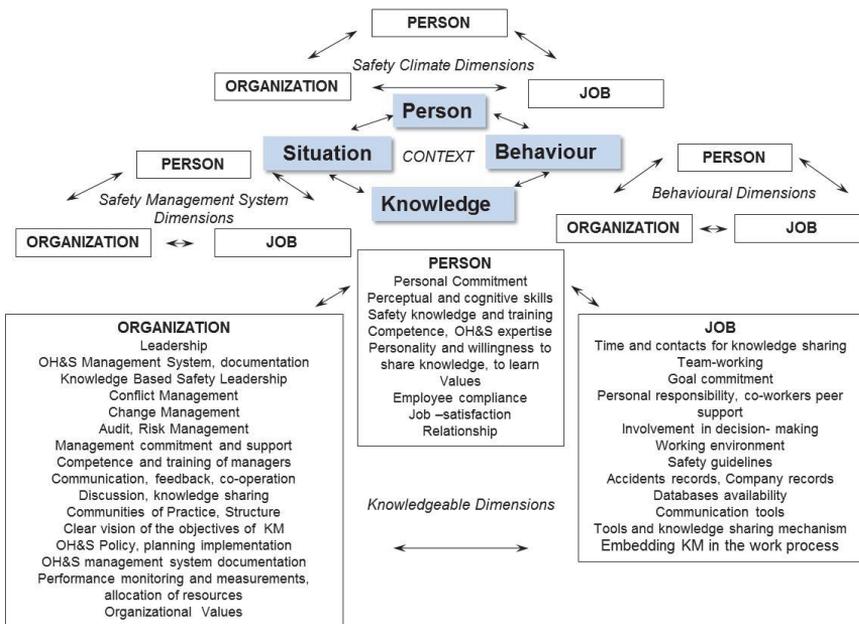


Fig. 2. Reciprocal safety culture model [31].

Thus, the authors suggest that organizations should pay more attention to how their safety knowledge is managed (how knowledge is created, transferred, exchanged and used by employees) in order to develop a positive safety culture and to change employees' safety behavior. The suggested knowledge elements of the model can also be broken down into exactly the same reciprocal relationship. The presented reciprocal model provides a comprehensive way of thinking about many processes and aspects that might impact a safety culture with respect to the managing of safety knowledge.

The concept of the presented model is also partly related to Reason's (1997) "informed (or safety) culture" model, which

includes dimensions of an informed culture, a reporting culture, a flexible culture and a learning culture [33]. An informed culture (equivalent to a safety culture) comprises many types of situational specific cultures (not all of which are safety related), which interact with each other to create the "informed culture". Reason's approach can also be subsumed within the psychological, behavioral and situational components of the reciprocal model [8].

In addition, this model, which served as a basis to develop a questionnaire which when can be used as an effective management tool for conflict management.

The following section provides an overview of the main core constructs of the proposed safety culture model that were tested in the current study. Some constructs reviewed below have never been included in a published survey of safety culture, but have potential to offer meaningful value to safety culture measurement. As organizational (situation/environmental) aspects of safety culture, the current study focuses on constructs as follows:

Management Concern for Safety: The most common construct in the safety culture survey is the perception of leadership and management/supervisors' attitudes and behaviors around safety [24]; [34]. According to Frazier [4] and Teo & Feng [9], management should encourage safe behavior of employees. Like previous research [35], this study suggests leadership (management and supervisors) should spend more time on the floor with employees and build trust, which is vital for the opportunity to convert tacit knowledge into explicit shared knowledge. Management commitment also can be demonstrated by allocation of the resources in the field of OH&S.

Relationship and Conflict Management: There is no survey previously reviewed of conflict management as a learning instrument and its possible effect on safety knowledge exchange. Thus, this study fills a key gap in the literature by including this factor. The current study investigates relationships between employers and employees as well as co-workers, possible conflicts, possible conflict solution strategies. Relationships also include promoting positive working environment, seeking to avoid conflict and dealing with unacceptable behavior [36].

Traditionally, conflict has been regarded as abhorrent in organizations. Mullins stated that a healthy organizational climate should reflect only complete harmony. However, this view (espoused in [37]) is no longer paramount. Conflict can be a positive force that stimulates creativity and interest, and can assist in resolving problems and promotes group cohesion [37]. It can also be a stimulus for organizational learning [38]. At the same time, conflict has been found to be a useful research tool revealing an organization's general status as a status indicator [39]. Rahim [40] suggests that conflict analyses would provide information about employees' work satisfaction and motivation, flow of information and knowledge and thus, learning as well as overall climate at the organization. The essential aspect is that conflict, like most culturally-based things, must be recognized, acknowledged and managed.

Communication, Knowledge Sharing, Communities of Practice: Organizational learning is a process whereby organizations share, create, spread, and expand their knowledge [41]. This is also a tool for the development of CoP and potentially gives a possibility for employees to exchange explicit and tacit knowledge. Explicit knowledge, sometimes referred to as codified knowledge, is objective knowledge that can be transmitted in formal, systematic language [42]. An example of explicit knowledge on OH&S consists of governmental and local regulations, standards, norms, and safety requirements, which are stored as written

documents or procedures. In the context of the management of OH&S, special attention should be given to tacit knowledge, because the research topics are often identified through direct human experience in the workplace, and the results of the research are often immediately applicable to the solution of a problem. Examples of tacit knowledge are: safety engineer's experience, safety hazard recognition, perceptual and cognitive skills, physical experiences, rules of thumb and synthesis of facts [16]. In order to exchange explicit and tacit knowledge, there is a need for a suitable organizational structure, where cooperation, teamwork and verbal communication are available and adopted [11], and for a good safety climate to be created for informal exchange of safety knowledge.

CoP is implemented in formal groups of people who have a particular activity in common, and as a consequence have some common values, knowledge, and a sense of community identity [43]. Generally, information and representational channels via individual safety representatives take place in smaller enterprises, while (indirect) via elected representatives' meetings together with employer representatives in health and safety committees occur in larger enterprises [44]. Health and safety committees have the ability to create knowledge assets that are relevant in terms of OH&S at the workplaces, and thus can be viewed as a channel for knowledge creation [45]. In addition, the study [45] emphasized such essential factors as management commitment, scope and content of training of health and safety committees' members and provided resources.

The authors argue that the health and safety committees could act as CoP, but their contribution to shaping safety culture and exchanging knowledge and, thus organizational learning, is not enough, because of the small number of employees involved and lack of management commitment.

Communication, participation in decision-making, sharing valuable knowledge and sharing attitudes and viewpoints [46], employees' involvement in processes, as well as social good relationships and conflict management are essential factors that promote trust and effective communication. Trust could be achieved through the involvement of employees in decision-making [47], having credible communication and good relationships, based on organizational values.

In the context of organizational change, attitudes to change become an important issue. Organizational learning can be defined as a vital process by which organizations adapt to change [47]. The ability to adopt to change is enhanced through learning, both at individual and organizational levels. According to Alas [47] and Robertson & Cooper [36], it is essential to provide information of how organizational change is managed and communicated in the organization.

Safety Management Systems: According to Flin with colleagues [24], safety systems involve a mix of the formal audit processes and organizational procedures that managers use to manage safety, for instance: establishing safety committees [20], developing prevention strategies. Frazier with colleagues [4] stated that the concept of existing SMS is essential when assessing safety culture. Based on [4]; [5]; [9];

[21]; [24]; [48], the current research reviewed factors which an effective SMS should contain, for instance: safety policy procedures and rules; incentives for employees' participation and employees' engagement, provided safety training, communication, planning, control, safety audits. Below we expand upon what we see as the key dimensions which enable the full scope of CoP to be explored empirically.

Organizational Values: Ethics and beliefs of people are clearly shown in their values. The values of the senior managers create a basis for trust and the organizations' credibility, so long as those values are seen as 'core' and 'intrinsic' to management behaviors [49]. Safety culture can be defined as a product of the individual and group values, attitudes, beliefs, risk-perceptions [29]. Therefore, it is also essential to evaluate safety as a value in the organization (that can be called "safety values in use" [50]). If employees feel that they are an important part of the organization and they perceive the high degree of managerial concern and that safety is valued, the employees will tend to be positive in their attitudes towards safety, they are more likely to make suggestions and remarks on improving working conditions and will be less inclined to commit unsafe acts.

Personal Commitment and Responsibility: Employees feel less responsible for safety than managers and define personal responsibility as a "perceived responsibility for involvement in safety" [51, p. 23], where employees are accountable for their own safety and managers for employees' risky behavior. The construct of personal commitment and responsibility was also investigated in some studies [4]; [52].

Job Satisfaction is a common and essential construct of assessment of safety climate and means how satisfied someone feels with their current job [9]; [20]. The current study, together with job satisfaction and motivation of employees, investigates additionally the relationships with colleagues and employers to clarify the situation within the organization, because job satisfaction in itself does not provide the guarantee of good relationships. Thus, this aspect can interfere with the process of knowledge exchange and collective learning within the organization.

Co-workers' Peer Support for Safety: A construct of employee caring for each other (or "Peer Support for Safety") is an appropriate and relevant construct to moment-to-moment safety behavior when assessing safety culture [4]. Geller [53] suggests that 'actively caring' occurs when co-workers alert each other when somebody may be exhibiting at-risk behavior or encouraging an employee to perform work safely.

Involvement in Health and Safety Activities and Decision-making: Safety culture presumes effective communication and employees' safety participation and involvement in health and safety activities. The survey includes questions about the processes and mechanism of information flow as well as about the amount of relevant information available for the employees. Additionally, the current study evaluates and assesses employees' opinion about the incentives encouraging participation in health and safety activities.

The authors emphasize here that the potency of the reciprocal model for analyzing safety culture may be different

in any given situation and might be influenced by potentially important internal and external organizational factors like environment, context, governance, relevant regulations, design etc. The reciprocal interactions among psychological, behavioral and organizational variables, which have been recognized and reflected in the major safety culture models, as well as added knowledge variable indicate that the four dimensions to measure the overall safety culture of an organization are psychological, behavioral, organizational and knowledge aspects of safety culture.

Therefore, in order to validate the assessment of safety climate as an effective means of measuring the overall safety culture, three hypotheses are postulated here:

H1: Safety climate has an impact on the *psychological* aspect of safety culture and contributes to managing safety knowledge.

H2: Safety climate has an impact on the *behavioral* aspects of safety culture and contributes to managing safety knowledge.

H3: Safety climate has an impact on the *organizational* aspects of safety culture and contributes to managing safety knowledge.

II. METHODOLOGY

Safety Survey

Survey research using a questionnaire is an effective method to acquire data on attitudes toward issues and relationships between variables. The statistical survey results were complemented by data acquired from a national Work Environment questionnaire survey conducted by Statistics Estonia in 2009, which is a representative survey using employer-employee-linked data, designed specifically to study working environment and to measure safety attitudes, perceptions, values, conflicts and relationships, information dissemination, communication with respect to safety, safety knowledge transfer, job interest and satisfaction, perceived responsibility for and involvements in safety issues, commitment, risk awareness, working conditions and safety measures. The respondents were requested to provide their perceptions of these statements. The questionnaire also included additional items not relevant to the present research and this article. Five ordered response levels were used in the survey. Respondents were required to rank the factors on a 5-point Likert-type scale between 1 = strongly disagree and 5 = strongly agree to each of the statements found in the questionnaire.

Data Sample Characteristics

The majority of empirical studies limit their sample to one organization from a specific sector which can cause some doubt about their external validity [54]. The questionnaire was administered anonymously to employees from SMEs from different branches of industry. The current survey comprises a sample of 1757 employees who filled the questionnaires and participated in the study. The sample consisted of men (52%) and women (48%). Approximately a half (54.2%) of the sample was below 49 years of age and 45.8% were 50 years of age and more (Table 1).

TABLE I

DISTRIBUTION OF SAMPLE DATA BY AGE AND WORK EXPERIENCE

WORK EXPERIENCE, YEARS	No OF EMPLOYEES	SHARE, %
Less than 1 year	27	1.5
1 to 5 years	842	47.9
6 to10 years	365	20.8
11 to 15 years	N 1	13.7
16 to 20 years	125	7.1
More than 20 years	157	8.9
TOTAL	1757	100

EMPLOYEES' AGE, YEARS	No OF EMPLOYEES	SHARE, %
Less than 25	90	5.1
Between 25 and 49	863	49.1
More than 50	804	45.8
TOTAL	1757	100

Work experience is an important characteristic of this sample. Noteworthy 48% have worked at the same company for 1-5 years.

III. RESULTS AND DISCUSSION

Employees' Safety Culture Survey

The data were analyzed using the Statistical Package for Social Science (SPSS 17.0) software. Statistical t-test of the mean was conducted to check the likely response of the entire population to the issues raised in the questionnaire, based on the sample's ratings. The significance level of hypothesis testing was set as 0.05, which means that there is only 5% probability that the relationship was due to a chance occurrence. The critical rating was set up as '3' because by the definitions of the rating scale, rating above '3' represented 'agree' or 'strongly agree' with the statements of the questionnaire. The number of factors that comprise safety culture has been defined as 3 to 19 [51]. The current survey and test results show that all sixteen (16) statements are statistically significant (Table 2) for the employees' questionnaires. This indicates that all the factors are important in determining the effects of safety climate on safety culture, in particular on managing safety knowledge in the organization. The main data analysis method adopted for this study was Factor Analysis. Factor analysis was used to reduce the 35 safety climate attributes to smaller sets of underlying factors (dimensions). Factor analysis was applied to the thirty-five factors stating the effects of positive climate in order to identify the possible underlying patterns among the original variables. This method is used to uncover the latent structure

(dimensions) of a set of variables by measuring the correlation of the different factors (sixteen statements) and thus weed out the ones that are not related to each other. Factor analysis allows determining the number and nature of common factors that result in correlations among the factors and obtaining the understanding of the nature and dynamics of their relationships. The combination of the factors into a principal component helps to evaluate and explain the importance of combined factors. Principal components are extracted by the varimax rotation of the original variable and each consecutive component is uncorrelated to the other. The Kaiser method was used in order to pick factors with eigenvalues greater than 1.0.

This method reduces the huge amount of data and separates them into a single uncorrelated component. Factor loadings above 0.6 are usually considered 'high' and those below 0.4 are 'low'. After the application of the factor analysis, sixteen (16) factors were grouped into principal components under each main category. Scree plots and eigenvalues greater than one were used to determine the number of factors in each data set. The scree plot for the eigenvalues of 16 variables (factors) is in descending order (see Fig. 3).

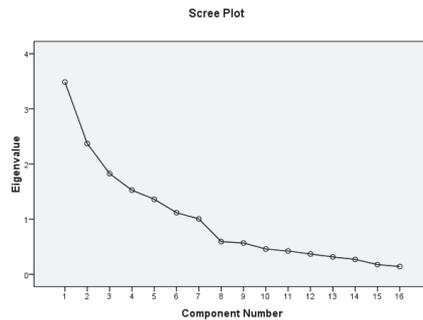


Fig. 3. Scree plot of principal component analysis.

