



**TAKE CONFERENCE 2019**  
**Theory and Applications in**  
**the Knowledge Economy**

**3<sup>RD</sup>–5<sup>TH</sup> JULY 2019, VIENNA, AUSTRIA**

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***BUILDING FUTURE COMPETENCES –***  
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**TAKE 2019**

**THEORY AND APPLICATIONS IN THE KNOWLEDGE ECONOMY**  
**2019**

**CONFERENCE BOOK OF ABSTRACTS**

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## 1. KEY NOTES

### 1.1. Arts/Design, Creative/Knowledge Economy and the role of academic education

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**Institution:** New Design University St. Pölten (Austria)

**Abstract:**

Putting arts/design and creativity within an economic context is certainly not an invention of the 20th century, yet the term creative economy has only become an important subject in Europe up to the 1990's. The creative economy is a rapidly growing economic industry branch and this has led to a special social and economic interest and has created a number of economic and social aspirations. In Austria and on a European level creative economy is regarded as an industry with a great amount of potential and is in the position to contribute to the development of knowledge- and creativity-based service society. Arts/design and the other fields of the creative economy differentiates themselves from other industries through the specification of the creative individual's inventive act, which stands at the beginning of the value chain. However, those who wish to be successful in the creative economy's competitive field must show management motivation in addition to their creative talents. In order for this to be possible, there is a need not only for personal insight, but also for suitable offers in the artistic/creative education. Economic and artistic-creative goals can be united harmoniously and should already be discussed there, where the education of artists and cultural entrepreneurs occurs: at the academies and art universities! The New Design University is successful in combining design education and business education in order to enable the students/graduates to be successful in the world outside university. This will be demonstrated during the key note by way of a study course at NDU.

University Degrees:

University degree (Dipl.-Hdl.) in business education University of Erlangen-Nuremberg/Germany, PhD (Dr.oec.HSG) in business education, University of St.Gallen/Switzerland, postdoctoral qualification (Habilitation) in vocational and economic pedagogy University of Stuttgart/Germany.

Current Position:

Rector New Design University (NDU)/Private University St. Poelten and Full Professor for Business Science Kunsthochschule Berlin-Weissensee (School of Arts Berlin-Weissensee)

Former Positions:

E.C. Course director for study at the University of St. Gallen, Director of training and further education at Schitag Ernst & Young Germany, President of different Universities in Germany.

Research Topics:

Entrepreneurship and Management of Small and Mediums Sized Enterprises especially in the Creative Industries; Human Resources Development and Business Education; Education and Politics

Other Activities:

Guest lecturer International Universities (e.c. US, UK, Estonia, Belarus, Switzerland, Poland)

Co-Editor Journal "Hochschulmanagement" (Management of Universities)

Academic expert of different German Accreditation Agencies

## **1.2. How digitalization and industry 4.0 changes the work environment – the logistics example**

**Name:** Gaby Neumann

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**Institution:** Technical University of Applied Sciences Wildau (Germany)

### **Abstract:**

The current age of digitalization and industry 4.0 seems to be very much technology-driven. There is a lot of focus on machine-to-machine communication, sensor networks, machine learning, autonomous vehicles and other technological advancements. On the other hand, main criticism on digitalization refers to the warning of a significant loss of jobs challenging society. At the same time, the labor market suffers from a lack of qualified people; there is a strong competition for talent at all levels.

The keynote will analyze latest technological advancements with regard to changes to job profiles and in the work environment. Will digitalization and industry 4.0 rather destroy jobs or open up the labour market to a wider range of people, i.e. people with special needs, instead? To what extent do industry 4.0 technologies provide new opportunities for assisting people in better performing in their work environment? Do technological advancements might help in achieving inclusion at the workplace and reduce barriers in inclusive employment? To illustrate discussions the logistics sector is used as example in order to raise issues, base ideas and encourage for critical but not technophobic thinking.

Gaby Neumann is Professor in Engineering Logistics at the Technical University of Applied Sciences Wildau (near Berlin). Her current activities and research interests are amongst others linked to fields like problem solving and knowledge management in logistics, logistics simulation and planning, technology-based logistics learning and logistics didactics, and ergonomic workplace design and human-technology interaction in logistics. She has widely published in those fields, regularly presents related research papers at national and international conferences, and contributes to international programme committees.

### 1.3. KM in SMEs in the Age Digitalization: Now more than ever

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**Institution:** University of Skövde (Sweden)

**Abstract:**

Digitalization is here to stay; thus, any organization has to find its path forward. To properly address the opportunities and challenges ahead, there is a high relevance of both the development of new sets of skills and competencies and of retraining. At the same time, there is an increasing number of functions (and jobs) that have a high (technical) potential for automation by adapting new technologies. This situation calls for new ways of gaining access to knowledge as quickly as possible but also for a reconsideration of relevant knowledge. Knowledge Management (KM) appears to be useful for helping organizations and its members transform into their new roles and positions. In fact, it is argued that KM should play an even stronger role in organizations to address the opportunities and challenges ahead. Against this background, the talk by Susanne Durst will address in more depth the implications of digitalization for KM strategies in general and selected KM processes in particular such as knowledge creation and knowledge retention. The talk will also include a brief discussion about the term digitalization and related terms to not confuse matters further. The discussion will be conducted from the viewpoint of small and medium-sized enterprises (SMEs).

Susanne Durst, Full Professor of Business Administration, University of Skövde (Sweden), she is also appointed as visiting professor at University West (Sweden) and the Universidad del Pacífico (Peru).

Susanne Durst is also the leader of the research specialization knowledge, innovation and marketing (KIM) at the School of Business at the University of Skövde. Her research interests include small business management, SME business transfers, knowledge (risk) management, and corporate governance. She has been conducting several national and international research projects on knowledge management, SME business transfers, marketing, corporate governance, and innovation management. Her work has been recognized through different awards and has been published in international peer-reviewed journals.

#### **1.4. Knowledge Management for or against Industrial Fake News!?**

**Name:** Wilfried Sihh

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**Institution:** Vienna University of Technology (Austria) & Fraunhofer Austria

**Abstract:**

Knowledge Management (KM) processes dynamically exploit existing- and explore new knowledge in various forms and different maturity levels. The success of Industry 4.0 is strongly depends on extracting quality knowledge and smart information from (Big) data in highly automated man-machine settings in near real-time. Hence, KM should enhance developing and protecting human-machine collective intelligence across manufacturing enterprises and in particular smart factories. The critical questions is whether KM produces imperfect actionable information and mis-knowledge. If so, is it anymore an enabler or rather a hindrance to Industry 4.0? In other words, is KM 4.0 against or for “Industrial Fake News”?

In September 2004 Univ. Prof. Dr. Ing. DI Prof eh. Dr. h.c. Wilfried Sihh joined the TU Wien as a professor for industrial and system engineering at the Institute of Management Sciences and has since been head of this Institute twice, according to rotation. In November 2008, he was appointed Managing Director of the newly founded Fraunhofer Austria Research GmbH and manages the Division Production and Logistics Management in Vienna.

He has been active in the field of applied research for more than 30 years now, taking part in more than 300 industrial projects. His areas of expertise include production management, corporate organization, enterprise logistics, factory planning, order management, life-cycle management, maintenance, modelling and simulation, and business process reengineering. His current focus is on implementing Industry 4.0 concepts, such as Smart Maintenance.

Besides being part of advisory and administrative boards, he also holds several positions in various organizations, e.g. board member of the International Federation of Production Research (IFPR) as well as the German Chamber of Commerce (DHK) in Vienna, member of the European Academy for Industrial Management (AIM) and Fellow Member of the International Academy for Production Engineering (CIRP).

## 1.5. Leonardo da Vinci – Accumulating Knowledge and Learning from How He Thought

**Name:** Peter Sharp

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**Institution:** Regent's University London (United Kingdom)

### **Abstract:**

In the 500th anniversary of the death of one of the greatest thinkers that has graced the Earth there will, no doubt, be an enormous amount written about the genius and inspiration of Leonardo da Vinci. But one issue worth reflecting on relating to this great man, is what we can learn from him from how he accumulated knowledge and thought.

This keynote will illustrate some principles about how Leonardo da Vinci accumulated knowledge and thought creatively. It gives examples and insights about how he did this when he was alive. This keynote then applies these principles to different areas of life including business, pastimes, individual personal development and learning. Delegates will be invited to consider these principles and apply them in their own area of expertise and interest.

Peter obtained his PhD in Knowledge Management in 2 years in 2003 using an action research methodology to devise and apply his KM method – MaKE. Prior to this he obtained a BA Modern History (Oxon), MSc Computing Science and qualified and worked a solicitor in the City of London. Since then he has gained distinction in Postgraduate Certificates in Higher and Professional Education and Doctoral Supervision.

For the last 16 years, Peter has taught, trained, coached, researched, and written in in a wide variety of forums in Higher Education, Businesses, and Charities in his areas of specialism. These include: KM; Postgraduate and PhD supervision; learning in organisations; personal development; life coaching; and creative thinking/art.

For some recent online insight see

<http://knowledgelearningpd.wordpress.com>

## 1.6. The clash of the knowledge economy with conventional economic theory

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**Institution:** Stellenbosch University (South Africa)

### **Abstract:**

Increasingly, and legitimately so, the alarm bells of unemployment (particularly youth) in the the 4th industrial revolution are ringing. This goes hand in hand with the undeniably growing gap in wealth distribution (Pickety) when the globe is observed without the distortions of national boundaries. Flat out denials or superficial “solutions” (such as retraining, a shift to services, the promise of new types of work) draw attention away from the root problem that conventional economic theories and models have lost their explanatory value in the knowledge economy.

Where has economic theory derailed? Some revision of economic theory is needed.

This keynote traces the genesis of the industrial economic paradigm in the work of John Locke (expressed in the theoretical principles of ‘property’ and ‘labor’), and (briefly) their infusion into economic theory by Smith, Mills and Marx up to the point of the universal acceptance of the principle of the Labour Theory of Value. This is followed by an analysis which shows the relentless and irrevocable replacement of labour by knowledge as the productive principle of economies, as the industrial economy advanced from mechanisation to automation and now (in Industry 4) to automation of automation.

The process is characterised by the continuous replacement of labour by autonomous machines, now increasingly imbued with higher capacities of self-determination. Therein lies the essence of the knowledge economy: it is the production system which results in the delegation of scientifically constructed knowledge into vehicles of non-human activation. In economic theoretical terms, ‘capital intensive’ means ‘knowledge intensive’.

While the gravity of economic production has shifted from ‘labor’ to knowledge, the principle that governs the sharing of the proceeds of the economy has steadfastly remained: ‘labor’. Through multiple accelerators over time (Marxist-Leninist societal ideologies, post-WWII welfare plans in Europe, bureaucratisation of organisations, MBA programmes and populist politics, among others) the belief system of labour being the

passport to value sharing has entrenched itself into the DNA of western societies. It is on this premise that the “middle class” exists.

All the while, though, ‘labor’s’ share of economic value is decreasing. The first rumblings of the middle class under threat can be heard around the world (politically embodied in the “far right”). Equally, the middle class is losing out on ‘property’ as physical property is receding in value relative to “intellectual” property (embodied in the Amazons of contemporary business).

Short Bio:

Graduate of the universities of Pretoria, Stellenbosch and Tübingen, in the fields of Economics, Classical Languages, and Hermeneutical Metaphysics.

Recipient of the German DAAD scholarship and later the Von Humboldt Research Stipendium, the South African Human Research Council research award, and the United States International Visitors Program.

Co-founder of the Centre for Knowledge Dynamics and Decisionmaking (1986) and Director from 1991 to 2011. Founder of the Department of Information Systems in 2000 and Chair until 2011. Initiated the Masters programme in Knowledge Management and Dynamics in 1999 attracting students from 10 countries in South and Eastern Africa. In the field of Knowledge Management supervised 7 PhD’s and more than 80 Masters theses.

Current fields of interest: Knowledge Economy, Organisational Sensemaking and Knowledge Theory.

## **1.7. The Net of Competences: An Innovative Framework for Prior Learning Assessment**

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**Institution:** WU Vienna University of Economics and Business (Austria) and University College of Teacher Education Vienna (Austria)

### **Abstract:**

The European Qualification Framework puts a strong emphasis on lifelong learning. But, if learning happens outside of institutions and knowledge is mainly acquired experientially, how can we assess the informal and non-formal learning outcomes; in other words, how can we identify and validate tacit knowledge and competences? Moreover, how can the society ensure that professionals adhere to high standards, even if they have not gone through formal education? In discussing these questions, we outline the theoretical foundations for the development of a framework that should support the assessment of non-formal and informal learning outcomes and professional competences, paying a particular focus on the trade and craft sector in Austria. In so doing, we build a conceptual bridge between the European competence perspective and the American Occupational Information Network (O\*Net). We synthesize these approaches as grounds for a conceptual framework. Upon completion, this shall translate into a tool which allows for matching individual competences with professional requirements, and thereby ensure that high standards of quality are maintained. We outline a knowledge perspective on the assessment of learning outcomes and professional competences. Subsequently, we describe the validation of prior learning and demonstrate how our framework can guide assessed and assessors through this process.

Alexander Kaiser is professor at the Institute for Information Business at the Vienna University of Economics and Business, head of the research group “Knowledge-based Management”, deputy department head of the Department of Information Processing and Process Management and of the Institute of Information Economics. Furthermore, he is founder and head of WaVe – Centre for Vocation Coaching. His research interests are knowledge-based management, vision development and organizational learning.

Andreas Schnider is professor of Religious Education at University College of Teacher Education Vienna and Chairman of the Quality Assurance Council for Pedagogy Education on behalf of the Ministry of Education, Science and Research.

## 2. PRESENTERS

### 2.1. Absorptive Capacity in Highly Dynamic Market: Multiple Case Study on the Behavioral Aspects of Thai IT SMEs

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**Institution:** Institute of Knowledge and Innovation-Southeast Asia, Bangkok University.

#### **Abstract:**

Behavioral factors seems to have strong impact on the transfer of knowledge in firms. There have been many previous studies on this crucial aspect. This study uses the absorptive capacity metaroutines as reviewing guideline to understand the absorptive capacity development. This paper focuses on the new external knowledge absorption into the firm. In highly dynamic market, firms such as the IT SMEs, for survival rely on the absorption of new knowledge from external sources, disseminating acquired knowledge along the internal knowledge transfer network, assimilating newly acquired knowledge and exploiting knowledge for the firm's benefits. Facing the risk of constant changes in organizational knowledge, these firms regularly update their organizational knowledge to retain competitive advantages. The critical competency of absorption is the efficiency in the transfer of knowledge. Behavior is one of the factors that has impact on the transfer capability. This study thus seeks to identify the behaviors that influence the transfer of knowledge of the firm in a highly dynamic market. This study uses qualitative methodology to identify the behavioral factors that influence the transfer and absorption of knowledge into the firm. Theoretical review shows several behavioral aspects from the previous studies. The multiple case study of the 6 Thai IT SMEs was conducted, and the result is compared with exiting literature to find conforming behaviors, inconsistent behaviors, and the new emergence behaviors. The finding is divided into 3 parts. First, the behavioral factors that are mentioned by previous researchers and examine in this study. Second are the behaviors have been mentioned but not being detected in this study. Third are the behavioral factors that fail to appeal in exiting literature but surface in this research. The behaviors that are mentioned in the review and also appear in the study are common behaviors that have impact on the absorption of knowledge in high dynamic market and in other markets environment. The behaviors appear in the review but do not appear in the study are the behaviors that do not fit with the highly dynamic market