Seven principal components were extracted and the related factors are shown in Tables 3, 4 and 5, which were later on combined into three (3): 'organizational/ environmental/ situational', 'personal/ psychological' and 'job/ behavioral' aspects of safety culture.

The last real factor is considered to be the point before which the first scree begins [55]. Factors with eigenvalues lower than one were not significantly indicated in the first scree plot. The seven (7) key safety climate dimensions identified accounted for approximately 79% of the total variance. The scree plot suggests a possible seven component solution to the principal component analysis.

TABLE II
ONE-SAMPLE T-TEST OF SIXTEEN SAFETY CLIMATE STATEMENTS

Item	Statements	Test Value = 3		
		Mean Difference	t	Sig.
SC_1	Positive safety climate contributes to my job satisfaction	1.222	64.382	0.000
SC_2	Positive safety climate allows and inspires me to develop skills and knowledge	1.030	39.287	0.000
SC_3	Positive safety climate makes it possible to learn and to create new knowledge at work	0.694	24.089	0.000
SC_4	Positive safety climate contributes to my creativeness and innovation	0.680	23.055	0.000
SC_5	Positive safety climate has a positive impact on employees' job content and task satisfaction	1.171	69.291	0.000
SC_6	Positive safety climate increases employees' assuredness and security	1.561	94.875	0.000
SC_7	Positive safety climate improves employment relationships and decreases workplace conflicts	1.742	143.463	0.000
SC_8	Positive safety climate improves relationship between employees and employers and contributes to co-workers' peer support for safety	1.325	83.793	0.000
SC_9	Positive safety climate inspires me to work safely and enhances personal responsibility	1.512	106.722	0.000
SC_10	Positive safety climate promotes the management commitment to safety, enhances the effectiveness of allocation of resources	0.870	14.652	0.000
SC_11	Positive safety climate enhances safety knowledge dissemination (i.e., safety training) and supports establishing safety committees and Trade Unions	1.154	19.544	0.000
SC_12	Positive safety climate promotes employees' involvement in health and safety activities and improves safety communication	1.000	43.856	0.000
SC_13	Positive safety climate contributes to establishing Communities of Practice and improving status of safety personnel	1.009	13.651	0.000
SC_14	Under positive safety climate, safety procedures and standards tend to be followed by employees	1.000	23.968	0.000
SC_15	Positive safety climate enhances information and safety knowledge exchange	0.767	35.639	0.000
SC_16	Positive safety climate enhances safety as value admission and possibilities to participate in the decision-making process	0.643	28.536	0.000

TABLE III
COMMUNALITIES

Item	Initial	Extraction
SC_1	1.000	0.787
SC_2	1.000	0.655
SC_3	1.000	0.732
SC_4	1.000	0.703
SC_5	1.000	0.794
SC_6	1.000	0.789
SC_7	1.000	0.742
SC_8	1.000	0.738
SC_9	1.000	0.808
SC_10	1.000	0.906
SC_11	1.000	0.905
SC_12	1.000	0.625
SC_13	1.000	0.911
SC_14	1.000	0.904
SC_15	1.000	0.856
SC_16	1.000	0.836

Extraction Method: Principal Component Analysis.

TABLE IV
TOTAL VARIANCE EXPLAINED

Item	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumul. %
SC_1	3.486	21.788	21.788	2.196	13.726	13.726
SC_2	2.370	14.814	36.601	1.878	11.736	25.462
SC_3	1.826	11.411	48.012	1.876	11.728	37.189
SC_4	1.525	9.534	57.546	1.827	11.422	48.611
SC_5	1.360	8.502	66.048	1.778	11.108	59.719
SC_6	1.117	6.982	73.030	1.597	9.982	69.701
SC_7	1.004	6.277	79.307	1.537	9.607	79.307
SC_8	0.592	3.701	83.009			
SC_9	0.568	3.550	86.558			
SC_10	0.458	2.863	89.421			
SC_11	0.423	2.642	92.064			
SC_12	0.368	2.300	94.362			
SC_13	0.316	1.973	96.335			
SC_14	0.270	1.689	98.023			
SC_15	0.176	1.102	99.125			
SC_16	0.140	0.875	100.000			

Extraction Method: Principal Component Analysis.

Table 3 shows that the communalities are high (0.625 to 0.911), the number of expected factors is relatively small (7), and the model error is low due to the high communalities. Therefore, the population factor structure can be adequately recovered.

TABLE V
ROTATED COMPONENT MATRIX

	Component						
	1	2	3	4	5	6	7
SC_1	.111	.018	.198	.004	.056	.846	.124
SC_2	.794	-.047	.040	-.024	.051	.128	-.027
SC_3	.824	-.002	.097	.045	-.061	.193	-.012
SC_4	.831	.091	-.002	-.028	-.006	.009	.051
SC_5	.197	-.027	.097	.077	.055	.857	.051
SC_6	-.061	.110	-.022	-.018	.878	.013	.045
SC_7	-.039	.078	.047	.107	.803	.120	.249
SC_8	.070	.040	.248	.119	.151	.162	.778
SC_9	-.051	.033	-.019	.032	.070	.029	.893
SC_10	.027	.942	-.028	.107	.053	-.004	.049
SC_11	.009	.942	.010	.114	.064	-.005	.022
SC_12	.350	-.197	.369	.152	.539	-.020	-.120
SC_13	-.021	.160	.130	.928	-.011	.014	.087
SC_14	.013	.072	.090	.928	.143	.070	.057
SC_15	.027	.025	.902	.095	.036	.154	.083
SC_16	.084	-.028	.881	.111	.058	.149	.117

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax. Rotation converged in 7 iterations.

Safety Climate and Organizational Aspects of Safety Culture

Safety Culture was determined in line with Cooper’s [8] and Geller’s model [53], whereas a key dimension – a structural or system dimension, in addition to a behavioral dimension, a psychological dimension and knowledge dimension were proposed. Each of these dimensions then had a person (psychological aspects), organization (organizational aspects) and job (behavioral aspects) element.

The first principal component related to the organizational (in Geller’s model situation/ environment construct) aspects of safety culture (Table 6) is extracted. The current principle of safety culture refers to the factors related to those factors, which exist in an organization, such as SMS, organization structure, production system and working environment [6]; [8]; [9]; [48]; [56]. The statistical t-test results (see Table 2) show that all related factors (SC_10, SC_11, SC_13, SC_14) are statistically significant and it means that they have a positive effect on a safety climate. According to the results, hypothesis 1 was not rejected and a safety climate was established to have a positive impact on the organizational aspect of safety culture with a special focus on management safety knowledge. Results from the current study have demonstrated that positive safety climate promotes the management concern and commitment to safety, such as providing necessary resources for safety training and equipment. Under the positive safety climate, managers allocate human and financial resources to the SMS and become personally involved in it [5], which improves communication and safety personnel status in the organization. This is in line with the research findings [9]; [57] that positive safety climate promotes not only commitment of

management to accident prevention activities (safety training, tools and equipment) but also to risk management, organization support and safety-related communication, and effective knowledge creation and dissemination [58]. This study, in line with Teo & Feng [9], suggests that positive safety climate improves SMS through better safety communication and knowledge dissemination through the safety committee and CoP. Knowledge is competence to act, and as such it is primarily tacit and can be developed based on participation in CoP, which allows cooperative learning as learning-in-organizing, and based on the sharing of tacit and explicit knowledge and skills among employees [59]; [60]. Based on previous research [62], other researchers claim that “if safety and organizational climate strategically focuses on the transfer of safety training, then the relationship between safety knowledge (acquired via training) and safety performance will be facilitated due to organizational members’ knowledge and performance aligned with the goals and commitment of their organization” [61, p. 140].

The current survey suggests that a positive safety climate is a key feature of a supportive work environment, in which employees are involved in health and safety activities, they feel more comfortable in raising concerns about safety issues, sharing their knowledge and thus are able to learn through imitation and participation [63].

TABLE VI
ORGANIZATIONAL ASPECTS OF SAFETY CULTURE

Item	Factors	Factor loading
SC_10	Positive safety climate promotes the management commitment to safety, enhances the effectiveness of allocation of resources.	0.942
SC_11	Positive safety climate enhances safety knowledge dissemination (i.e., safety training), supports establishing safety committees and Trade Unions.	0.942
SC_13	Positive safety climate contributes to establishing Communities of Practice and improving status of safety personnel.	0.928
SC_14	Under positive safety climate, safety procedures and standards tend to be followed by employees.	0.928

According to researchers [5]; [9], under a positive climate, workers are more likely and ready to follow safety procedures, standards, safety policy and rules, less inclined to commit unsafe acts, even when a job is ‘rushed’ and more likely to make suggestions and comments for improving work conditions.

Safety Climate and Behavioral Aspects of Safety Culture

The second principal component is extracted and related to the behavioral (job) aspects of safety culture (see Table 7). Behavioral aspects of safety culture refer to recognizing occupational hazards, complying, communicating, demonstrating and caring about occupational health and safety issues [53]. The current research focused on several components, for example, what employees know about issues related to safety, how they are satisfied with existing SMS and how employees are motivated to work safely and to provide peer support for safety.

The results from the statistical t-test (see Table 2) show that all the related factors (SC_8, SC_9, SC_12, SC_15, SC_16) are important and statistically significant; it means they have a positive effect on a safety climate. The related factors of this principal component illustrate the relationship between a safety climate and behavioral aspects of safety culture. According to the results, hypothesis 2 was not rejected and a safety climate was established to have a positive impact on the behavioral aspects of safety culture. The current research has demonstrated that the positive safety climate and effective SMS enhance the flow and exchange of knowledge between people and thus create organizational competence regarding safety. Collective knowledge is fundamental and 'to make information and knowledge flow, the people in the organization must be linked' [64, p.14] and connected in the appropriate organizational structure. In order to achieve an effective and rapid flow of safety information and knowledge and become a learning as well as competent organization, the organization's processes, its people, and its technology need to come together as a management system.

A positive safety climate inspires and motivates employees to work safely and enhances personal responsibility. This is in line with research results [9]; [51] that under positive employees' perceptions of safety their willingness and likelihood to comply with safety rules and procedures, standards and regulations are influenced. In addition, several researchers pointed to the linkages between safety climate, safety motivation, and safety knowledge and behavior [9]; [65-67]. Furthermore, a positive safety climate contributes to co-workers' peer support for safety and improves relationship and communication between employees and employers, and decreases conflicts at work (Table 7). One explanation could be that a positive safety climate improves safety information and knowledge dissemination and thus enhances employees' willingness to understand and accept safety management system. These results confirmed the main findings from research in [4]; [9]. Other researchers [5] claimed, "firm managers play a fundamental role in reducing the number of unsafe acts by employees, and hence in reducing accident rates" (p. 637). Bosak with colleagues [65] demonstrates that when employees perceive that an organization considers safety to be an essential issue and is valued, also such aspects as safety policies, procedures and management systems are relevant, effective and given priority over competing demands, they are less inclined to engage in risk behavior [8]; [68]. Managerial concern and behavior influence compliance with workplace norms and the kind of behavior that is likely to be supported, valued or rewarded in the organization [26]. This relationship between a safety climate and the behavioral aspects of safety culture has also been confirmed in this study, as the survey results demonstrate that positive safety climate inspires employees to work safely, enhances personal responsibility and contributes to co-workers' peer support for safety. In addition, it enhances safety as a value reward and is admitted/in use in the organization. A positive safety culture prevails in the organization when it adopts adequate SMS. It requires providing employees with continuous safety training

and availability of the relevant safety information for the employers and employees in the right place at the right time. In addition, this means that an organization has established incentives for the employees to become involved in safety activities; has clearly defined a safety policy that reflects the organization's values and principles regarding safety [5], [69]. It is essential that an organizational structure allows and enables the exchange of safety knowledge which means an effective control and feedback system. Another central theme identified in relation with behavioral factors contributing to a positive safety culture was employees' involvement in health and safety activities.

TABLE VII
BEHAVIORAL ASPECTS OF SAFETY CULTURE

Item	Factors	Factor loading
SC_8	Positive safety climate improves relationship between employees and employers and contributes to co-worker's peer support for safety	0.778
SC_9	Positive safety climate inspires me to work safely and enhances personal responsibility	0.893
SC_12	Positive safety climate promotes employees' involvement in health and safety activities and improves safety communication	0.539
SC_15	Positive safety climate enhances information and safety knowledge exchange	0.902
SC_16	Positive safety climate enhances safety as value admission and possibilities to participate in the decision-making process	0.881

Positive safety climate promotes employees' involvement in the decision-making process regarding safety issues. This study, in line with [5]; [9], suggests that employees' involvement is fundamental for the proper SMS and it leads to the improvement of relationships in an organization, employees' satisfaction and motivation. If employees feel that they are an important part of the organization and they perceive the high degree of managerial concern and that safety is valued [50] in an organization, employees tend to be positive in their attitudes towards safety, they will more likely make suggestions and remarks on improving working conditions and will be less inclined to commit unsafe acts [5]. The effective development of SMS and prevention of work accidents requires that safety be placed as a principal organizational value as well as full management and supervisors' commitment and employees' involvement [50]. All these factors are part of SMS and demonstrate managers' commitment.

Safety Climate and Psychological Aspects of Safety Culture

The third principal component is extracted and related to the psychological ('Person' construct) aspects of safety culture, which includes seven safety climate statements (see Table 8). According to the results, all seven safety climate statements are statistically significant based on the t-test results (see Table 2). Thus, hypothesis 3 was not rejected and safety climate was established to have a positive impact on the internal psychological aspects of safety culture, such as knowledge, skills, abilities, relationship, motives and personality of employees.

Results from the current study demonstrated that a positive safety climate was perceived to contribute to the development of creativeness and innovation of employees, as well as assuredness and security regarding the labor relationship. These results, in line with [64]; [70], suggest that “an effective management system enables organizational innovation, and this is achieved through the exchange and flow of knowledge between people [64, p.15], since “creators learn from experience” [70, p.31]. Activities such as working, learning and introducing innovations are closely bound up with each other in a local practice, particularly in the CoP [61].

TABLE VIII
PSYCHOLOGICAL ASPECTS OF SAFETY CULTURE

Item	Factors	Factor loading
SC_2	Positive safety climate allows and inspires me to develop skills and knowledge	0.794
SC_3	Positive safety climate makes it possible to learn and create new knowledge at work	0.824
SC_4	Positive safety climate contributes to my creativeness and innovation	0.831
SC_6	Positive safety climate increases employees' assuredness and security	0.878
SC_7	Positive safety climate improves employment relationships and decreases workplace conflicts	0.803
SC_1	Positive safety climate contributes to my job satisfaction	0.846
SC_5	Positive safety climate has a positive impact on employees' job content and task satisfaction	0.857

Studies on organizational cultures have developed a similar concept of CoP [71-73]: “where learning happens” [74], “organizational learning and CoP: toward a unified view of working, learning, and innovation” [72, 75], “the practice of learning” and “collective learning” [76].