environment. Finally, the behaviors that appear only in this study are the behaviors associated with the culture of being Thai IT SMEs. The highly dynamic market has its unique characteristics. The Thai IT SMEs are considered to reside in this market environment, rely its operational excellence from new external knowledge absorption. There are many dubious behavioral factors that do not match with the setting of firms in this market segment. The exploratory study confirms this doubt. The study pinpoints the behavioral factors that are very specific to the high dynamic market environment. These factors may have being addressed by some scholars, but when in the high dynamic environment, these factors are not present. In other words, there are some behavioral factors that do not involve with the knowledge absorption in the highly dynamic market. From the study, the finding also reveals the behaviors that are only specific to the cultural setting of the firms. The industry selected is the IT SMEs in Thailand and behavioral factors that have been identified pertain only to the specific culture of the Thai IT SMEs firms.

## 2.2. Adult Learning Theories and Online Instruction: Review and Reflection

**Name:** Earl Brieger, Vishal Arghode and Gary N. McLean.

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[garynmclean@gmail.com](mailto:garynmclean@gmail.com)

**Institution:** Gannon University, Indian Institute of Management, Nagpur and Assumption University (Bangkok).

### **Abstract:**

#### a) purpose

Adult learning theories and their roles in online instruction should be further explored. It is important to understand how adult learning theories can be utilized to design improved online instruction. To address the above need, we reviewed the literature and analyzed six adult learning theories for interpreting their role in online instruction. This is a subsequent paper to a published article reviewing four additional adult learning theories.

#### b) design/methodology/approach

We utilized the following databases for literature review: Academic Search Premier, ERIC, and ProQuest. Key search terms were used: online instruction, cognitivism, connectivism, heutagogy, social learning theory, transformative learning theory, and Vygotsky's zone of proximal development. We analyzed and reviewed the articles to judge each article's suitability for inclusion.

#### c) theoretical base

We selected six adult learning theories/models: cognitivism, connectivism, social learning, heutagogy, transformative learning, Vygotsky's zone of proximal development as a theoretical framework for our analysis. We utilized the literature to present the six adult learning theories on four parameters: Learners' dependence level (dependent vs. independent) and domain of learning (cognitive vs. affective). The goal was to tie the relevant areas of each theory to the instruction being designed in an appropriate way.

#### d) results or expected results

The theory comparison revealed that it is critical to ascertain which learning theory best matches an instructional situation and the background of the learner. Design strategies should allow learners to attend to information and reflect through cognitive materials that

utilize the working memory. Regardless of the instructional modality, it is important to base any pedagogical approach to learning theory.

While general pedagogical frameworks are fairly well established for online learning at this point, there are opportunities for more research in online instructional design for adult learners. Studies on learner motivation would establish a wider understanding of richer design formats that could elicit better performance of adult learners and make for richer educational experiences. Further comparisons of learning theories with regard to adult learners on an online module-by-module basis could be made to establish more empirical data as to which learning theory is better suited for online learning design. Further studies showing learner trends in utilizing online media will help instructional technologists create online media content for higher impact.

Online course design strategies can follow a cognitive learning approach to elicit the best academic performance from the learner. Strategies for linking to prior knowledge can also include advanced information organization activities, conceptual models, and concept checks. Most importantly, information presented online should be presented in blocks to prevent cognitive overload. Dual coding theory assumes there are two cognitive subsystems, one specialized for the representation and processing of nonverbal events through imagery and the other specialized for dealing with language. Therefore, custom multimedia learning objects created for a specific instructional situation should have visuals and auditory that complement, not duplicate each other. Specifically, appropriate non-text visuals should match with a descriptive narrative rather than simple text-based slides on the screen or text-based images that relay the same content as the narrative.

The findings suggest various strategies to improve online instruction. Based on cognitivism, instructors can utilize media-based instruction especially designed for the working memory. Similarly, connectivism informs instructors to design instruction integrated with technology and online learning to establish access to learning networks and create activities essential to build and organize learners' knowledge. Heutagogy also promotes integration of technology with online learning apart from encouraging self-directed learning. Social learning theory informs instructors to design group discussion and activities to foster collaboration and team work. The other three theories viz. cognitivism, connectivism, and heutagogy promote technology integration with learning experience thus instructors can create media based instruction designed for the working memory, besides integrating technology and online learning to establish access to

learning networks and create activities essential to build and organize learners' knowledge.

e) originality/value

Our review uniquely contributes to the literature by examining the selected adult learning theories and determining the theoretical underpinning and relevance in online instruction. This is a continued revision from an early article that included four additional adult learning theories.

f) practical implications

We present a theoretical lens to instructors and other practitioners for incorporating adult learning theories in improving online instruction. Subject matter experts and online instructors should create online multimedia in multiple formats. Information presented in both a textual-visual and auditory format have the potential to promote more effective processing as opposed to a lone format.

### **2.3. Analysis of Accounting Systems for Companies Operating in Croatia and Portugal**

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**Abstract:**

The country's accounting system is one of the factors that significantly forms the organization of accounting information systems of an enterprise. Given the variety of accounting solutions around the world, it would be interesting to explore what are the key environmental factors that affect the development of a company's accounting system. According to previous research, numerous factors shape the accounting system of each country, and thus affect the appearance and structure of accounting information systems. The size of the company as well as its legal and organizational form of business plays a significant role in it. In countries where companies with few employees dominate, most often they are doing business locally and are more organized as family businesses. Thus, it is expected that less complex administration will be required and there will be a somewhat simpler financial reporting system. One of the goals of this paper is to identify and analyse the environmental factors that primarily affect the accounting system of companies operating in Croatia and Portugal.

Harmonization processes largely affect the current state of the financial reporting system in both Croatia and Portugal. Especially since the accounting system was dominantly characterized by the application of international accounting solutions. Namely, Croatia and Portugal are EU Member States, therefore, are obliged to respect the regulation adopted by the European Commission. Significant changes to the financial reporting system were initially introduced in 2002 mainly for large companies or companies of public interest. Since 2005, the Regulation (1606/2002/EC Regulation on the Application of International Accounting Standards) prescribes the mandatory application of International Financial Reporting Standards (IFRSs) for all companies quoting on the European Union financial market and preparing consolidated financial statements. For other stakeholders, the European Commission does not prescribe specific accounting standards, but through the Directive (2013/34/EU) strives to harmonize the most important areas of accounting and financial reporting. Given the above-mentioned facts,

the paper will analyse the regulatory framework for financial reporting of profit-oriented companies in Croatia and Portugal. Namely, the accounting system of each country is significantly influenced by financial reporting regulations, which largely determines what information the companies will prepare and publicly disclose. Given existing classification criteria for companies, legal regulations in the field of accounting in selected countries will be analysed. In this context, the paper seeks to investigate whether there are, in addition to international, specific national accounting standards that regulate accounting for non-listed companies. Furthermore, the objectives of the paper include an analysis of the set of financial statements prepared by the companies, the content and the volume of publicly disclosed information as well as is there and under what conditions the obligation to audit financial statements and similar questions.