Under the positive safety climate, the improved employment relationship between employees and their employers and co-workers leads to a reduction in workplace conflicts and improvement in employees' satisfaction and motivation. These findings are consistent with studies [5]; [40]; [77]. Learning can be through conflict management, since conflict provides the opportunity to listen carefully to the arguments, feelings and needs of others. Based on [78], “well-managed conflict helps individuals confront reality and accept limitations, yet still feel they can influence their situation, conditions, critical for psychological health” (p.33). The conflict can inhibit the dissemination of good safety practice and exchange of the experiential knowledge in an organization [77]. Conflict has an important effect on the behavior of organization members and has to be managed [40]. Conflict can be a positive force that stimulates interest and creativity, identifies and assists in resolving problems and promotes group cohesion [37]. It can also be a stimulus for organizational learning [38]. At the same time, communication, participation in decision-making, sharing valuable knowledge and sharing attitudes and viewpoints [46], employees' involvement in processes, as well as social good relationships and conflict management are essential factors that promote trust. In order to achieve the collective and shared goals and visions as well as attitudes and understanding

between all the employees, an effective knowledge management system is required [35].

A positive safety climate contributes to employees' job content and task satisfaction. This is in line with the findings in [9] that a positive safety climate contributes not only to the morale of employees and their work satisfaction, which was shown to be related directly to safety performance.

The close relationship between a safety climate and a psychological aspect of safety culture has been demonstrated by many other studies [8]; [20]; [21]; [79].

Gaps Addressed in the Current Model

There is no survey previously conducted that incorporates conflict management as a learning instrument and its possible effect on a safety culture and knowledge exchange. Thus, this study fills the gap in the literature by including this factor. The current study also investigates relationships between employers and employees as well as co-workers, co-workers' peer support for safety and personal responsibility, which is sparsely reviewed in the literature [4]; [5]; [24]; [51]; [53].

Limitations

The findings suggest that the safety culture survey is a useful tool for future research; however, this study has several limitations. First, the study was conducted at a specific moment in time. Therefore, it is a cross-sectional survey. In this sense, establishing a sequential relationship between predictors and outcomes is admittedly difficult. Therefore, a useful avenue for future research would be to replicate the findings in this study with longitudinal data. A second limitation is that a majority of our measures were self-reported, thus introducing the possibility of common method bias.

Despite these limitations, this study has revealed findings that have both theoretical and practical significance. The implications that these findings have for both safety culture and organizational science research are of particular importance. The results suggest that the safety climate factors, particularly support, commitment, communication provided by management to employees, make an important contribution to a safety culture.

Future Directions

Future research should focus on the understanding of how organizational values are used in an organization and which factors affect their implementation in an organization. There is a need to conduct a survey where the data set of both employees and employers is linked in SMEs. In addition, it would be useful to conduct a comparative safety culture survey based on quantitative and qualitative approaches.

IV. CONCLUSIONS

The present study has examined the subjective architecture of safety culture in the Estonian manufacturing sector in terms of the relationship among organizational, psychological and behavioral aspects of safety culture. A conceptually innovative Reciprocal Model of Safety Culture with Knowledge

Dimension was proposed, which could allow an in-depth study of the impact of Knowledge Management on the development of safety culture processes, as well as describing the relationship between a safety climate and the overall safety culture through the notion of Community of Practice.

The authors present an empirical examination based on a questionnaire survey with a sample of 1757 employees of the relationship between a safety climate and the overall safety culture with a new dimension – knowledge management. The results illustrate the importance of positive safety climate in different aspects of safety culture with a special focus on managing safety knowledge within an organization. Factor analysis was conducted to reduce the identified critical safety climate factors into sixteen for the employees. It was concluded that the integrated approaches of safety climate assessment in the current study could provide reliable prediction of the level of overall safety culture and real state of safety in manufacturing SMEs. This approach has the potential to improve the understanding of different features in SMS in order to manage safety, knowledge and conflicts.

Acknowledgements

The authors gratefully acknowledge the valuable comments and suggestions made by Charles Woolfson and assistance provided by Elviira Povel during the elaboration of the article.

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Appendix 6.

Research paper VI

Järvis, M., Virovere, A., Tint, P. (2014). Managers' Perceptions of Organisational Safety: Implication for the Development of Safety Culture. Scientific Journal of Riga Technical University, Safety of Technogenic Environment. Vol.5, pp.18-28. (ETIS 1.2).

Managers' Perceptions of Organizational Safety: Implication for the Development of Safety Culture

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Abstract – A key feature of a company's safety culture is shared perceptions between managers and employees concerning the importance of safety. The purpose of the study was to assess senior managers' perceptions of the current safety culture in Estonian SMEs from different branches of industry, based on a sample of 463 senior managers. The relationships of different aspects of safety culture and safety management systems, senior managers' and employees' perceptions and attitudes to safety were explored through the deployment of different research measures and methods. In addition, a qualitative approach to assessing safety culture is presented. Studies of eight SMEs included observation, analysis of documentation and semi-structured interviews with senior managers and focus group interviews with employees. This paper reports on the empirical examination of the relationship between a safety climate and a safety culture through a knowledge management dimension with a special focus on management of safety knowledge. The results of this study indicate that safety climate has impact on the three dimensions of safety culture, namely, psychological, behavioral and organizational aspects of safety culture. Several specific features of safety and knowledge management, such as management commitment to safety, safety information dissemination, communication and workers' involvement in safety were found to influence the relationship between a safety climate and a safety culture. It is concluded that the development of 'communities of practice' is an effective way for employees to exchange explicit and tacit safety knowledge.

Keywords: Knowledge management, organizational values, safety climate, safety culture, safety knowledge.

I. INTRODUCTION

Studies have revealed that following occupational safety initiatives leads to an average increase of 71% in cost benefits, 66% in productivity and 44% in quality [1]. It is estimated that 4% of annual global GDP, or USD 1.25 trillion, is lost due to the direct and indirect costs of occupational accidents and diseases (such as lost working time, interruption of production, medical expenses, and workers' compensation) [2]. Organizations in the United States lose up to 170 billion dollars annually due to occupational injuries (as cited in [3]). The UK Health and Safety Executive estimates the costs to individual occupational accidents and work-related ill health to be between GBP 10.1 and GBP 14.7 billion (or EUR 11.5 to 16.7 billion); the costs to employers to be between GBP 3.9 and GBP 7.8 billion (approximately EUR 4.4 to EUR 8.9 billion) and the costs to the society of workplace accidents and work-related ill health to be between GBP 20 to GBP 31.8 billion (approximately EUR 22.7 to EUR 36.1 billion) [4]; [5]. At the same time, a good safety management system (SMS) can positively affect not only accident rates and safety performance of organization, but also have a positive

influence on competitiveness performance, economic and financial performance of an organization and on the control of workers' safe behavior [5]; [6]. According to [2], many companies, especially small and medium-sized enterprises (SMEs), have viewed occupational health and safety (OH&S) as a necessary element of compliance rather than as a contributory factor to the economic viability of their organization. At the same time, estimates suggest that these enterprises have serious problems aggravated by limited access to human, economic, technological resources as well as lack of relevant safety knowledge in order to deal with OH&S [7].

A safe and healthy working environment is an important element of work life quality [8]. Safety through technical design is still entirely relevant to ensuring safe and healthy work systems, but in itself it is now regarded as insufficient. As part of safety management system, it is important to focus on managerial and organizational factors. Attention in recent years has shifted towards attempting to better understand the psychological and social preconditions for employees' unsafe behavior and accident causation. Over the past two decades, many researchers [6]; [9-12] and practitioners have shown increasing interest in the concept of safety culture because of its impact on safety outcomes of the organization such as injuries, fatalities, and other incidents.

When safety becomes a value and is demonstrated through employers' and employees' individual attitudes, perception, and behavior, the process develops into a safety culture. The concept of 'safety culture' has been developed and is seen as a sub-unit of organizational culture, alluding in particular to individual characteristics, the nature of the work tasks and the organizational features that may affect and influence organization's on-going health and safety performance [10]. Schein [13] claims that the way in which senior managers reward, instruct, allocate resources and their attention as well as behavior under the pressure, will be particularly salient in shaping organizational (safety) culture. Other researchers [14]; [15] suggested that perceptions of senior managers' attitudes and behaviors in relation to the health and safety, well-being of workforce will form the basis for the safety behavior of employees, and therefore, the safety performance of the organization.

Previous collaborative research by the authors has shown empirically that many managers have started showing interest in safety performance and their conclusion is that intervention should be directed towards employees and employees' behavior [16]. However, the newest investigations show that the changing of safety climate and culture in organizations (in

particular, in SMEs) is also really a matter of changing managers' behavior. The behavior-based safety approach may be effective for reactive safety management by modifying behavior and improving compliance behavior. Such behavior is also one of the main issues (together with situations and person factors) identified in the model of safety culture as the key factor which is applicable to the accident causation chain at all levels of an organization [10]; [17]. Positive safety culture requires stronger institutional pressure, where all the employees and the employer commit and participate in health and safety activities as well as relevant organizational structure in order to share values and practical safety knowledge and to exchange (tacit and explicit) knowledge [6]; [18]; [19].

The most common construct in the safety culture survey is the perception of leadership and management/supervisors' attitudes and behaviors around safety [20]; [21]. According to [3]; [18], management should encourage safe behavior of employees. Like previous research [7], this suggests leadership (management and supervisors) should spend more time on the floor with employees and build trust, which is vital for the opportunity to convert tacit knowledge into explicit shared knowledge. Management commitment can also be demonstrated by allocation of the resources in the field of OH&S.

There are many quantitative and qualitative data collection tools available that can be used to measure the psychological, behavioral and situational/organizational aspects of safety culture [3]; [10]; [11]; [18]; [22]. Cooper emphasizes the necessity to use more than one methodological angle (the so-called triangulation) in order to evaluate overall safety culture in an organization [10]. Recent reviews of safety culture measures have revealed many potential factors that could make up an overall safety culture [11]; [20]. However, there is still little consensus available regarding the reliable core factors of safety culture and whether the measure of safety climate can be a reliable indicator of overall safety culture. Frazier with colleagues have addressed the necessary core safety culture factors, for example, peer support for safety, safety management systems, personal responsibility for safety, and management support for safety [3].

The current study was conducted in Estonia for various reasons. First, the recent annual reports of the National Labour Inspectorate (2008-2011) present evidence that working environment and the employer awareness concerning OH&S in Estonian manufacturing SMEs need improvement. Second, although significant progress has been made in accident prevention in Estonia in recent years, empirical evidence of the combined fatal and serious incident rates, especially among young and new workers, suggests that this is still an area where greater public policy intervention might be warranted. Third, the results from the analysis of the cost of implementing the main topics of Occupational Health and Safety regulations for Estonian enterprises [23] revealed that employers considered OH&S a cost burden, especially costly for the SMEs. This study concludes that Estonian employers waste much time and money due to the lack of relevant

information and knowledge in the field of OH&S and there is a need for radical change [23]. In sum, the public policy goal of promoting a high level of SMS and safety culture, particularly in the predominant SMEs sector has received very little attention in Estonia.

This article examines relationships between a safety climate and a safety culture, tests an innovative conceptual safety culture model proposed in previous research [24], based on employers' responses. Focus is given on organizational safety culture and the structure or architecture of employees' and employers' attitudes to safety as part of that culture, as well as the ability to learn, which also should mean changes in employees' behavior in order to enhance safety culture.

The authors emphasize that the potency of the reciprocal model [24]; [25] for analyzing safety culture may be different in any given situation and might be influenced by potentially important internal and external organizational factors like environment, context, governance, relevant regulations, design etc. The reciprocal interactions among psychological, behavioral and organizational variables, which have been recognized and reflected in the major safety culture models, as well as the added knowledge variable indicate that the four dimensions to measure the overall safety culture of an organization are psychological, behavioral, organizational and knowledge aspects of safety culture. Therefore, in order to validate the assessment of safety climate as an effective means of measuring the overall safety culture, three hypotheses are postulated here:

H1: Safety climate has an impact on the *psychological* aspect of safety culture and contributes to managing safety knowledge.

H2: Safety climate has an impact on the *behavioral* aspects of safety culture and contributes to managing safety knowledge.

H3: Safety climate has an impact on the *organizational* aspects of safety culture and contributes to managing safety knowledge.

II. METHODOLOGY

Research Design and Instrumentation

Since OH&S is a multidisciplinary and complex field, some researchers [14]; [10] have argued that safety culture cannot be completely understood through traditional quantitative methods, which attempt to break down a phenomenon in order to study its individual components. Safety culture therefore requires the use of both qualitative methods [26] and quantitative methods. Cooper [10] argues that determination of safety culture through a safety climate measure (questionnaire) has a tendency to focus purely on the way people feel and how they perceive safety in an organization rather than the real and essential aspects of safety culture, like the actual behavior of employees, the real safety situation and safety environment in an organization. The authors of the paper in their previous research [7]; [16]; [27] have investigated the differences between 'formal' safety and 'real' safety in Estonian SMEs in different industries, indicating some important safety flaws and drawing attention to

contextual variables in the development and management of safety cultures.

This research employed quantitative methods in order to explore psychological, behavioral and organizational/environmental aspects of safety culture (employers' and employees' attitudes, perceptions toward OH&S, values, conflicts and relationships, information dissemination, risk awareness and employees' involvement). In addition, qualitative methods were used in order to focus on a limited number of case studies and individuals, producing in-depth information, to investigate real safety situation in SMEs, with the intention to bring understanding to the concept of safety culture and real safety behavior in the investigated companies (Fig. 1).

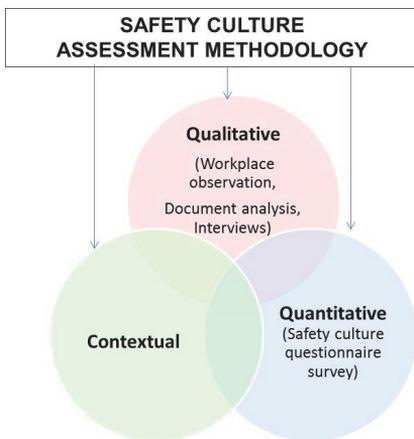


Fig. 1. Methodology of safety culture assessment.

According to Cooper [10], alternative or supportive measures for capturing and analyzing the psychological aspects of safety culture include focus group interviews and discussion groups and document analysis. The behavioral aspects of safety culture can be evaluated via observations, and from such sources as risk assessment, accidents and near-miss analysis and reporting documentation, standard operating procedures, the number of weekly inspections completed, the number of audits conducted. The situation aspects of safety culture can be examined from organizational policies, operating procedures, management systems, audits and communication flows [28] as well as from risk assessment reflecting working environment (occupational hazards) and via safety audits of SMS. Thus, a qualitative study approach allows studying the complexity of factors – as they are related to workers, their behavior and interactions with the SMS of an organization.

Safety Interviews. Case Studies

Measurement of safety culture in terms of the attitudes and perceptions of respondents (employees) about the priorities of safety in their organization is essential, but a survey

(questionnaire) alone cannot measure the actual behavior in the workplace and the real safety situation in an organization. Thus, the qualitative studies were conducted by the authors in order to understand the underlying dynamic processes that need to be supported in pursuit of a 'good' safety culture and to determine organization's true motives for developing SMS, norms and rules for dealing with an occupational risk.

Applying the model of Cooper [10] into measurements, the supportive research methods were also adopted. The case studies were intended to promote a better understanding of the rationale of current safety culture in Estonian manufacturing SMEs. Results from qualitative studies [7]; [16]; [25]; [27] were used in order to complement and verify the results gained from the safety survey. The exploratory study was based on workplace visits, observations, audits and semi-structured interviews with senior managers, as well as focus group interviews with workers. Observations of safety culture performance indicators in the workplace were performed based on the checklist. The visual assessment includes, for example, hazard registers; workplace layout and cleanliness; personal protective equipment usage and storage; working conditions; condition of plant/ equipment; safety information displayed in general and at workstations etc. The selected enterprises were SMEs (less than 250 workers), from different branches of industry (the metal industry (3), textile industry (2), manufacture of devices and plastic processing industry (2), and printing industry (1)) and from various geographical locations in Estonia. Eight semi-structured face-to-face interviews with senior managers in charge of production operations, quality sections of their companies were conducted. The study focused specifically on the perceptions of senior managers, exploring their attitudes and management concern regarding safety, how they care for employees and their enforcing of safety policies and regulations within their respective business and industry; knowledge in OH&S, their commitment to safety, responsibility, cooperation with OH&S specialists (occupational health physicians) [27]. The interviews were conducted in the Estonian and Russian languages. Each interview with managers lasted two hours on average and was recorded. Interviews were then fully transcribed and analyzed. Data for this exploratory study were gathered from 8 focus group interviews with 22 industrial workers (13 males and 9 females) [27]. A simple random sample was selected from workers employed at the SMEs. The objective was to gather information about workers' attitudes and perceptions to safety, shared visions and values, safety practices, safety communication and feedback, participation in safety committees, peer support for safety among co-workers, safety knowledge, and their involvement in safety management activities. Each focus group session lasted 45 minutes on average and was recorded. Interviews were then fully transcribed and analyzed. Every effort was made to protect the privacy, confidentiality, and anonymity of individuals and organizations participating in this study. The interviews were analyzed in the previous study [7]; [27]. In addition, the SMS were evaluated in each investigated SMEs through the audit and document analysis for key safety culture

indicators. Relevant supplementary safety documents, such as safety strategy and policy, plan and instructions, risk assessment, safety rules and procedures, safety audits and inspections, safety meetings/ committees, safety records, including incident and accident investigations, training and meeting records, were also carefully analyzed in order to compliment and verify the data collected during the interviews. Detailed results from the working environment and conditions in the investigated SMEs were analyzed and presented in previous research [7]; [16]; [27].

Safety Survey

The statistical survey results were complemented by the data acquired from a national Work Environment questionnaire survey conducted by Statistics Estonia in 2009, which is a representative survey using employer-employee-linked data, designed specifically for studying working environment and measuring safety attitudes, perceptions, values, conflicts and relationships, information dissemination, communication with respect to safety, safety knowledge transfer, job interest and satisfaction, perceived responsibility for and involvements in safety issues, commitment, risk awareness, working conditions, and safety measures. The respondents were requested to provide their perceptions of these statements. The questionnaire also included additional items not relevant to the present research and article. Five ordered response levels were used in the survey. Respondents were required to rank the factors on a 5-point Likert-type scale between 1 = strongly disagree and 5= strongly agree to each of the statements found in the questionnaire. The substantive parts of the paper present recent comparative survey evidence from the quantitative and qualitative safety survey.

Data Sample Characteristics

The majority of empirical studies limit their sample to one organization from a specific sector which can cause some doubt about their external validity [29]. Thus, to achieve as high degree of generalization as possible for the results of the current work, the authors considered the target population made up of manufacturing SMEs from different branches of industry (see Table 1).

There were two similar questionnaires for employers and employees to measure the effects of safety climate upon the overall safety culture and management of safety knowledge. Two questionnaires were administered anonymously to employees and employers from SMEs from different branches of industry. The current survey comprises a sample of 463 employers and 1757 employees who filled out the questionnaires and participated in the study. The employees' questionnaire was analyzed in our previous study [24].

A special feature of the survey is that it is the first linked data set of both employees and employers in SMEs exploring inter alia issues of employees' involvement, representation, responsibility for workplace safety and health, management and employees' commitment to safety; support; importance and relevance of the safety requirements and procedures, training, information and safety knowledge; how resources

are allocated; how safety is valued and appreciated throughout the investigated organizations. The higher response rate was from the organizations with less than 50 employees (Table 1). We found companies with less than 250 employees to be more reluctant to respond to the questionnaire, which led to a lower response rate from that type of companies.

TABLE I
DISTRIBUTION OF SAMPLE BY ACTIVITY, SIZE

ACTIVITY SECTORS, Industry	POPULATION	RESPONSE RATE, %
Agriculture, forestry, fishing	39	80.1
Mining industry	47	70.9
Processing industry, textile-, chemical-, paper-, plastics-, wood-, metal industry	49	58.9
Electricity-, gas supplier	40	71
Water supply; sewerage; waste- and pollution treatment	43	66.8
Construction	51	55.8
Wholesale business, retail business. Machinery, vehicle repair	56	57.1
Transport, warehousing	32	56.6
Other manufacturers	27	55.8
Health care, social assistance	79	64.5
TOTAL COMPANIES	463	63.8
SIZE (no. employees)	No OF COMPANIES	RESPONSE RATE, %
5-9	150	27.6
10-49	197	34.9
50-249	110	19.5
More than 250	6	18
TOTAL COMPANIES	463	100

III. RESULTS AND DISCUSSION

Senior Managers' Safety Culture Survey

The data were analyzed using the Statistical Package for Social Science (SPSS 17.0) software. Statistical t-test of the mean was conducted to check the entire population's likely response to the issues raised in the questionnaire, based on the sample's ratings. The significance level of hypothesis testing was set as 0.05, which means that there is only 5% probability that the relationship was due to a chance occurrence. The critical rating was set up as '3' because by the definitions of the rating scale, rating above '3' represented 'agree' or 'strongly agree' with the statements of the questionnaire. The number of factors that comprise safety culture varied from 3 to 19 [30].

The current survey and test results show that all ten (10) statements are statistically significant (Table 2) for the employers. This indicates that all the factors are important in determining the effects of safety climate on a safety culture. Factor analysis was applied to the thirty (30) factors stating the effects of positive climate in order to identify the possible underlying patterns among the original variables.

TABLE II
ONE-SAMPLE T-TEST OF SIXTEEN SAFETY CLIMATE STATEMENTS

Item	Statements	Test Value = 3		
		Mean Difference	t	Sig.
1_Sc	Positive safety climate enhances information and safety knowledge exchange	1.268	36.450	0.000
2_Sc	Positive safety climate promotes employees' involvement in health and safety activities and improves safety communication	1.076	31.070	0.000
3_Sc	Positive safety climate enhances safety knowledge dissemination and establishing of Communities of Practice	.951	38.453	0.000
4_Sc	Positive safety climate promotes the management commitment to safety, enhances the effectiveness of allocation of resources	.998	41.235	0.000
5_Sc	Positive safety climate has a positive impact on management commitment to safety and law compliance (labor and safety legislation) and thus increases trust	.674	11.919	0.000
6_Sc	Positive safety climate improves relationships between employer and employees and decreases workplace conflicts	.706	12.089	0.000
7_Sc	Positive safety climate promotes managers' support, their willingness to provide feedback	.585	9.843	0.000
8_Sc	Under the positive safety climate, safety procedures, rules and standards tend to be followed and fulfilled	.734	18.976	0.000
9_Sc	Positive safety climate enhances the effectiveness of risk management and improves the status of safety personnel	.678	15.861	0.000
10_Sc	Under the positive safety climate, safety is valued by senior managers and the possibilities are created for employees to participate in the decision-making process	.659	15.156	0.000

are 'low'. After the application of the factor analysis, ten (10) factors were grouped into principal components under each main category.

In this study we identified four (4) main categories using a scree plot. Scree plots and eigenvalues greater than one were used to determine the number of factors in each data set. The scree plot for the eigenvalues of 10 variables (factors) in descending order is provided in Fig. 2.

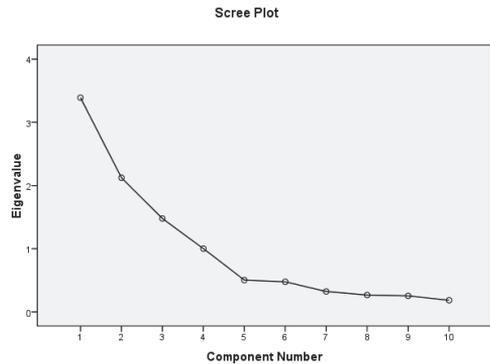


Fig. 2. Scree plot of the principal component analysis.

The last real factor is considered to be the point before which the first scree begins [31]. Factors with eigenvalues lower than one were not significantly indicated in the first scree plot. Four (4) principal components were extracted and the related factors are shown in Tables 3, 4 and 5, which were later on combined into three (3): 'organizational', 'psychological' and 'behavioral' aspects of safety culture.

Table 3 shows that the communalities are high (.673 to .875), the number of expected factors is relatively small (4), and the model error is low due to the high communalities. Therefore, the population factor structure can be adequately recovered.

TABLE III
COMMUNALITIES

Item	Initial	Extraction
1_Sc	1.000	.762
2_Sc	1.000	.818
3_Sc	1.000	.832
4_Sc	1.000	.836
5_Sc	1.000	.836
6_Sc	1.000	.875
7_Sc	1.000	.843
8_Sc	1.000	.821
9_Sc	1.000	.696
10_Sc	1.000	.673

Extraction Method: Principal Component Analysis.

This method is used to uncover the latent structure (dimensions) of a set of variables by measuring correlation of the different factors and thus weeds out the ones that are not related to each other. Factor analysis allows determining the number and nature of common factors that result in correlations among the factors and obtaining the understanding of the nature and dynamics of their relationships. The combination of the factors into a principal component helps to evaluate and explain the importance of combined factors. Principal components are extracted by varimax rotation of the original variable and each consecutive component is uncorrelated to the other. The Kaiser method was used to pick factors with eigenvalues greater than 1.0. This method reduces the huge amount of data and separates them into single uncorrelated component. Factor loadings above 0.6 are usually considered 'high' and those below 0.4

TABLE IV
TOTAL VARIANCE EXPLAINED

Item	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumul. %
1_Sc	3.390	33.902	33.902	2.555	25.545	25.545
2_Sc	2.123	21.230	55.132	2.277	22.775	48.320
3_Sc	1.478	14.781	69.912	1.698	16.981	65.301
4_Sc	1.002	10.017	79.929	1.463	14.629	79.929
5_Sc	.503	5.035	84.964			
6_Sc	.476	4.760	89.724			
7_Sc	.323	3.232	92.956			
8_Sc	.267	2.669	95.625			
9_Sc	.254	2.537	98.162			
10_Sc	.184	1.838	100.000			

Extraction Method: Principal Component Analysis.

TABLE V
ROTATED COMPONENT MATRIX

	Component			
	1	2	3	4
1_Sc	.045	.844	.214	.055
2_Sc	.129	.875	.071	.178
3_Sc	.107	.087	.901	.028
4_Sc	.053	.128	.902	.062
5_Sc	.903	.072	.119	.031
6_Sc	.927	.121	.023	.030
7_Sc	.912	.092	.057	-.009
8_Sc	.023	.082	.045	.901
9_Sc	.010	.366	.051	.748
10_Sc	.122	.780	.000	.225

Extraction Method: Principal Component Analysis.
Rotation method: Varimax with Kaiser Normalization.
Rotation converged in 5 iterations.

TABLE VI
ORGANIZATIONAL ASPECTS OF SAFETY CULTURE

Item	Factors	Factor loading
3_Sc	Positive safety climate enhances safety knowledge dissemination and establishing of Communities of Practice.	0.901
4_Sc	Positive safety climate promotes the management commitment to safety, enhances the effectiveness of allocation of resources.	0.902
8_Sc	Under the positive safety climate, safety procedures, rules and standards tend to be followed and fulfilled.	0.901
9_Sc	Positive safety climate enhances the effectiveness of risk management and improves the status of safety personnel.	0.748

Safety Climate and Organizational Aspects of Safety Culture

The first principal component is extracted and the related factors are shown in Table 6. This principal component is related to the organizational/ situational aspects of safety

culture based on the perception survey of senior managers. The statistical t-test results from senior managers' responses (see Table 2) also show that related factors (3_Sc, 4_Sc, 8_Sc and 9_Sc) are statistically significant and it means they have a positive effect on a safety climate based on senior managers' responses. Thus, hypothesis 1 was not rejected and safety climate was established to affect the organizational aspects of safety culture.

A positive safety climate promotes the commitment of management to safety, which has been recognized as a basic element of safety culture. Management support of safety has also led employees to accept responsibility and ownership for safety. These results are consistent with Zohar [32] studies. A review of the literature reveals the importance of managers' support to safety and leadership for safety culture and effective SMS.

According to the results from employees' and employers' perception survey, there are common organizational factors which have a positive impact on the organizational aspects of safety culture, for instance: promotion of management concern and commitment to safety, providing necessary resources as well as intention to follow safety procedures by employees.

Safety Climate and Behavioral Aspects of Safety Culture

The related factors of the second principal component are shown in Table 7. These three factors shed light on the relationship between a safety climate and the behavioral aspects of safety culture. The statistical t-test results from senior managers' responses (see Table 2) also show that three related factors (1_Sc, 2_Sc, 10_Sc) are statistically significant and it means they have a positive effect on a safety climate based on senior managers' responses. Thus, hypothesis 2 was not rejected and safety climate was established to affect the behavioral aspects of safety culture.

TABLE VII
BEHAVIORAL ASPECTS OF SAFETY CULTURE

Item	Factors	Factor loading
1_Sc	Positive safety climate enhances information and safety knowledge exchange.	0.844
2_Sc	Positive safety climate promotes employees' involvement in health and safety activities and improves safety communication.	0.875
10_Sc	Under the positive safety climate, safety is valued by senior managers and the possibilities are created for employees to participate in the decision- making process.	0.780

The current research, in line with some studies [6]; [33], suggests that managers have a direct influence through their positive attitudes towards safety and through their positive attitudes, active commitment and behavior.