It is to be expected that each country's economic, cultural and political circumstances form an individualized accounting practice that results in a number of accounting differences across the globe. These differences are manifested, among other, in the diversity of form and content of the financial statements. For example, according to the EU Directives, the statement of financial position (balance sheet) may be reported according to the criterion of increasing or decreasing liquidity. Furthermore, depending on the chosen model, the profit and loss account can be presented using the method of total costs or companies can use a functional method that is primarily determined by the so-called the gross margin. At the same time, there are differences in the inclusion of financial statements in the annual report. The paper will investigate which companies are required to prepare an annual report and which information they are required to include in the annual report. Accounting differences can also be observed in the scope of the data disclosed in the financial statements since the level of detail of the report differs from country to country. Publication of accounting information in the form of financial statements is compulsory in accordance with the EU Directives. The paper will investigate whether in the analysed countries companies publish financial results electronically or in paper form, and whether and to which deadlines they submit to the prescribed register. It will also examine to what extent non-financial reporting is present especially regarding companies of public interest. While all of the aforementioned differences can be easily overcome, perhaps the most significant accounting differences are expected in the application of different criteria for recognizing and measuring the positions of the financial statements. Therefore, the criteria for valuing and measuring long-term assets, inventories, as well as recognition of income and expense will be

compared.

To conclude, based on the research results on the analysis of the accounting systems of selected countries, the differences and similarities between the financial reporting model of profit-oriented companies that follow the specifics of a country as well as the characteristic features of their accounting systems will be determined. It is expected that research results could be of interest to the scientific, as well as the broader investment public.

## 2.4. Analysis of similarities and differences between Polish Accounting Standards and Croatian Financial Reporting Standards

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### **Abstract:**

Every profession has its rules and principles. Accounting principles play in every country an inevitable role for business world. They have the impact on financial reporting and consequently they influence different users of financial statements. Generally accepted accounting principles can appear in different forms. Also, the form and content of these principles could be affected by European Accounting Directive and the International Financial Reporting Standards. European Union Member States are restricted by European Regulation on the application of IFRS but the regulation of accounting principles for micro, small and medium sized entities remains on national regulators. Diverse practice in this field is recognised in Croatia and Poland.

### b) design/methodology/approach

The main goal of the paper is to provide the description of existing accounting framework in two European countries: Poland and Croatia. The special attention would be given in the comparison of Polish and Croatian accounting standards. The research methodology is based on a critical analysis of scholarly literature and the comparison on accounting standards (in particular Polish and Croatian Accounting Act, Polish Accounting Standards and Croatian Financial Reporting Standards) in terms of main accounting principles for certain areas prescribed by these accounting standards.

### c) theoretical base

The references on the topic of international accounting for the purpose of identification similarities and differences in accounting systems (S. J. Gray, 1998; F.D.S. Choi, G. K. Meek, 2008; C. H. Gibson, 2013; C. Nobes and R. Parker, 2008; H. I. Radebaugh, J.S. Gray and L.E. Black, 2006; K. Grabinska, M. Kedziora and J. Krasodomska, 2014; F. Zehri and J. Chouaibi, 2013) will be used as the theoretical base for the study. Furthermore,

publicly available national financial reporting and accounting standards in Poland and Croatia will be used for conducting our research.

d) results or expected results

The research results will point at similarities in main areas of accounting standards in Poland and Croatia. Also, different approaches in the regulation of accounting treatment of certain accounting in these countries areas will be pointed out as well. It will be possible to see what parts of proposed simplification for micro-entities offered by the EU Accounting Directive are introduced in Polish and Croatian accounting legislation.

e) originality/value

Research results of the paper will contribute the international accounting literature but also have an impact on European Union accounting harmonisation references.

f) practical implications

Financial statements users interested in investing in Croatian and Polish companies would have systematic view on their national accounting principles. Also, noticed differences between the countries could have a special meaning for investors, but also for regulators, the European Union and scientist with the research aims in international accounting.

## 2.5. Applying Experience-Based Job-Know Ontology to Smart Factory Industry

### 4.0

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#### **Abstract:**

In manufacturing industry 4.0 employees should participate in certain new and complex processes to perform their (newly assigned) tasks and ultimately do their job. Depending on their job roles, they may interact either with smart machineries and devices, computerized and intelligent systems or learning assistance systems and collaborate with other professionals in diverse qualification levels, including operators, engineers and/or managers. Involving in structured processes, which consist of a set of sequential, pooled, reciprocal or shared tasks requires i) identifying the job tasks defined as a part of the job description by the employers, and ii) specifying the knowledge, skills and competences (KSCs) demanded to perform the job tasks.

To learn how to perform a specific job, educational institutions, particularly vocational education and training (VET) support learners (i.e. potential job seekers) to possess the required KSCs demanded by the world of work (WoW), particularly a specific job. Moreover, job seekers or job-holders improve the level of KSCs and fill the KSCs gap either by participating in off-the-job-training programs or doing the tasks and gaining experiences on-the-job, respectively (Khobreh et al., 2016). In both cases, job seekers or job holders as a lifelong learners develop their body of knowledge, in particular KSCs and develop their career as a lifelong learning process.

In this continuous training process, there is a basis of KSCs, which job-holders possessed in educational institutions. Nevertheless, they maintain, enrich and sustain the KSCs level by gaining experiences. It is a fact that there should be a relation between what KSCs possessed by learners and ultimately represented by job-holders and What KSCs required by the job provider institutions (employers). If what is supplied and what is demanded

are not in a state of equilibrium then the environment (i.e. job-holders and employers) faces with KSCs imbalance problem. To define KSCs imbalance problem, first the tasks should be identified, then the required KSCs should be recognized and finally KSCs represented by the job-seeker/holder should be compared with what is demanded.

Considering experience-driven processes at the heart of a job, the job-holders obtain individual-based KSCs by doing the tasks and tackling KSCs imbalance problems. This sort of KSCs are the experiences collected over time. As the job-holders pass the level of competence from novice to expert the sort of KSCs that they represent are getting more advanced and mature. The experiences and solutions, which achieve the acceptable level of maturity, can be considered as lessons, i.e. they can be documented as a learning material, can help better identification and understanding of KSC imbalance problems or can be directly used as a measure to identify imbalance KSCs.

Knowledge and experience management hand in hand with semantic technology, artificial intelligence (AI), machine learning could contribute into finding solutions to the WoW and WoE mismatches. For example, the authors have developed ontological models for representing the WoW and WoE, i.e. task and domain ontology context independent (Khobreh, 2017). Focusing on instantiations of the ontologies in a special context, they have examined nursing as an experience-driven, VET-based job (Khobreh et al., 2016). Furthermore, a text-mining based bidirectional matching method has been developed to determine the degree of similarity between job descriptions created by job designers and job vacancies posted by employers. In the light of this, the supply-demand process can be optimized through identifying the KSC gaps in job descriptions or mismatches between job descriptions and job vacancies in various domestic or international sectors and job markets (Chala et al., 2018).

Following this line of research, the key question of this paper is as follows: How to establish a Knowledge-Base for semantic modeling and interrelation representations of task- and KSC elements in a smart factory? In particular, this paper investigates semantic representation of task- and KSC elements and aims to reason out what is needed and what is missed in supply-demand chain and ultimately how the demands should be supplied through experiences, in the dynamic working environment of Industry 4.0. Identifying Job-Knowledge mutual relations leads to facilitate (continuous) learning and benefit from the recognized solutions particularly in manufacturing industry 4.0, where rapid changes are indispensable (Ansari et al., 2018a), (Ansari et al., 2018b).