According to the results from employees' [24] and employers' perception survey, there are common factors which have a positive impact on the behavioral aspects of safety culture, but employees emphasized that the positive safety climate enhances not only employees' personal responsibility, but also contributes to co-workers' peer support to safety.

Safety Climate and Psychological Aspects of Safety Culture

The third principal component is extracted and the three related factors are shown in Table 8.

This principal component is related to the psychological aspects of safety culture based on the perception survey of senior managers. Table 8 indicates that three factors (5_Sc, 6_Sc, 7Sc) are all significantly important. Thus, hypothesis 3 was not rejected and safety climate was established to influence the psychological aspects of safety culture.

TABLE VIII
PSYCHOLOGICAL ASPECTS OF SAFETY CULTURE

Item	Factors	Factor loading
5_Sc	Positive safety climate has a positive impact on management commitment to safety and law compliance (labor and safety legislation) and thus increases trust.	0.903
6_Sc	Positive safety climate improves relationships between an employer and employees and decreases workplace conflicts.	0.927
7_Sc	Positive safety climate promotes managers' support, their willingness to provide feedback and to allocate resources in order to activate safety management system.	0.912

Managers have influence through their support, funding for establishing and development of the SMS. These findings are consistent with [6].

To compare the results from employees' and employers' perception survey, it is essential to underline that a positive safety climate contributes to the employees' job satisfaction, creativeness and innovation.

The Organizational Context of Safety Culture

As described in the proposed model, based on the above analysis, safety climate has a significant impact on all three aspects of overall safety culture, like organizational, behavioral and psychological aspects. However, perception surveys are not enough to assess and evaluate the existing overall safety culture and real safety behavior in an organization.

The statistical analysis of safety culture questionnaires shows many organizations with an outstanding safety culture and positive safety attitudes. However, qualitative data indicate some important safety weaknesses and aspects which should be included in the process of evaluation of safety culture in an organization [7]. The results from the case studies, workplace observation, document analysis and interviews with senior managers as well as focus group interviews with employees, collectively contributed to a comprehensive description and assessment of the safety culture in manufacturing SMEs. Detailed results from qualitative survey studies, working environment and conditions in the investigated SMEs were analyzed and presented in previous research [7]; [16]; [25]; [27]; [25]; [34].

There is a need for a holistic exploration of safety culture, which is influenced by both structure and processes in an organization [35]. There are three major interrelated elements/forces which are simultaneously influencing the

behavior of the employees within organizations. These forces are the structure (which outlines the formal organization, i.e., the proposed allocation of power and responsibilities, mechanism of communication, coordination and control), culture (outlines assumption, individual and group values, attitudes, beliefs, risk perceptions, competencies, norms, principles, and patterns of behavior) and processes (rules, procedures, supervision). Together they provide the context of behavior, i.e., safety behavior, in an organization.

Qualitative approaches to safety culture assessment in the current study provided by workplace observation, document analysis and safety interviews indicated some important safety flaws [7]; [27]. The main aspects of safety culture are analyzed and presented below:

- *Safety is a clearly recognized value in an organization.* Most of the investigated SMEs showed rather a positive attitude towards contributing to safety: developing safety practices and written work procedures, risk assessment, investigating occupational accidents, providing safety training and occupational health services for the employees. However, the main shortfalls of the SMS were in gaps between formal and real safety that was discovered [7]. Qualitative results obtained show that in all investigated enterprises, safety is generalized as a formal or propagated value [7]; [36], safety was not valued throughout all investigated SMEs due to lack of everyone's commitment to safety. Still, the attitudes of the employees and employers were generally positive, many differences were found between work groups, and between management and staff. Employees were not willing to talk about safety issues and they did not actively participate in health and safety activities. Therefore strong safety communication problems exist in many enterprises [27]; [34]. In addition, decision-making in the organizations was strictly top-down process in all investigated SMEs and, generally, employees are neither actively involved in health and safety activities nor in the decision-making process. Employees in many SMEs generally are not inhibited in raising any safety concerns.

It is essential that employees' health and safety behavior as organizational values are adopted and shared among all employees throughout the organization and not only formally existing. Reviews of organizational value surveys have identified some common constructs related to such values [36] as: described, propagated (formal) and shared or real values. Employees' attitudes and safety behavior are based on adopted and recognized values. Therefore it is essential that these values can be introduced through management principles, good practices in occupational health and safety, as well as through employers' and employees' commitment to safety on a daily basis [7].

- *Senior managers' concern and commitment to safety, as it is evident at all levels in the organization. The necessary allocation of resources, including time, equipment, personnel and finance, is being made.*

According to results from the qualitative survey, there is a lack of resources (human and financial) allocated to the field of OH&S in Estonian SMEs. Employees perceive that

resources for employees (training, occupational health service, health promotion programs) are a low priority. One possible reason for that could be the economic situation at the time of the study when all organizations tried to reduce costs, including those related to the occupational health and safety. Virovere with colleagues [37] stated that the investigated management values have changed in 2009 (versus 2007), but the need for knowledge management and learning as a value in the organization is not pointed out.

According to the results from the interviews with senior managers, there is a lack of management awareness and commitment to safety. There are still a few incentives and little motivation, especially from relevant Estonian legislation for employers to deal with OH&S issues in Estonia [7]; [27]. The effectiveness of the present OH&S system in Estonia is undermined by the insufficient coverage of occupational health services, lack of political will to meet EU occupational health and safety requirements, lack of relevant statistical data and research activities, too weak penalties and the continuing absence of an insurance act for occupational accidents and diseases [25]; [27]; [34].

Personnel perceive that management places a high emphasis on issues related to production and quality of the product and less attention has been devoted to environment, safety and health issues. It means that there is a need to improve visibility and involvement of management in safety-related activities. An integrated and cohesive organizational safety leadership process does not yet exist in Estonian SMEs.

- *Roles and responsibilities are clearly defined and understood.*

Senior managers and employees have the clearest perception of their roles and responsibilities. Employees and employers share common perceptions of responsibility for managing workplace risks. Most of the employees and all employers are more likely to assume that the employer has responsibility for controlling workplace risks. At the same time, employers have pointed out that they expect more responsibility for safety from their employees (that responsibility for safety should be shared). During the focus group interviews, employees have stated that they do not usually discuss health and safety issues with colleagues and do not show actively co-workers' support for safety.

The current study that is in a line with [18]; [30] shows that the positive safety climate enhances not only employees' personal responsibility for safety but also contributes to co-workers' peer support for safety.

- *Safety is integrated into all activities in an organization.*

Results from the study reveal that safety has not been consistently integrated into all activities in the investigated eight SMEs yet. Processes and programs are at various stages of transition, relevant information and existing safety knowledge are generally distributed between different departments which often reduce their effectiveness. In addition, the quality of documentation and processes needs to be controlled and improved in six of the eight SMEs. However, in all of the investigated Estonian enterprises written safety procedures for work operations and safety

instructions were established. Most employers considered the working environment in their enterprise to be safe [16]; [27] and all investigated enterprises have their own written safety guidelines and procedures, but their fulfilment is not periodically updated and monitored.

The issues of the conflict, as part of the culture, were sensitive in all the investigated SMEs. Therefore, it was not recognized, and certainly not openly and honestly acknowledged. The subject related to the possible conflicts between employers and employees or co-worker was regarded as negative and irrelevant and, thus, rejected. This attitude is typical of the organization that does not recognize the positive power of conflict in the innovative and learning process. Essential aspects of the positive safety culture are the managers' commitment, the employees' involvement and the effective SMS [6]. The established SMS has to be a fully integrated part of its general management system in the organization that addresses occupational accident prevention; preparedness and response (see Fig. 3). The SMS should include the organizational structure, practices, procedures and resources for implementing the safety policy. In order to codify personal tacit knowledge into explicit and practical knowledge for all employees within an organization, it is essential that the process of safety knowledge management needs to be acknowledged and valued by the management.

Establishing of the Community of Practice (CoP) can be moderated by an organizational climate (supportive and open reporting culture that is blame-free) and organizational structure (less formalized, less centralized and more integrated) as well as managed.

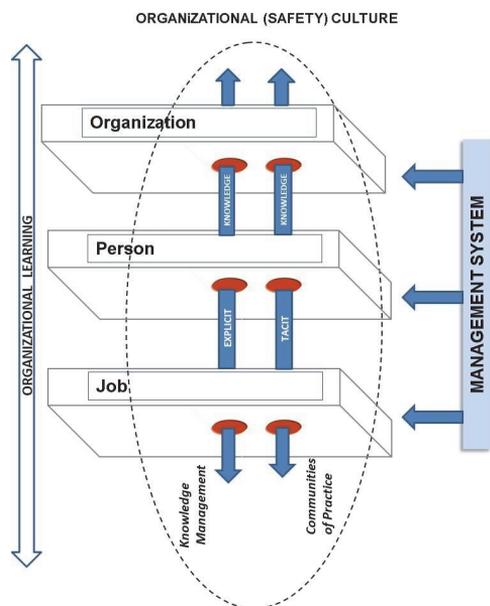


Fig. 3. Tacit and Explicit knowledge management.

- *Safety Culture is learning driven in an organization.*

According to the results from safety survey, safety was not learning driven in the investigated SMEs. Efforts to improve future performance by learning from past performance and experience, and from the day-to-day implementation of the organization's programs and processes are not systematic or recognized to be of high value for an organization.

Efforts have recently been undertaken to provide greater management support and attention to the corrective action plan system in all investigated SMEs, especially for training, not always in the field of occupational health and safety. Our study results have revealed that information, both internal and external, is distributed and communicated throughout the organizations by various mechanisms, e.g., e-mails, pre-job briefs, guidelines, written safety instruction, Intranet, and work orders. Although employees demonstrated good awareness of the risks and safety measures in their work environment, some problems still exist in the transmission, comprehension and implementation of the safety information and knowledge, as well as insufficient and formal safety training provided for employees, especially for the new employees [7]. During workplace visits and the interviews, gaps concerning how safety knowledge is transferred were analyzed. Some safety knowledge transfer barriers found in all investigated enterprises were emphasized, such as lack of time and willingness to share information, language issues and expertise [7]; [27]; [34].

Overall, employees were conscious of the importance of working safely; they did not feel that avoiding responsibility out of fear of being punished was a behavior that was valued within an organization. Nevertheless some skepticism still remains with respect to having a truly blame-free environment. According to the results from focus group discussions with employees, there is also a need to establish an open reporting culture that is blame-free.

Gaps Addressed in the Current Model

There is no survey previously conducted incorporating conflict management as a learning instrument and its possible effect on safety culture and knowledge exchange. Thus, this study fills a key gap in the literature by including this factor. The current study also investigates relationships between employers and employees as well as co-workers, co-workers' peer support for safety and personal responsibility, which is sparsely reviewed in the literature [3], [6], [20], [30], [38].

Limitations

The setting for this study, in particular, made it difficult to identify safety activities and behaviors that would apply to all employees and employers throughout the investigated organizations in the manufacturing sector. In addition, eight case studies (observations, audits) and a limited number of interviews may represent a small sample. Thus, further research with a larger number of people, including safety managers, must be conducted. The results from the current quantitative and qualitative research cannot be generalized to

other small and medium-sized enterprises and play an illustrative role without further research.

Despite these limitations, this study has revealed findings that have both theoretical and practical significance. The implications that these findings have for both safety culture and organizational science research are of particular importance [24]. From a more practical standpoint, it is likely that senior managers can benefit from a balanced approach to safety that includes traditional safety management activities (i.e., management of physical or tangible resources/ assets, such as safer technology, regular audits, hazard identification, proper risk assessment; use of less hazardous chemicals and the elaboration of safe procedures, safety policies and guidelines etc.), but special attention should be devoted to intangible resources/ assets which comprise, what we have called here, the CoP (i.e., employees' capabilities, competence, skills, organizational and safety culture, the company's image, organization's resources, way of action and relationships).

Future Directions

Future research should focus on the understanding of how organizational values are used in an organization and which factors affect their implementation in an organization. More research should be conducted in order to test the proposed model of safety culture and to further validate the survey. Another kind of study approach would be more suitable for probing deeper into safety culture issues at the organizational level, focusing on safety performance and the actual behavior, safety promotion, safety policy and procedures, safety awareness, creation and transfer of safety knowledge. In addition, it would be useful to study how an organization can support collective learning in the field of occupational health and safety as well as identifying the relevant organizational indicators of safety culture, measuring safety culture and organizational values, how these are interrelated and change over time especially in small and medium-sized enterprises. In addition, it would be valuable to obtain information on the safety managers, occupational health specialists, to evaluate the effect of some safe working condition.

IV. CONCLUSIONS

The present study has examined the subjective architecture of safety culture in the Estonian manufacturing sector in terms of the relationship between organizational, psychological and behavioral aspects of safety culture. A conceptually innovative Reciprocal Model of Safety Culture with Knowledge Dimension was tested with a sample of 463 employers, which could allow an in-depth study of the impact of Knowledge Management on the development of safety culture processes as well as describing the relationship between a safety climate and the overall safety culture through the notion of Community of Practice.

An overview of the safety culture in SMEs was evaluated through multiple data collection. The authors present an empirical examination based on a questionnaire survey with a

sample of 463 employers and 1757 employees [24] of the relationship between a safety climate and the overall safety culture with a new dimension – knowledge management. Supportive measures for capturing and analyzing the psychological, behavioral and organizational aspects of safety culture included observations, semi-structured in-depth interviews with senior managers, focus group discussions with employees, document analysis and audits. Eight case studies were undertaken to study how in each case the SMS was integrated into the strategic management system, working environment, formal and real safety, the design of a safety knowledge management system and model of safety culture with knowledge management dimensions, safety information needs as well as information sources.

The results illustrate the importance of a positive safety climate in different aspects of safety culture with a special focus on managing safety knowledge within the organization. Factor analysis was conducted to reduce the identified critical safety climate factors to sixteen for the employees [24] and ten for the employers. It was concluded that the integrated approaches of safety climate assessment in the current study could provide reliable prediction of the level of overall safety culture and real state of safety in manufacturing SMEs. This approach has the potential to improve the understanding of different features in SMS in order to manage safety, knowledge and conflicts.

From a theoretical perspective, this study is one of the first to evaluate safety climate dimensions with a special focus on knowledge management systems as an umbrella for capturing a range of organizational concerns in order to enhance learning and performance in an organization. This study concerns organizational safety culture and the structure or architecture of employees' and employers' attitudes to safety as part of that culture, as well as the ability to learn, which also should mean changes in workers' behavior through establishing communities of practice and conflict management in order to enhance safety culture.

Based on the previous research and the results of the study, it can be concluded that the need for the knowledge-based change in the field of occupational health and safety in Estonia is urgent, which could be also one of the effective and most powerful strategies for organizational development. There is also a need for effective knowledge management training – for a support system in order to provide an organization with strategic advantages and help to develop learning environment which can help create and maintain skills in safety and therefore create the positive safety culture. Based on the surveys, authors emphasize that two main factors in the process of managing of safety knowledge and organizational learning essential for strengthening and enhancement of SMS are: development of communities of practice (gives a possibility for learning and transmitting practical safety knowledge and, thus, for collective learning) and supportive and harmonized safety culture where knowledge-sharing is valued by everyone in an organization.

The authors believe that the presented Reciprocal Model of Safety Culture with Knowledge Management System

Dimensions can assist in the on-going analyses and implementation of a positive safety culture.

Acknowledgements

The authors gratefully acknowledge the valuable comments and suggestions made by Charles Woolfson and assistance provided by Elviira Povel during the elaboration of the article.

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Appendix 7. Interview plan

Appendix 7. Interview plan

Manager Interviews

The participant is expected to describe the decision process associated with the learning, everyday operations in organisation.

- elements of the organisation culture as perceived by the participant
- role-ordered aspects/people involvement (initiation, participation, response)
- steps of the decision process (regarding formation and/or realisation of (safety) strategy, employees' involvement)
- temporal dimension of the process (if possible)
- possible causal relationships among the elements/steps, between members of the organisation
- perceived formality associated with process (strategy communication, strategy documenting, planning-implementation precedence, rewarding)

Introduction (Topic and expectations / Confidentiality, open discussion, notes)

Company information

- Organisational structure, strategies. Organisational history: critical incident
- The most significant change(s) in the past years

Organisational culture. Training, information dissemination, informational sources, commitment and involvement

- Opinion about the ethics and norms. How norms and rules are defined and described (examples, if possible) How organisational culture is expressed in the organisation.
- Safety and health as values (how these issues are taken into account in the organisation. Stories and, examples. The concept 'safety culture' – the possible meaning (example, if possible).
- Motivation for change(s) (organisational culture, politics, strategy). In what sense (example)
- Managers' role in promoting safety culture. Opinion about the statement: "The things to which the managers pay systematic attention will be culture"
- The awareness about the main occupational hazards, health promotion, learning possibilities in the organisation
- Procedures and systems which are in place to ensure organisation's risks assessment and evaluation
- Description of the investigation the working environment (type of audit procedures, risk assessment) and workplace relationships
- Tools to measure safety culture and behaviour.
- Record-keepers (responsibilities, how record-keeping organised – centralised/computerised)

Employee involvement

- Activities, in which employees participate
- Possibilities for feedback/ recommendations
- Description of the mechanism how employees are involved in learning and training programmes; development of the competence
- Perception of employee, attitudes towards
- Representatives, Trade Union
- Training, availability to participate in different courses
- General comments on managing employee morale/motivation system

Relationship between employer and employees, co-workers

- Relationship with employees and employers
- Conflicts (stories and examples)
- Conflict Management and resolutions
- Conflict types
- Co-workers support
- Drivers and barriers
- Stories

Knowledge management (KM). Critical factors for knowledge management

- Information source
- Knowledge management is considered important in the organization
- Perception and opinion of the role of human factor in KM
- Information technology in place for support KM
- Possible barrier for safety knowledge dissemination and transfer (language, time, willingness to share, teamwork, structure in place)
- Training of new employees
- Systems for managing knowledge and learning
- Culture and support for managing collective knowledge in the organization
- Possibility to learn (the quality of training is monitored; there a periodic review of training needs)

Employee, focus group discussion

Introduction (Topic and expectations / Confidentiality, open discussion, notes)

Employee involvement

- Description of the mechanism how employees are involved in learning and training programmes; activities, in which employees participate
- Possibilities for feedback/ recommendations

- Describe, how employees are involved in setting safety standards and rules, accidents investigation and measuring and auditing activities (story, examples)
- Safety representatives, Trade Union
- Safety training, availability to participate in different courses, motivating
- Participation in risk assessment; encouraging and motivation to report unsafe conditions and near-misses, follow the safety rules,

Employer commitment

- Senior management commitment (Does a senior manager participate in health and safety meetings?) Describe how managers/supervisors show interest in safety.
- Regular safety inspections/ monitoring, carried out by managers
- Perception of management attitude towards safety. Safety as an organisational value.
- Review of safety performance (Does senior management receive regular reviews of the safety performance?)

Organisational culture. Relationship between employer and employees, co-workers, conflict management. Awareness

- Conflicts (stories and examples) and Conflict Management, resolutions
- Competence and training; informational sources; Co-operation, communication
- List of activities associated with occupational risk prevention (opinion/evidence for each risk); Relationship with employer/ co-workers
- Organisational culture (*the same topics as for senior managers*)
- Risk factors, safety measures (Personal Protective Equipment, etc.)
- Possibilities to get current information
- Responsibilities, practice, documentation
- Health promotion

Appendix 8. Summary of the articles (Source: compiled by the author)

Original papers	Objective	Relation to thesis research questions	Methods and data	Conclusions and Novelty
<p>I Estonian Managerial Values in Value Systems in Ensuring Sustainability of Organisations</p>	<p>To determine which values are typical of Estonian organisations. To identify where the Estonian organisations are positioned in the value system models. To explore the links between the phenomena such as management values and sustainability as the key factor for organisational success.</p>	<p>This paper responds to the first sub - research question ‘Which is the relationship between management values in Estonian organisations and how they can be placed in the levels of theoretical value systems?’</p>	<p><i>Qualitative:</i> critical discourse analysis in order to identify the managerial values based on articles published in management journals and to place those in the well-known value systems to predict the sustainability of Estonian organisations. Document analysis: issues from 2011 of the business magazine Director</p>	<p>Increased understanding of the context of Estonian management practices and values. The novelty of the practical part of this investigation lies in an attempt to group the propagated management values of the organisations under investigation. This enables to place them better in the levels of theoretical value systems (Mélé’s, Beck and Cowan’s, Schumacher’s value system models). Contributing to the methodology for determinations the real values of organisations by presenting the basis for analysing whether the real values of organisations support the sustainability and success of organisations.</p>
<p>II Change of Management Values in Estonian Business Life in 2007-2009</p>	<p>To explore change of management values in Estonian business life that occur in the year of the rapid growth (2007) as compared with the year of hard decline (2009). To examine the role of corporate social responsibility in organisations’ sustainability.</p>	<p>This paper responds to the second sub - research question ‘What characterises the change of management values in Estonian organisations that emerged in the year of the rapid growth (2007) as compared with the year of economic crisis (2009)?’</p>	<p><i>Qualitative:</i> document analysis (business magazine Director 2007 and 2009 issues); critical discourse analysis (the change of management values, such as: innovation and creativity, risk-taking, teamwork, motivation and valuing the employee, crisis management)</p>	<p>Increased understanding of the changes of management values occurring in the period of 2007-2009 in the context of economic crisis. Providing knowledge on the influence of economic crisis to an organisation, management, to working environment and valuing the employee, innovation and creativity, teamwork, risk-taking, the managers’ attitudes, shared values (particular, the need for knowledge management and learning as a value) and stability (continuity) of values in Estonian organisations.</p>

Original papers	Objective	Relation to thesis research questions	Methods and data	Conclusions and Novelty
<p>III Propagated and Real Values in Estonian Organisations According to Conflict Analysis. International Business – Baltic Business Development</p>	<p>To demonstrate the differences between propagated and real values in Estonian organisations. To explore the possibility to use conflict analyses for estimating, which are the real (shared) values of organisation.</p>	<p>This paper was developed to answer the third sub-research question ‘<i>What is the role of conflict management (particular, conflict analysis) in revealing the organisation’s general status and real values?</i>’</p>	<p><i>Qualitative:</i> case study (60 cases of conflicts descriptions). Critical discourse analyses (issues from 2011 of the business magazine Director)</p>	<p>Providing knowledge on the propagated and real management values in Estonian organisations and comparing with Melé’s values system. Increased understanding of the real values in Estonian organisations.</p>
<p>IV Formal Safety Versus Real Safety: Quantitative and Qualitative Approaches to Safety Culture – Evidence from Estonia</p>	<p>To explore differences between propagated (formal) and real values in Estonian SMEs on the example of safety culture; to propose alternative approaches to improvement of safety culture - through managing the social capital and management of the collective knowledge, which enables to reduce gaps between propagated and real values.</p>	<p>This article aimed to tackle the fourth sub - research question ‘<i>How are real and propagated management values realised practically in Estonian SMEs based on the example of safety culture?</i>’</p>	<p><i>Qualitative:</i> case study, interview data from eight SMEs (semi-structured interview with 8 senior managers and focus group interview with 22 workers), document analysis (media and company homepages); <i>Quantitative:</i> a sample of 463 employers and 1757 employees from ten industries (source: Statistics Estonia, 2009)</p>	<p>Providing knowledge-based evidence on existing management values, particular concerning safety, as an example, in Estonian organisations. Contributing to the theory of organisational (safety) culture by analysing social capital and workplace conflicts as a part of that culture. Emphasising the importance of collective knowledge and learning. Contributing to the methodology in terms of organisational culture research by applying quantitative and qualitative approaches, which allows the capture and in-depth analysis of organisational, behavioural and psychological aspects of organisational (safety) culture.</p>

Original papers	Objective	Relation to thesis research questions	Methods and data	Conclusions and Novelty
<p>V Knowledge Management: a neglected dimension in discourse on safety management and safety culture – evidence from Estonia</p>	<p>To propose a theoretical model for a positive safety culture with a KM dimension and to test this on a sample of 1757 employees. To explore the possibility of using collective knowledge and conflict management in the discourse on safety management system and organisational (safety) culture.</p>	<p>This paper responds to the fifth sub-research question <i>'Which is the relationship between organisational culture and knowledge management in Estonian SMEs?'</i></p>	<p><i>Quantitative:</i> a sample of 1757 employees from ten industries (source: Statistics Estonia, 2009)</p>	<p>Presenting an innovative conceptual model for the positive safety culture, which served as a basis to develop a questionnaire which can be used as an effective management tool for conflict management. Proposed model incorporates both conflict management as a learning instrument (and it enables impact on safety culture and collective knowledge) as well as knowledge management.</p>
<p>VI Managers' perceptions of organisational safety: implication for the development of safety culture</p>	<p>To explore management and shared employees' values in Estonian organisations. To investigate relationships between employers and employees, co-workers, co-worker peer support in regard to safety. To test the proposed model with a focus on knowledge management and conflict management as learning instruments.</p>	<p>This paper answers the last sub-research question: <i>'How does general management system reflect both conflict management and knowledge management as learning instruments in order to enhance safety behaviour within the Estonian manufacturing SMEs?'</i></p>	<p><i>Qualitative:</i> case study, semi-structured interviews and focus group interviews; document analysis, observation. <i>Quantitative:</i> a sample of 463 employers from ten industries (source: Statistics Estonia, 2009)</p>	<p>Providing knowledge on the relationships of different aspects of organisational (safety) culture and shared values among members in Estonian organisations.</p>

Appendix 9. Comparison of the Values Found in the Current Research with the Values in Scientific Literature

Appendix 9. Comparison of the Values Found in the Current Research with the Values in Scientific Literature

Management Values in Scientific Literature	Propagated Management Values	Real Management Values
<p><u>Ethical values:</u> Fairness Equal opportunity Justice Honesty Responsibility Truthfulness Trust Valuing of employees Respect, person's self respect Confidence</p> <p><u>Work-related values:</u> Fun Challenge Community Family Safety as value Flexibility Ability to thrive Quality of organisation's Product and service Innovation Learning Security</p>	<p><u>Ethical values:</u> Trust Appreciation of employee Honesty Social responsibility</p> <p><u>Work-related values:</u> Innovation Creativity Communication Fixity of purpose Flexibility Risk-taking Openness Enterprisingness Cooperation Motivation Client Orientation Teamwork Valuing the values Learning and development Efficiency</p>	<p><u>Ethical values:</u> Support Trust Friendliness</p> <p><u>Work-related values:</u> Good microclimate Cooperation Helpfulness Competency Quality Shared goals</p>

Source: compiled by the author based on survey results

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3. Hariduskäik

Õppeasutus (nimetus lõpetamise ajal)	Lõpetamise aeg	Haridus (eriala/kraad)
Tallinna Tehnikaülikool	Oodatav 2014	Ärikorraldus, filosoofiadoktor
Tallinna Ülikool	1992	Teoreetiline füüsika, magistrikraad (MSc)
Tallinna Ülikool	1992	Suhtlemistreener (võrdsustatud magistrikraadiga)
Tartu Ülikool	1980	Psühholoogia (võrdsustatud magistrikraadiga)
NSVL Landau nim. Teoreetilise Füüsika Instituut	1969	Teoreetiline füüsika (võrdsustatud magistrikraadiga)
Tartu Ülikool	1963	Teoreetiline füüsika (võrdsustatud magistrikraadiga)

4. Keelteoskus (alg-, kesk- või kõrgtase)

Keel	Tase
Eesti	kõrgtase
Vene	kõrgtase
Inglise	kesktase
Saksa	kesktase

5. Täiendõpe

Õppimise aeg	Täiendusõppe läbiviija nimetus
2013-2014	Kursus: "The Art and Science of Coaching", Erickson College International, 128 t.
Mai, 2010	Research Design: An Overview, 12 t, õppejõud Samuel R. Mathews, Tallinna Ülikool, Tallinn
Juuni-august, 2006	Kursus: "Kunstiteraapia teooria ja meetodid", õppejõud Victoria Schultz, 240 t, Tallinna Ülikool, Tallinn
2006, 2007	"Õppepraktika juhendamine", Tallinna Ülikool, Tallinn

6. Teenistuskäik

Töötamise aeg	Tööandja nimetus	Ametikoht
Alates 2008	Eesti Ettevõtluskõrgkool Mainor	Lektor
Alates 1998	Estonian Business School (EBS)	Lektor
Alates 1994	Tallinna Tehnikaülikool	Lektor
Alates 1994	Helvetia Balti Partnerid (HBP)	Õppejõud-koolitaja
1992 - 1994	Tallinna Pedagoogika Ülikool	Rakendusfüüsika õppetooli dotsent
1976 - 1992	E.Vilde nim Tallinna Pedagoogiline Instituut	Dekaan, vanemõpetaja
1974 - 1976	Teadus- ja Tehnikainformatsiooni ning Majandusuuringute Insituut	Vanemteadur
1963 - 1974	ENSV TA Termofüüsika ja Elektrofüüsika Insituut	Teadur

7. Teadustegevus

(1) Artiklid rahvusvahelistes ajakirjades või artiklikogumikes (valitud)

Virovere, A., Kooskora, M., & Valler, M. (2002). Conflict as a Tool for Measuring Ethics at Workplace. *Journal of Business Ethics*, 39(1-2), 75 - 81 (ETIS 1.1)

Virovere, A., Titov, E., & Meel, M. (2011). Change of Management Values in Estonian Business Life in 2007-2009, *Chinese Business Review*, 10 (11), 1028-1042 (ETIS 1.2)

Virovere, A., Titov, E., Kuimet, K., & Meel, M. (2013) Propagated and Real Values in Estonian Organisations According to Conflict Analysis. *International Business – Baltic Business Development*, Prause, G., Venesaar, U., Kersten, W (eds.). Peter Lang GmbH: 107-124. (ETIS 3.1)

Titov, E; **Virovere, A**; Meel, M., & Kuimet, K. (2013). Estonian Managerial Values in Value Systems in Ensuring the Sustainability of Organizations. *Journal of Management and Change*, 66 - 81. (ETIS 1.2).