To represent the relation between the tasks of a job, the required KSCs and (im)balance state of supply-demand, the Job-Know Ontology is developed. The methodology of developing “Job-Know Ontology” is discussed in (Kboreh et al., 2016). This paper presents the results of applying the “Job-Know Ontology” in manufacturing industry. In particular the focus is placed on formalizing an ontology including i) the job tasks defined by employer, ii) required KSCs demanded from the employees, and iii) learning units, which are qualifiers and enablers of the job tasks. The proposed ontology used as a Knowledge-Base for providing KSCs in association to tasks and vice versa. Moreover, this paper deepens the insights into experience-based Job-Know Ontology in which lessons learned are used to tackle imbalance problem.

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## 2.6. Artificial Intelligence and Digital Repository of Crafts Knowledge for Robotic Creation of 3D-Objects

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### **Abstract:**

The main question is: How can specific crafts knowledge (applied in handicrafts, craft skills, practical knowledge, techniques, procedures, methods, clues, etc.) be codified as digital media procedures and objects in such a way, that a user and/or a machine can reproduce the artefact? Craft knowledge will be digitally transformed in two ways: (1) analog (written) descriptions of how things are made will be digitized (e.g. analog school books describing the fundamental knowledge are scanned to ebooks, movies which show the techniques of craftsmen are uploaded to Youtube, techniques of craftsmen are described on Wikipedia and other how-to-make, DIY and maker recipe web sources), (2) Products and artifacts will be increasingly created by new robotic methods than by traditional craftsmen handicraft. The prototype and design process is already fully digitized, not only for mass production. 3D-scanning, 3D-designing, model building, testing, fitting 3D-models into virtual environments etc. are done in a digital space. Today, virtual digital models represented as software objects can be easily created as three-dimensional objects by using 3D-printers. A worldwide new maker culture is transforming the handicraft traditions fundamentally. 3D model repositories like Thingiverse, MyMiniFactory, YouMagine, Pinshape, NASA 3D, NIH 3D Print Exchange, TurboSquid, SketchUp 3D Warehouse, Hum3D, 123D, GrabCad, etc. are already online since years, some platforms offer free 3D models for printing on a 3D-printer. Thingiverse alone offers more than 750.000 3D objects to download and to print out on a 3D printer. Based on this background the education in craft education of apprentices, school dropouts, and adolescents who want to work practically has to be changed. In Austria the policy makers are aware of these shifts and new trends. Several initiatives are on the way to focus on these changes caused by digitization. E.g. (a) the Styria Economic Chamber in Austria has launched in 2017 a Talent Center ([www.talentcenter.at](http://www.talentcenter.at)), where adolescents from 13 to 15 years can test their talents. (b)

Euroskills 2020 will take place in Graz, Austria. The EuroSkills is the European championship of young professionals, a spectacular promotion of skills and latest skills developments around Europe. Apprentices and young people should be motivated to show their skills and talents in a competition on a European level, WorldSkills is the same championship competition on a worldwide level. (c) Makerspace Carinthia in Klagenfurt, Austria, which is an initiative of the Carinthian Economic Chamber, launched in November 2018 c) Knowledge management and crafts research have been institutionalised in the Institute for Applied Craft Research, Vienna, Austria. The process, which transforms analog (written and/or tentative) into digital libraries or repositories is guided by knowledge management principles. These principles are codified in Artificial Intelligence rule books which should help to combine digital repositories and meta-repositories, maker spaces and 3D model databases to motivate, educate and train a new generation of producers and craftsmen. Based on the IPTV web site “WKO.tv” with more than 8.000 online videos, the concept “WKO.AI” will describe the architecture of an Artificial Intelligence system, which will automatically collect digital knowledge atoms and objects, classify and generate meta-data, and show examples, e.g. videos, descriptions, link collections and 3D-objects. A major goal is to describe an Artificial Intelligence digital repository of craft knowledge, which should be used in schools, on-the-job-trainings, polytechnical schools, training centers, universities of applied sciences, etc. This repository is also capable of showing demo cases in Virtual Reality, Mixed/Augmented Reality and will offer interfaces to 3D-printers for robotic production in realtime.

## **2.7. Building a bridge between Occupational Information Network and European Qualification Framework: A design science approach to generate and validate items for the assessment of transversal professional competences**

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### **Abstract:**

**Purpose:** Relying on a design science paradigm, the purpose of this paper is to describe the generation and validation of items for an ICT-artifact that supports the assessment of transversal professional competences within the validation of prior learning.

**Design/Methodology/Approach:** Design science, instrument development.

**Findings:** We find that a self-assessment of professional competences should consist of 160 items to cover the breadth and depth of the Occupational Information Network. This amount of items is sufficient to build a bridge between Occupational Information Network and European Qualification Framework

**Practical implications:** When designing procedures for the validation of prior learning, it is of great importance to keep in mind the purpose of the validation procedure, to determine relevant stakeholders and their needs in advance and the required language proficiency of the assessment instrument.

**Originality/value:** This paper applies a design science paradigm to develop an ICT-artifact that should support the validation of prior learning. By reflecting on the design process, we introduce a theoretical bridge between the Occupational Information Network and the European Qualification Framework. Thereby we aim to account for some of the shortcomings of the European Qualification Framework.

**Keywords:** professional competences; instrument development; candidate items; occupational information network; proof of concept; validation of prior learning; assessment, design science; artifact

## **2.8. Business model innovation and digital transformation in SMEs - A bibliometric study**

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### **Abstract:**

This paper addresses the transformation of firms' business models (BM) in the context of the digital transformation, a still under-researched question in Management and Business literature despite its strategic and economics relevance. Most of the existing studies have a technological/engineering focus and/or are addressing the digital transformation in a broader perspective. The project adopts a novel approach moving beyond the usual focus on the technology and starting from the analysis of the firm's BM. For a systematic literature review and a bibliometric analysis is performed, in order to capture the main drivers and challenges of BM innovation in the context of SMEs digital transformation.

The business infrastructure is increasingly becoming digital, enabling improved interconnections among products, processes, and services. Digital technologies, e.g. a combination of information, computing, communication, and connectivity technologies, are fundamentally transforming business strategies and processes, firm's capabilities, products and services, and key inter-firm relationships (Davis et al 2012; Nylén & Holmstrom 2015; Porter & Heppelmann 2014). These technologies are pervasive in the firm's functional areas such as operations, purchasing, supply chain, and marketing and enable to blur the boundaries of time, distance and function in the firms' daily activities (Bharadwaj et al 2013). This trend occurs in firms in different industries and sectors and is frequently named "digital transformation". It involves "real-time understanding, reasoning, planning and management of all aspects of the enterprise production process" (Davis et al 2012: 146). Its study and implementation demand an interdisciplinary approach (Thoben et al 2017).

Digital transformation has multiple impacts, namely in terms of quality and efficiency improvements, operational productivity and effectiveness, energy saving, sustainability (social, economic, environmental), agility/resilience and product innovation, being labeled by some authors as the 4th industrial revolution (Davis et al 2012; Lasi et al 2014;

Liao et al 2017; Thoben et al 2017). It has been policy-driven by governments (US, Germany, France, UK, South Korea, China and Japan, EU) since the beginning of 2010s (Liao et al 2017) as a strategy to boost the competitiveness of the national manufacturing industry (Kagermann et al 2013) and promoted by large firms who have already heavily invested in I4.0 related projects (AT&T, Cisco, GE, IBM, Intel, Siemens, Bosch, Panasonic, etc.) (Liao et al 2017).

The philosophy of digital transformation and its disruptive technologies originate changes in the firms' business models, a “dramatic and fundamental business transformation toward demand-dynamic economics, performance-based enterprises, demand-driven supply chain services and broad-based workforce involvement and innovation” (Davis et al 2012: 145-146). It is therefore considered as a paradigm shift in terms of business and management: i) from centralized (vertical) to decentralized industrial processes and decision making, based on smart products, which know their production history and actively steer production processes by instructing machines and ordering transportation to the next production stage (Davis et al 2012; Kagermann 2015); ii) from automated to intelligent manufacturing (Thoben et al, 2017); iii) from a reactive to a predictive operational approach (Davis et al 2012).