Järvis, M., **Virovere, A.**, & Tint, P. (2015). Formal Safety Versus Real Safety: Quantitative and Qualitative Approaches to Safety Culture – Evidence from Estonia. *Proceedings of the Latvian Academy of Sciences* (forthcoming, ETIS 1.1).

Järvis, M., **Virovere, A.**, & Tint, P. (2014) Knowledge Management – a Neglected Dimension in Discourse on Safety Management and Safety Culture – Evidence from Estonia. *Scientific Journal of Riga Technical University, Safety of Technogenic Environment*, 5, 5-17. (ETIS 1.2)

Järvis, M., **Virovere, A.**, & Tint, P. (2014). Managers' Perceptions of Organisational Safety: Implication for the Development of Safety Culture. *Scientific Journal of Riga Technical University, Safety of Technogenic Environment*, 5, 18-28. (ETIS 1.2).

Valler, M., & **Virovere, A.** (2010) Structural Capital as the Success Factor, Using Intellectual Capital to Increase the Competitiveness, *LAP Lambert Academic Publishing*.

Kooskora, M., Ennulo, J., & **Virovere, A.** (2005). Developing an Awareness of and Teaching Business Ethics in Emerging Societies — The Case of Estonia. *Journal of Business Ethics Education*, 2, 29 - 50. (ETIS 1.2).

Virovere, A., Kooskora, M., & Valler, M. (2002). Coping in the 'Global' Era. *EBS review*, 13, 46 - 52. (ETIS 1.2).

Virovere, A., Kooskora, M., & Valler, Martin (2001). Ethics at the Workplace as the Success Factor in the Information and Communication Society, based on the Study of Conflicts in Estonian Companies. *EBS review*, 13, 35 - 41. (ETIS 1.2).

(2) Artiklid konverentsikogumikes (valitud)

Virovere, A., & Rihma, M. (2009) Ethics Auditing and Conflict Analysis as Management Tools. Working Paper in Economics, Vol.26 pp. (ETIS 3.4)

Salla, S., Perens, A., **Virovere, A.**, & Leppiman, A. (2013). Projekti- ja protsessijuhtimise käsiraamat (1999-2013). *Tallinn: Äripäeva Kirjastus* (ETIS 3.3)

Rihma, M., & **Virovere, A.** (2008). Ethics Auditing and Conflict Analysis as Management Tools. *Working Papers in Economics*, 67 - 79. Tallinn: Tallinna Tehnikaülikooli Kirjastus (ETIS 3.3)

Salla, S., Perens, A., Vaikmaa, P., Sillaots, M., Siitam, N., **Virovere, A.**, Leppiman, A., & Teesalu, I. jt. (2005). Projektijuhtimise käsiraamat. *Tallinn: Äripäeva Kirjastus* (ETIS 3.3)

Perens, A., **Virovere, A.**, Leppiman, A., Teesalu, I., & Link, S. (1999). Projektijuhtimise käsiraamat (ETIS 3.3)

Perens, A., **Virovere, A.** & Leppiman, Anu (1999). Projektijuhtimise käsiraamat. (ETIS 3.3)

Titov, E., **Virovere, A.**, Kuimet, K. & Meel, M. (2012). "Estonian Managerial Values in Value Systems in Ensuring Sustainability of Organisations. 25th EBEN Annual Conference "Work, Virtues and Flourishing", Barcelona, 20-22.09.2012. (ETIS 3.4)

Virovere, A., Titov, E. & Meel, M. (2010). Change of Management Values in Estonian Business Life in 2007-2009. In: www.eben-ac2010.itCorporate Social: 23rd EBEN Annual Conference: WHICH VALUES FOR WHICH ORGANISATIONS, Trento, 9-11 September, 2010.. (ETIS 3.4)

Virovere, A., & Rihma, M. (2009). Ethics Auditing and Conflict Analysis as a Management Tools. 22nd EBEN Annual Conference, Athens, Greece. 10.-12.09.2009. , 2009. (ETIS 3.4)

Tafel, K., Virovere, A., Alas, R. (2005). The apparent absence of conflict between owners and top managers in the context of social responsibility. Chemnitz VII East Forum, 14-16 September, Chemnitz, Germany. , 2005. (ETIS 3.4)

Ennulo, J., & Virovere, A. (2002). Ethical Values As Regulators In Conflict Solving Process. 15th Annual EBEN Conference and European Ethics Summit "sustaining Humanity Beyond Humanism", Brussels. , 2002. (ETIS 3.4)

Virovere, A. & Liigand, J. (2004). Ethics as Criteria of Decision Making. International conference Human Awareness and Behavior in Changing World, Tallinn, 14-15.10.2004. Tallinn:, 2004. (ETIS 3.5)

(3) Konverentsi ettekanded: töö tulemused on esitatud 14 rahvusvahelisel konverentsil

8. Juhendatud magistritööd

Anu Virovere on juhendanud rohkem kui 50 magistritööd erinevates ülikoolides (Estonian Business School, Tallinna Tehnikülikool) teemadel:

- The importance of intelligence in organizational context
- Reputation management using integrated communication
- Corporate responsibility in supply chain: the case of forest industry in Estonia
- Konfliktid organisatsioonis ja nende seos organisatsiooni efektiivsusega
- Methods of raising empowerment index of the organization on the basis of Ericsson Eesti AS
- Ethical aspects of decision-making
- Knowledge management, serving the intellectual capital of learning regions
- Conflict resolution from human resources prospective
- Innovation management through structural capital Itella Eesti AS
- The role of internal marketing in a company: based on the example of EBS
- Change in the concept of power in a modern organization
- Importance of leaders' competences and personal traits in knowledge based economy
- Internal branding: creating brand through people
- Internal communication as a key factor for successful business example of AGA Region Europe North
- Motivation, working efficiency and customer relations in a leasing company (on the example of one leasing company)
- The role of corporate social responsibility in business strategies of large companies in Estonia
- Forming of personnel strategy in base of Nordika Insurance Company
- Promotion without advertising in pharmaceutical companies in relation with code of practice
- Conducting as managerial art and its implementation practices
- Conflict between chief executive and owners - is it unavoidable?

9. Teadustöö põhisuunad

Ärietiika uuringud, konfliktid organisatsioonis, juhtimisväärtused, organisatsiooni kultuur, strateegiline eestvedamine

CURRICULUM VITAE

1. Personal data

Name Anu Virovere
Date and place of birth 13.01.1940, Tartu

2. Contact information

Address Suur-Sõjamäe 10a, Tallinn 11415, Eesti
Phone +372 56 647 467
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3. Education

Educational institution	Graduation year	Education (field of study/degree)
Tallinn University of Technology	Expected 2014	Business Administration, Doctor of Philosophy
Tallinn University	1992	Theoretical Physics, a Master's degree (MSc)
Tallinn University	1992	Communication Trainer, equivalent to a master's degree
University of Tartu	1980	Psychology, equivalent to a master's degree
USSR Landau Institute of Theoretical Physics	1969	Theoretical Physics, equivalent to a master's degree
University of Tartu	1963	Theoretical Physics, equivalent to a master's degree

4. Language competence/skills (fluent; average, basic skills)

Language	Level
Estonian	fluent
Russian	fluent
English	average
German	average

5. Special Courses

Period	Educational or other organisation
2013-2014	Course: "The Art and Science of Coaching", Erickson College International, 128 h.
May, 2010	Research Design: An Overview, lecturer Samuel R. Mathews, 12 h, Tallinn University

June-august, 2006	Course: “Art Therapy Theory and Methods”, lecturer Victoria Schultz, 240 h, Tallinn University
2006, 2007	“Traineeships Mentoring”, Tallinn University

6. Professional Employment

Period	Organisation	Position
Since 2008	Estonian Entrepreneurship University of Applied Sciences	Lecturer
since 1998	Estonian Business School (EBS)	Lecturer
Since 1994	Tallinn University of Technology	Lecturer
Since 1994	Helvetia Balti Partners (HBP)	Lecturer - trainer
1992 - 1994	Tallinn Pedagogical University	Associate Professor of the Chair of Applied Physics
1976 - 1992	E.Vilde Tallinn Pedagogical University	Dean, Senior Lecturer
1974 - 1976	Science and Technology Information Institute of Economic Research	Senior Researcher
1963 - 1974	SSR Institute of Thermal- and Electro Physics	Researcher

7. Scientific work

(1) Articles in international journals or in collection of articles (selected)

Virovere, A., Kooskora, M., & Valler, M. (2002). Conflict as a Tool for Measuring Ethics at Workplace. *Journal of Business Ethics*, 39(1-2), 75 - 81 (ETIS 1.1)

Virovere, A., Titov, E., & Meel, M. (2011). Change of Management Values in Estonian Business Life in 2007-2009, *Chinese Business Review*, 10 (11), 1028-1042 (ETIS 1.2)

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(2) Articles in conference presentations (selected)

Virovere, A., & Rihma, M. (2009) Ethics Auditing and Conflict Analysis as Management Tools. Working Paper in Economics, Vol.26 pp. (ETIS 3.4)

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Rihma, M., & **Virovere, A.** (2008). Ethics Auditing and Conflict Analysis as Management Tools. *Working Papers in Economics*, 67 - 79. Tallinn: Tallinna Tehnikaülikooli Kirjastus (ETIS 3.3)

Salla, S., Perens, A., Vaikmaa, P., Sillaots, M., Siitam, N., **Virovere, A.**, Leppiman, A., & Teesalu, I. jt. (2005). Projektijuhtimise käsiraamat. *Tallinn: Äripäeva Kirjastus* (ETIS 3.3)

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Virovere, A., Titov, E. & Meel, M. (2010). Change of Management Values in Estonian Business Life in 2007-2009. In: www.eben-ac2010.itCorporate Social: 23rd EBEN Annual Conference: WHICH VALUES FOR WHICH ORGANISATIONS, Trento, 9-11 September, 2010.. (ETIS 3.4)

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Tafel, K., Virovere, A., Alas, R. (2005). The apparent absence of conflict between owners and top managers in the context of social responsibility. Chemnitz VII East Forum, 14-16 September, Chemnitz, Germany. , 2005. (ETIS 3.4)

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Virovere, A. & Liigand, J. (2004). Ethics as Criteria of Decision Making. International conference Human Awareness and Behavior in Changing World, Tallinn, 14-15.10.2004. Tallinn:, 2004. (ETIS 3.5)

(3) Conference presentations: the study results were presented by the author in 14 international scientific conferences

8. Master thesis supervision (1998-2014)

Anu Virovere has supervised more than 50 master thesis (at the Estonian Business School and Tallinn University of Technology). The main topics were as follow:

- The importance of intelligence in organizational context
- Reputation management using integrated communication
- Corporate responsibility in supply chain: the case of forest industry in Estonia
- Konfliktid organisatsioonis ja nende seos organisatsiooni efektiivsusega
- Methods of raising empowerment index of the organization on the basis of Ericsson Eesti AS
- Ethical aspects of decision-making
- Knowledge management, serving the intellectual capital of learning regions
- Conflict resolution from human resources prospective
- Innovation management through structural capital Itella Eesti AS
- The role of internal marketing in a company: based on the example of EBS
- Change in the concept of power in a modern organization
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- The role of corporate social responsibility in business strategies of large companies in Estonia
- Forming of personnel strategy in base of Nordika Insurance Company
- Promotion without advertising in pharmaceutical companies in relation with code of practice
- Conducting as managerial art and its implementation practices
- Conflict between chief executive and owners - is it unavoidable?

9. Main areas of scientific work/Current research topics

Business Ethics, Conflict Management, management values, Organizational Culture, Strategic Leadership

ACKNOWLEDGEMENTS

Writing a dissertation is a very difficult challenge and a doctoral student needs support and help in order to fulfil such task. I have received advice, support and help from so many my colleagues.

First, I would like to acknowledge the endless support of my family. I will to thank my daughter Maarja-Dii and son Lemmo with their families, my sisters and their families who always trusted me when I had doubts.

I would like to express my gratitude to my supervisors and co-authors for their dedication, guidance, assistance and encouragement in writing this thesis. I want to thank Associate Professor Mari Meel for her commitment, support and for many valuable discussions. I express my sincere thanks to Associate Professor Marina Järvis for her inspiration, encouraging and honourable advice while developing this thesis. The completion of the thesis is due largely to her perseverance and dogged commitment to excellence.

I would like to express my deepest thanks to Professor Ruth Alas for her support, encouragement, cooperation, advice and for being a mentor and an example for me in the new researches and scientific achievements.

I also greatly appreciate and acknowledge Professor Urve Venesaar, Professor Ene Kolbre, Professor Katrin Paadam, Professor Piia Tint, Professor Maksim Saat, Associate Professor Mike Franz Wahl for their valuable advice, time and significance in my work.

Work at the university would not have been as enjoyable without the many colleagues here. First, I wish to express my thank to Linda Heinsaar, Elviira Povel and Anna Varkki for their extraordinary support, assistance and friendship. I also wish to convey my thanks to Professor Anu Leppiman and all my colleagues at the Chair of Marketing for the long-term cooperation.

I would like to thank Anu Lehing, Mare-Anne Laane and Evelin Povel-Puusepp for their help with revising the language of this thesis.

I gratefully acknowledge the Tallinn University of Technology and the School of Economics and Business Administration for providing me with this opportunity and help over the years while completing this project. I would also like to thank Dean Üllas Ehrlich and Vice-Dean Toomas Piliste and other colleagues at the School of Economics and Business Administration: Department of Business Administration.

Tallinn, December 2014
Anu Virovere

KOKKUVÕTE

Juhtimisväärtuste, teadmusjuhtimise ja konfliktijuhtimise roll organisatsiooni jätkusuutlikkuse tagamiseks

Majanduskriisi järgne majanduse arengu aeglustumine tõstatab olulise küsimuse sellest, kuidas sotsiaalselt vastutustundlik käitumine ja eetilistest põhimõtetest kinnipidamine võiksid aidata organisatsioonidel täita oma kohustusi nii ühiskonna kui ka sidusgruppide (*stakeholders*) ees (Andreas *et al.*, 2012). See sunnib organisatsioone endilt küsima, millised peavad olema väärtused organisatsiooni jaoks ja milline peab olema organisatsioon, et ta oleks jätkusuutlik ja eetiline.