The introduction of BM in the analysis of digital transformation implementation and impact elevates the performance implications of the digitalization beyond efficiency and productivity metrics to those that drive competitive advantage and strategic differentiation (Bharadwaj et al 2013). It is acknowledged that digital transformation is related to new logic and configuration of value proposition and revenue streams (Iansiti & Lakhani 2014; Nylén & Homstrom 2015; Porter & Heppelmann 2014). However, exists little academic knowledge on how BM for digital transformation differ from other BM and how they should be constructed (Dijkman et al 2015).

Furthermore, the complexity of the implementation these changes represents a barrier for SMEs in the implementation of the digital transformation (Davis et al, 2012; Thoben et al 2017). SMEs are struggling to understand the complexity of digitalization and to develop adequate BM for digital transformation (Pacheco et al 2016).

Summing up, this paper provides useful insights both for SMEs and for academics on the drivers and challenges of BM innovation in the context of SMEs digital transformation.

## **2.9. COACHING, CULTURE, AND GENERATIONAL KNOWLEDGE TRANSFER**

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### **Abstract:**

This conceptual paper will aim at discussing how coaching could be integrated into informal organizational learning and thus help the intergenerational workplace. Over the next decade, a mass exodus will be occurring as the baby boomers retire. Currently, organizations may have up to five generations working side by side. These include the Traditionalists, the Baby Boomers, Generation X, the Millennials, and possibly Generation Z. With increasing globalization in business, coaching and internal organizational collaboration have become critically important. Specifically, when members of a team are diverse in age as well as geography. As a result, leaders must decide on how to enable their staff to work successfully in an extremely fast paced and ever-changing work environment.

## **2.10. Combining Indigenous Wisdom and Academic Knowledge to Build a Sustainable Future in Africa**

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### **Abstract:**

The paper presents the premise that sustainable development in Africa is only possible when it involves a bottom-up approach and brings in a multitude of local endeavors. In order for this to occur, community knowledge bases must be captured and utilized. This is shown here by using the case example of a community in Northern Ghana where a new college has been set up in the midst of a rural environment. The preliminary findings from the case show the economic, social and ecological benefits of using the local community's resources and stakeholders, and their indigenous knowledge, for positioning the new college's mission within its constituency. From a theoretical viewpoint, the paper envisages how a combination of knowledge management and systems thinking can amalgamate into practical approaches for both building new approaches to sustainable development and fostering pertinent projects and programs.

Traditional knowledge and value patterns in relation to ecology and human life have always been intrinsically engrained in the lives of indigenous people. They have, however, not always been met with an open-mind by developed nations. One reason is that socio-ecological systems in developing countries are often in marked contrast to those of the developed world where they use advanced technology, employ sophisticated scientific models and are built on a long history of democratic traditions. But it mostly does not make sense to transfer these modes and tradition to a country or a region which is in a different stage of social and economic development. There are many examples which show that this fails, and there is a need to use a different approach for helping societies with low life expectancy, low levels of sustenance, and low standards of living. Losing traditional knowledge practices can have a significant negative impact on the livelihoods, production systems (bio-resource-based markets) and the health of local communities. Therefore, development policies in these local communities should preserve their traditional wisdom and knowledge and thus provide opportunities to practically and purposefully apply it.

One way to preserve and apply traditional wisdom and knowledge is to create regional centers where this body of knowledge can be maintained, and its many applications can be made available in the region. An example of this would be the Education for Sustainable Development (ESD) Program at the United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS; <https://ias.unu.edu/en/>), which has created these types of centers. As of 2016, there is a global network of more than 100 Regional Centers of Expertise (RCEs) on ESD. Another key way is by connecting this knowledge and experiences with academic institutions. The case that is reported in this paper is a prime example of this: Regentropfen College in the Upper East Region of Ghana was built in a rural environment and surrounded by communities who are guardians of indigenous wisdom. Their wisdom incorporates traditional views on ecology as well as on social matters. When the socio-ecological wisdom of the communities bordering the campus of Regentropfen and the academic perceptions (who are taught and studied in the new college) coalesce, a rich body of knowledge will be created that can help to improve the living standards of the population (not only of the people who live there, but of the larger populace of surrounding rural communities and beyond).

The purpose of this paper is to demonstrate the opportunities that lie in establishing a new college within the environment of a rural community with rich indigenous wisdom. The paper also ponders the three theoretical issues of systems thinking that relate to the case, namely: (1) Structural couplings and intra-systemic self-organization, (2) conjoining self-organization and relationality (3) co-creation.

Sustainable development is, at its core, a system innovation, changing the functioning of a societal system from one state of apparent social equilibrium to another. However, it will only prevail if it does not impose a radical change. This especially applies to environments that need sensitive and subtle treatment like rural communities in Africa that have lived and coped with natural phenomena for centuries, and whose knowledge needs to be exploited in order to make the societal change a communal accomplishment. If this knowledge is combined with appropriate elements of technical progress, the accomplishment will even be more effective. In Africa, centuries of co-existence with ecosystems has resulted in some of the richest collective memories on patterns and behavior of biological resources and environmental changes. Indigenous peoples have developed a close and unique connection with the lands and environments in which they live, and they have a wide array of beliefs, as well as a strong sense of ethics and what is

right and wrong. In addition, they have been deploying a wide range of different techniques to cope with their intricate relationships with their biodiverse resources which are embedded in their cultures.

The indigenous knowledge that has accumulated within rural African cultures over the years can be deployed for assisting modern approaches to data creation on various aspects of the environment and biodiversity; e.g., forecasting on natural phenomena, and varied methods of managing biotic and abiotic changes brought about due to changes in environmental conditions. In particular, indigenous knowledge provides local farmers with the basis for agricultural decision making. For example, one of the key issues in the continent is soil and water conservation; especially where the technologies are agronomic, vegetative, and where structural and management measures are needed for controlling land degradation and enhancing soil productivity. Examples of agronomy measures are mixed cropping, contour cultivation, and mulching, and there are much more. Similar techniques and practices are found in traditional health systems that are based in theories or cosmologies which encompass mental, social, spiritual, physical and ecological dimensions. A fundamental concept found in many of these systems is that of balance – the balance between mind and body, between different dimensions of individual bodily functioning and need, between individual and community, individual community and environment, and individual and the universe. These practices and beliefs highlight the indigenous populace sense of ethics, where many people have a deep sense of right and wrong. Compliance to the rules of social order is requested on all levels.

Even though the significance of indigenous knowledge on the progress of humankind is becoming widely acknowledged, the links and connections to the academic must still be considered to be weak. The aforementioned “Regional Centers of Expertise” of the UN Education for Sustainable Development Program would be suitable centers or “receptacles” for the new amalgamations of knowledge. In order to produce these amalgamations “bottom-up” and on a wider scale, connectors” are needed between educational institutions and society. Here, the location of a new college or university can make a significant difference in regard to building the necessary bridge to indigenous wisdom.

In our example, a new college was formed in the rural community of Kansoe, near Bolgatanga, Ghana’s Upper East Region’s capital. There were several effects to be expected on the area beyond teaching and providing opportunities for research. The

college has deployed various components to manage the delicate balance of teaching, research, and community outreach/economic development. This is achieved through accessing local government officials, local businesses, community councils, health workers, traditional leaders (tribal chiefs), religious leaders, heads of NGOs, and foreign enterprises. These stakeholders are confronted with topics which are relevant and essential to the populace in their daily work such as ethics in labor relations, conflict resolution, sustainability management, social responsibility, cultural diversity, and social inclusiveness. In working closely with all these stakeholders, the new school also aims to create a mindset throughout the area that combines ethics, entrepreneurship, environmental projects, systems thinking, self-awareness and spirituality.

There are three perspectives of systemic thought which the authors believe to be pertinent for conjoining and integrating indigenous wisdom and academic achievements into a communal base of knowledge for sustainable development. The processes of generating this knowledge base start from two ends: One is the interaction of an operationally closed system, which is the rural community, with the changing environment that originates through the new college. The other end is the outreach from the college which can be thematized through a Luhmannian interpretation: The rural community in question can be understood as a system affected by the lack of chances to properly maintain sustainability in its societal and natural environments whose members are now seeing an opportunity to gain new chances from interacting with members of another system, which is the new college. The paper explores this interpretation along the foundations of systems thought that end up in conjoining indigenous wisdom and academic achievements into a communal base of knowledge for sustainable development.

## 2.11. Commodity and Equity Markets – A Time and Frequency Approach

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### **Abstract:**

This study aims to assess the dynamics of commodities and stock markets at time-frequency domain. Our data set consists of daily S&P GSCI commodity price indices and sub-indices, and the Morgan Stanley Capital International (MSCI) Indexes between January 2002 and December 2016.

Among others, our results indicate a significant increase in synchronization of procyclical pattern, with periodicities of one to four years, during the recent subprime and financial crisis. The results presented in the paper could help investors to design investment strategies in commodity markets.

The relationship between commodity prices and stock markets has attracted considerable attention in the literature.

The commodity price dynamics impact has considerable implications for portfolio management strategies as well as the use of commodity indices as other common asset by investors could lead to increase the prices of energy and food (see Masters, 2008, Acharya et al. 2013, Cheng and Xiong , 2014 or Chari and Christiano , 2017).

Our study covers a period of fourteen years, from 2002 to the end of 2016, that combines several market phases the pre-and post-crisis period - global financial crisis and sovereign. The pre-crisis period is characterized by an important process of large inflows of capital into commodity markets commonly referred as “financialization” that lead to an increase in commodity prices and market volatility.

The empirical evidence on how the commodity price movements affect stock markets mainly concerns on oil and gold and is inconclusive (e.g., El-Sharif et al., 2005, Phan et al., 2015, Cunado. and Perez de Garcia, 2005,, among others).

This study applied wavelet analysis to exam both time and frequency varying comovements between commodities and equity indices. Recently the wavelet analysis has been applied to explore the complexity and nonlinearity of commodity-stock interaction (e.g., Madaleno and Pinho, 2014, Huang et al.,2016).

Our objective is to explore the decomposition of commodities and stock markets index to analyze the influence of multiscale components on their dynamic interaction over time.

## Data

We use five S&P GSCI commodity sub-indexes, Energy (EN), Industrial Metals (IM), Precious Metals (PM), Agriculture (AG) and Livestock (LS) and a global index Total Commodities (TC), at daily frequency.

We use the MSCI World Index, MSCI U.S. index, MSCI Europe Index and MSCI Japan Index to capture the stock indexes of main developed markets, covering the Europe, America and Asia geographical areas.

The data for the period Jan – 2002 to Dec-2016 was obtained from Datastream database. We consider the crisis period, a period of overall economic instability covering the global financial crisis in 2007-2009 and the sovereign debt crisis 2010-2012, and the sample is divided into pre- and post-crisis sub-periods.

The main descriptive statistics on Stock and Commodity indices allows conclude that, without exception the indexes presents a positive, although small, mean return. The Jarque-Bera test has applied, in order to verify the adjustment of the normal distribution to the empirical distributions of series, whose statistical probabilities are presented in table 1. The results allow us to conclude that the series of logarithmic variations are statistically significant to 1%, clearly rejecting the hypothesis of their normality.

The wavelet power spectrum of price index of all commodities and MSCI World index. The power spectrum is a measure of variance distribution at each time-frequency region represented by a color indicator, ranging from dark blue, low variability, to dark red (high power). Both series demonstrated very high power over all sample ranging from 12 monthly periods to as high as 96 periods of scale (low frequency). The variability of all commodities index was especially high until 2013 with a three and half to five year's cycle and from 2007 to the end of 2010 by cycles of three and six years. The MSCI World market index had high power at low to medium scales (36 months cycle) between 2007 and 2012.

We use the estimated wavelet coherence and phase angle for each of commodity index and MSCI World index. The wavelet coherence measures the co-movement between the series, allow for identifying the dynamics of the co-movement in the time-frequency domain over the sample period.

For each pair Commodity-World Index after the identification of time-frequency location in which the coherency is statically significant we analyze the direction of co-movement using the phase angle.

The coherence between All Commodities and MSCI World index shows the strongest and statically significant coherence until 2003 and between 2007 and 2012.

The strongest coherence occurs at periodicities of three to four years at the first sub period and for one to four years at the period started at 2007. From 2012 to 2016 this effect seems to disappear at all periodicities. The phase angle analysis of All Commodities and MSCI World index relationship reveals a procyclical pattern over the sample, although it should be referred that components with periodicities above one year are in general in-phase whereas shorter components present on average an anti-phase relationship.

The results of coherence and phase for Energy index MSCI World index show similar conclusions.

The wavelet coherence and phase angle between Precious Metals index, Industrial Metals index with MSCI World index, respectively. In the entire time interval, 2002 to 2016, a strong coherence between each of commodities indexes and the stock market is found at long-term time scale (short-term frequency) with 24–60 month scale fluctuation. Components with periodicities above one year also present a strong coherence during the period from 2003 and 2012. The results presented for significant coherencies show a positive co-movement, with few exceptions for short periods and short-time scales. As analyzed by wavelet coherence estimation the co-movement between the Agricultural index and MSCI World index none significant co-movement can be detected for the period until 2003. However, from 2003 on, and for mid and long-term time scales (1-5 years cycles), a significant and persistent positive co-movement is presented, covering the 2006–2008 period of “food crisis” and the financial and economic crisis started at 2008.

#### Preliminary Conclusions

This study presents new evidence on the complex and nonlinear interactions between commodities and stock markets. Based on a wavelet approach, we explore in the time-frequency domain the co-movement between several commodity indexes and MSCI indexes. The dataset consists of daily stock index and five commodity indexes from January 2002 to December 2016.

The findings point to a strong interaction between commodities and equity indices at different scales. Very high at medium and lower frequencies and lower at high frequencies. The coherence for all pair’s commodity-stock market analyzed reveal substantial changes in the co-movement pattern over time, specifically during the

financial crisis, it is possible to verify an increase of procyclicality at most cycle periodicities.

The analysis of the coherence and phase angle shows that the co-movement between energy and non-energy indexes with stock markets presents a different nature.

The strongest and statistically significant coherence in the energy index pertains to the years until 2003 and between 2007 and 2012 to medium scales. On the contrary, in the non-energy case the strongest and statistically significant coherence is in the entire time span (2002-2016) with slightly long cycle's periodicities. Exploring the co-movement among assets helps the formulation of diversification strategies and the results presented have important implications for design strategies in the short and long terms.