Kahekümne esimest sajandit iseloomustavad kiired muutused, mis toovad kaasa vajaduse pidevaks õppimiseks, arenguks ja töötajate kaasamiseks muutustesse (Mazzei & Quarantino, 2013). Organisatsiooni ülesehitusest ja väärtustest sõltub, kui efektiivselt suudetakse oma töötajate teadmisi kasutada; kas töötajad saavad oma loovust organisatsiooni heaks rakendada või mitte (Jaakson *et al.*, 2009). Muutustega kaasnevad uued väljakutsed organisatsioonide juhtidele; ümber tuleb kujundada juhtimisväärtused. Selleks, et organisatsioon oleks edukas ja jätkusuutlik, vajab ta selgeid ja täpselt defineeritud väärtusi, mis innustaksid ja motiveeriksid kõiki töötajaid (Peter & Waterman, 1982). Vaatamata kasvavale huvile juhtimisväärtuste, konfliktijuhtimise ja teadmusjuhtimise vastu, seostatakse vaid üksikutes uuringutes konfliktijuhtimist võimalusega muuta organisatsiooni kultuuri ning väärtusi. Samuti on pööratud vähe tähelepanu teadmusjuhtimise kasutamisele kollektiivsete teadmiste loomiseks inimeste vaiketeadmiste (*tacit knowledge*) vahetamise kaudu (Ramirez *et al.*, 2011). Vähe on pööratud tähelepanu konfliktile kui kollektiivse õppimise võimalusele ja konfliktide seosele juhtimise ning juhtimisväärtustega. Konfliktide analüüsi saab kasutada ka diagnoosi vahendina organisatsiooni seisundi hindamiseks ja vajalike muudatuste määramiseks. Autori arvates annab konfliktide juhtimise ning teadmusjuhtimise koosrakendamine võimaluse vähendada vahet reaalsete ja levitatavate (propageeritavate) juhtimisväärtuste vahel.

Doktoritöö eesmärk on uurida juhtimisväärtuste, konfliktijuhtimise ja teadmusjuhtimise rolli ning tähtsust organisatsiooni jätkusuutlikkuse ja tõhususe jaoks ning siduda konflikti- ja teadmusjuhtimine ühtsesse juhtimissüsteemi. Juhtimisväärtused, mille on organisatsiooni töötajad omaks võtnud, kujundavad organisatsiooni kultuuri, määravad ära töötajate käitumise, nende rahulolu tööga ning suhted nii organisatsiooni sees kui ka väliste sidusgruppidega (Tuulik *et al.*, 2013; Vadi & Türk, 2009; Schumacher, 1973; Valler & Virovere, 2010). Organisatsiooni

jätksuutlikkus on otseselt seotud töö ja töötingimustega, juhtimissüsteemi ja väärtustega, millest lähtutakse otsuste tegemisel (Westgaard & Winkel, 2011; Collins & Porras, 2003; Khazanchi *et al.*, 2007). Eesti organisatsioonide empiirilised uuringud näitavad, et valmisolek muudatusteks ja võime nendega kaasa minna sõltuvad eelkõige eetilistest ja äri-ideoloogilistest väärtustest (Alas, 2009). Käesolevas töös uuritakse, kuidas teadmusjuhtimise ning konfliktijuhtimise kaudu põhiväärtusi muuta nii, et organisatsiooni propageeritavad väärtused muutuksid reaalseks väärtusteks, oleksid aluseks otsustamisel ja käitumisel ning annaksid võimaluse teha õigeid valikuid.

Eesmärgi saavutamiseks püstitas autor järgmise uurimisküsimuse: kuidas kasutada konflikti- ja teadmusjuhtimist selleks, et minimeerida reaalse ning propageeritavate juhtimisväärtuste vahelisi erinevusi, kindlustades sellega organisatsiooni jätkusuutlikkuse ja tõhususe ning ühtlasi parendades organisatsiooni (ohutus-) kultuuri. Doktoritöö põhineb kuuel teadusartiklil, mis lahendavad peamisest uurimisküsimusest loogiliselt väljakasvavaid konkreetseid uurimisülesandeid: uurida, kuidas paigutuvad Eesti organisatsioonide juhtimisväärtused teoreetiliste väärtussüsteemide erinevatele tasemetele ja kas nad on püsivad või muutuvad; kuidas määrata organisatsiooni seisundit ja reaalseid juhtimisväärtusi konfliktide analüüsi kaudu ja kontrollida kahe erineva väärtuse (reaalse ja levitatava) olemasolu ohutuskultuuri näitel Eesti väikestes ja keskmistes ettevõtetes; kuidas on seotud organisatsiooni kultuur ja teadmus- ning konfliktijuhtimine nimetatud ettevõtetes; kuidas kasutab ühtne juhtimissüsteem konflikti- ja teadmusjuhtimist vahendina õppimiseks ja organisatsiooni (ohutus-)kultuuri parendamiseks. Uurimisobjektiks antud töös olid levitatavad ja reaalsed juhtimisväärtused, organisatsioonikonfliktid, organisatsiooni kultuur ja mikrokliima. Töö filosoofiliseks aluseks on konstruktivism, mis väidab, et inimene kogeb maailma pideva aktiivse tegevuse kaudu (Flick, 2004; Laherand, 2008) ja sobib seetõttu antud uurimisobjektide paremaks mõistmiseks. Töös rakendatakse teadusliku meetodina tõlgendust; uurimisküsimustele vastamiseks on kasutatud nii kvalitatiivset uurimismeetodit (meetodite, teooriate, andmete triangulatsioon) kui ka kvantitatiivset uurimismeetodit. Triangulatsiooni kasutati nii andmeallikate, andmeanalüüsi kui ka andmekogumismeetodite põhiselt. Kvantitatiivsetes analüüsides kasutati kirjeldavat statistikat (*descriptive statistics*) ja faktoranalüüsi (*exploratory factor analysis*). Doktoritöös kasutatav strateegia on juhtumiuuring (*case study*), kuna see annab võimaluse säilitada sündmuste tõelisust ja terviklikkust.

Töös kasutatakse nii esmaseid kui ka teiseid andmeid. Andmete saamiseks kasutati juhtumiuuringuid, poolstruktureeritud intervjuud (*semi-*

structured) ja rühmaintervjuusid ning küsimustikke. Toetavateks uurimismeetoditeks olid dokumentide ja meediaanalüüs ning vaatlused. Kasutatud kvantitatiivse analüüsi eesmärk oli uurida tööandjate ja töötajate hoiakuid, eriti nende hoiakuid tööohutuse suhtes, väärtushinnanguid, konfliktide lahendamist, õppimist ja informatsiooni kättesaadavust, koostöö ja meeskonnatöö võimalusi ning töötajate kaasamist otsustamisse. Lähtudes töös püstitatud eesmärgist ja uurimisülesannetest jõuti järgmiste tulemusteni: organisatsioonikultuuri ja juhtimisväärtuste muutmine on võimalik organisatsiooni mikrokliima kaudu, kasutades konflikti- ja teadmusjuhtimist kui õppimisvahendeid ning muutes keelekasutust, seda, kuidas me midagi nimetame ja väärtustame ning muutes protseduure ja protseduuriereegleid.

Uurimistöö teoreetiline panus seisneb konflikti- ja teadmusjuhtimise rolli kontseptuaalses selgitamises ning nende ühendamises ühtsesse juhtimissüsteemi, selleks et vähendada fragmenteeritust (killustatust) organisatsiooni juhtimises (*publikatsioonid I-VI*). Doktoritöö peamine panus on innovaatilise kontseptuaalse juhtimismudeli väljatöötamine positiivse organisatsiooni- (ohutus-)kultuuri loomiseks, olles aluseks küsimustike või kontroll-lehtede koostamisel. See annab organisatsioonide juhtidele töövahendi oma organisatsiooni kultuuri, väärtuste ja mikrokliima analüüsimisel ning teadmus- ja konfliktijuhtimise kui õppimisinstrumendi kasutamisel (*publikatsioonid V-VI*). Metodoloogiline panus on organisatsiooni reaalsete ja propageeritud juhtimisväärtuste, reaalse ning formaalse ohutuskultuuri eristavate meetodite väljatöötamine (*publikatsioonid I-IV*). Uurimistöö panusena tõestati empiirilisel, et organisatsioonide reaalsed ja propageeritavad juhtimisväärtused on erinevad, samuti on erinev reaalne ja formaalne ohutuskultuur (*publikatsioonid III-V*).

Praktilise osa uudsus seisneb samuti tehnika andmises organisatsiooni juhtimisväärtuste paigutumise uurimiseks erinevate teoreetiliste väärtussüsteemide erinevatele tasemetele, et selle kaudu hinnata organisatsiooni jätkusuutlikkust. Sydänmaanlakka (2005, 189) väidab, et kriitilised edutegurid iga organisatsiooni jaoks on kiirus, paindlikkus, integratsioon ja innovatsioon. 21. sajandil on innovatsioon kollektiivne, nõuab koosõppimist ning sellist organisatsioonikultuuri ja struktuuri, kus teadmised on jagatud ja koosõppimine võimalik. Edaspidistes uuringutes peab keskenduma sellele, kuidas juhtimisväärtusi organisatsioonides, eriti väikestes ja keskmistes ettevõtetes, rakendada. Teiseks oluliseks jätku-uuringuks on konkreetsete vahendite ja tehnikate leidmine, mille kaudu saab juhtide propageeritavaid väärtusi muuta reaalseks ja formaalset ohutuskultuuri muuta töötajate reaalseks käitumiseks.

ABSTRACT

The Role of Management Values, Knowledge Management and Conflict Management for Improving Organisational Sustainability

Knowledge, information and creative thinking are the most important values of each organisation (Ramirez *et al.*, 2011). The twenty-first century is characterised by rapid change, leading to the need for continuous learning and development. All these changes present new challenges for managers, leading to the need to redesign and transform the management values.

Despite the growing interest in management values, knowledge management and conflict management, only a few studies (De Dreu *et al.*, 1997; Jehn, 1994; Valler & Virovere, 2010) have covered the area of the possible impact of organisational conflict on organisational culture, on exchange of tacit and explicit knowledge, thus on collective learning. In addition, relatively little is known about the combination of these aspects and organisation's needs in order to ensure an organisational culture, which enables effective knowledge management, cooperation and collective learning. This, in turn, enables to diagnose the warning signals of issues that need to be improved and to be ready for changes and developments in an organisation. Reviews of organisational values surveys have identified some common constructs related to management values, however, sometimes the assessment of these values is unclear - are these propagated management values or real values. The author assumes that it is possible to minimise the discrepancies between real and propagated values with effective conflict management and knowledge management.

The aim of the current thesis is to enhance the understanding of the role and importance of management values, knowledge management and conflict management in improving the organisational effectiveness and sustainability. The study focuses on how conflict management and knowledge management, as parts of the general management system, can be used for binding individual and collective learning with the goal to modify and reflect values and norms in order to integrate them into organisation's processes and structures. The result of the study offers a new approach to making the change in an organisation and developing conflict management and knowledge management as fully integrated parts of the general management system. The study proposes a practical management tool, which incorporates both conflict management and knowledge management as learning instruments (and their possible effects on organisational culture

and collective knowledge). In order to ensure organisational sustainability and to integrate sustainability aspects into the daily business of corporations in the long run, the organisation has to be changed, for example, the organisational culture has to be developed towards sustainability, which also includes work organisation, working environment, decision-making based on management system and values (Westgaard & Winkel, 2011; Collins & Porras, 2003; Khazanchi et al., 2007). Empirical studies of Estonian organisations indicated the willingness to go along with those changes, and the ability to depend primarily on the ethical and ideological values of the business (Alas, 2009). The collection of six scientific articles included in this thesis have been linked with the main research question: how can conflict management and knowledge management be used in minimising discrepancies between real and propagated management values in order to ensure sustainability and effectiveness of an organisation as well as to improve organisational (safety) culture? The tasks of the doctoral thesis are incorporated in the six papers. Each of the selected publications cover and elaborate on a range of aspects related to the importance of management values, conflict management and their relation to organisational sustainability and effectiveness as well as to organisational culture. The research objects are real and propagated management values, organisational conflicts, organisational culture and climate. The philosophical basis of the study is constructivism, which emphasises people's daily routine activities and the social construction of reality (Flick 2004; Laherand, 2008). The research is descriptive, attempts to provide an understanding of the real and propagated management values, as well as the role of the conflict and knowledge management in an organisation. The current study adopted a multi-method approach, using multiple case studies. The study used triangulation forms related to the use of different data collection methods within one study, to the data (cross-checking information by using multiple empirical sources) as well as to data analysis (several researchers examined the materials). The current study relied on the analysis of the published articles in the business magazine *Director* (in issues of 2007-2009, 2011), collected 60 cases of conflict descriptions and relevant supplementary documents such as organisational and safety strategy and policy, plan and instructions, safety procedures and inspections, incidents and accident investigations, training and meeting records. The empirical study was conducted in eight Estonian manufacturing SMEs from different sectors of economy. The main research methods were document analysis (critical discourse analysis), sixteen interviews with managers, eight focus group discussions with employees and evaluation questionnaires. In addition, on-site observations, media and company's homepage analysis were conducted.

The secondary data were also acquired from a national Work Environment Questionnaire survey conducted by Statistics Estonia in 2009, which comprises a sample of 463 employers and 1757 employees who filled in the questionnaires. For data analyses, descriptive statistical methods and factor analyses were applied. In terms of results, the findings enhance understanding of the role of management values, knowledge management and conflict management in improving the organisational sustainability and organisational (safety) culture. In order to change organisational culture, first organisational climate has to be changed, which means the change of business processes and languages. The main contribution of the study is the innovative conceptual management model for positive organisational (safety) culture, which served as a basis for developing a questionnaire or/and check-lists which can be used as an effective self- assessment tool in an organisation in order to manage conflict and existing knowledge as well as to change climate, and thus, organisational culture. The proposed model incorporates both conflict management as a learning instrument (and its possibility to affect the safety culture and collective knowledge) as well as knowledge management (*Articles V-VI*). The proposed theoretical model provides a valuable selective reduction of the complex reality to a few critical dimensions (knowledge management and conflict management domains, which are integrated into one model), based on scientific literature, conducted research (empirical data) and relevant legislation. This has made a significant contribution to the topic concerned.

The study provides conceptual clarification of the role of conflict management, focusing on conflict analysis, as a research tool for revealing organisation's general status and real values as well as a learning instrument, and its possible effect on the flow of information and the exchange of tacit and explicit knowledge. The author emphasises that the established conflict management system needs to be fully integrated into the general management system (in order to reduce fragmentation) and the conflict, like most culturally-based issues, must be recognised, acknowledged and managed in an organisation (*Articles I-VI*). The present study has made two major contributions to the existing methodology for determination of the real management values (*Articles I-IV*) and for evaluation of organisational (safety) culture (*Articles III-VI*).

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