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## **2.12. Communication of Corporate Social Responsibility on Official Websites in Retail Industry**

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### **Abstract:**

Corporate Social Responsibility (CSR) as a research topic emerged in the middle of the 20th century. Numerous papers and studies address the topic from various points of view but there is a scarcity of research studies addressing markets of Central and Eastern Europe. The purpose of the paper is to analyze how retail companies communicate their CSR policies via Internet based on cases of top retail companies in Croatia as a country in Central and Eastern Europe. Firstly, paper will give a theoretical review of CSR definitions and CSR dimensions. Then, follows a literature overview of studies of CSR in retail industry. Third part includes insight into contemporary research of CSR communication via Internet. Finally, ten Croatian retail companies will be analyzed by case study method regarding their official web communication with consumers in the context of CSR. Based on the analyzed cases, conclusions will be derived and some suggestions for improvement in this area will be given. This paper could be beneficial to retail managers when implementing the communication strategy in the area of CSR. On the other hand, the paper could be a good starting point for future empirical research of CSR communication practices in retail, but also in other industries.

### 2.13. Community Management: Networking Approach as Business Model

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#### **Abstract:**

##### a) Purpose

The purpose of this paper is to explore the concept of networking as a potential tool for revitalizing business models especially in the context of International Business (IB). To this end, a pure network-based business model will be presented on the case of the European Network of Research and Innovation Centres and Hubs (ENRICH) in Brazil. Initiated and funded by the European Commission the aim of the project is to establish a network of centres in the world's most promising, dynamic and innovative countries. The desired impacts encompass consolidated and increased cooperation between research, technology, and business organizations and individual researchers from Europe and partnering countries.

The business model is based on an agile networking concept, which enables involved parties to connect to the network but also allows them to disconnect from it when necessary without contractual disputes. We propose that this model can be implemented both by profit seeking and non-profit organizations. As of ENRICH in Brazil, it is a non-profit organization that is expected to become financially self-sustainable after the initial funding period.

##### b) Design/Methodology/Approach

ENRICH in Brazil constitutes from network of actors interested in either benefitting from or providing services in support to European (Brazilian) research and innovation players that aim at tapping into Brazilian (European) markets. Comprising various stakeholders such as companies, universities, research and innovation organizations, funding agencies and non-profit organizations, this network-based community acts under the umbrella of ENRICH in Brazil which has a mission of encouraging and facilitating cooperation in research, technology and entrepreneurship between Europe and Brazil by supporting and empowering all innovation actors (public & private) along the innovation (value) chain. It's objectives are:

- to promote excellence in business, research, and innovation (B&R&I)
- to create a win-win situation for Brazilian and Europeans in the area of science, technology, and innovation
- to connect European / Brazilian researchers & entrepreneurs in the Brazilian /European market
- to offer services to Brazilian and European clients
- to integrate existing European and Brazilian initiatives, projects, and networks

Every network-based business model has a focal organization at its core (Zott and Amit, 2009), which is ENRICH in Brazil's headquarters combined with its branch offices. The individual contribution of each member of the network need to align with their own existng business portfolio yet not compete with their existing markets (Lund and Nielson, 2014). Accordingly, transparent communication with potential community members about mutual benefits is set to be the key of successful and sustainable networking.

In order to identify and map mutual benefits and develop a business model that involves mass-cooperation, we utilize the Business Model Canvas developed by Osterwald and Pihneur whilst extending it by independent canvases of ENRICH in Brazil's community members. To establish and foremost to make assumptions about the detailed business model of each potential networking partner, especially private companies, is a time-consuming and inefficient process. Therefore, a general canvas for each community member group will serve as a ready-to-use sample-model (e.g. universities, NGOs, profit seeking private firms, individuals, etc.).

### c) theoretical base

Today networking has various meanings and defintions depending on in which area it is used and for what purposes. Even in the Neolithic period, the concept of networking existed in the form of a network of cultural interactions, commodity exchanges or network of campsites (Ibáñez, 2015). In this paper, we refer to networking within the view of business as a network of professional relationships that have a potential to contribute to organizations growth and prosperity.

The benefits of networking have been documented by numerous empirical works such as Ostgaard and Birley (1996), Lechner and Dowling (2003), Rogers (2004), Watson (2007) and Park et al. (2010) (as cited in Schoonjans, 2013). These benefits range from ressource pooling to risk-sharing. Most organizations do not own all necessary resources,

capabilities and infrastructure neither do they perform all activities by themselves. What they do is rather rely on other firms for certain resources and performance of particular activities (Osterwalder and Pigneur, 2009). Yet, it does not mean that the broader the networking scope is the larger the benefits are. For businesses to have a small networking circle where the members have been carefully selected is more valuable as it provides higher security, reliable information exchange and long-term relationship.

According to Lund and Nielsen (2012), a network-based business model is a business model that comprises several stakeholders who create a joint value proposition based on the available resources and key activities of all stakeholders. The special aspect of such a business model is that stakeholders are not bound to interact in a traditional value chain manner (Lazzarini et al., 2001) but are free to perform in any direction be it downstream or upstream as long as it drives the value added of the network. As partners can also influence value creation, networking is seen as a competitive advantage.

#### d) expected results

The networking based business model of ENRICH in Brazil applied successfully is expected to lead to a medium-term financial sustainability of ENRICH in Brazil's Headquarters and its regional branches but also contribute to the profit generation, growth and visibility of the affiliated organizations and individuals (networking partners). The expected impacts of ENRICH in Brazil's activities and performance are the following:

- reinforced cooperation and collaboration between European and Brazilian science, technology and innovation (STI) actors
- higher visibility and prestige for European (Brazilian) STI actors in Brazil (Europe)
- Stronger presence of European (Brazilian) private and public organizations as well as individuals in the STI environment of Brazil (Europe)
- Improvements of the framework conditions for international cooperation in STI field in both regions
- Enhanced impact of results from research and innovation projects, such as Horizon 2020, through increased access to excellence and markets of Brazil (Europe)

The proposed business model will allow ENRICH in Brazil to acquire key private and public networking partners with distinct backgrounds in an ad-hoc style. Meaning, the

networking is performed in an agile form. When ENRICH in Brazil requires certain resources and knowledge/capabilities, suitable networking partners will be pursued and attached to the business for a duration of services to be offered / project.

e) originality/value

In the last decades many businesses thrived on strategic partnerships. The model alleviates the burden of having all resources that go beyond what is necessary for a smooth business operation (beyond domestic, in the beginning phase of internationalization and later on as well). Its agile characteristics that allow organizations to cooperate for a specific purpose for a short time but repeatedly over a long-term has the benefit of eliminating the rigid contractual conditions. Furthermore, it can be adopted by other organizations, as many are forced to become financially self-sufficient by the end of their initial funding.

f) practical implications

The main aim of this paper is to present a business model that has been developed for the ENRICH in Brazil. The model concentrates on the creation and consolidation of connections and networks allowing businesses to burgeon based on these networks. Results of this paper can be used by different types of organizations that are characterized by loose organizational structures and who seek to focus on business networking approach for further development of their businesses. By deploying or leaning on the proposed model, they have a possibility to expand globally at an exhilarated speed with relatively less initial investments. Especially at times of increased protectionism that makes harder for private firms to compete in the world's most promising emerging markets, the model offers a way out of the stalemate and find an opportunity to do business in the changing global economy. The model does not exclude and hence let itself extend by digital solutions.

The findings can be also put into practice by government institutions attempting to establish cross-country organizations. The contribution of this paper helps to position various potential networking partners around a business model such that it becomes the core business of the organization but also generates additional value to the members of the entire network.

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## 2.14. Competence-oriented configuration of learning factory modules for Industrie 4.0

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### **Abstract:**

Many international manufacturing companies implement modern information and communication technologies in their production environment to stay competitive in the global competition. Federal high-tech strategies promote companies that integrate various technologies. Representative examples are “Industrie 4.0 (I4.0)” [1] in Germany or “Made in China 2025” in China. I4.0-technologies lead to new opportunities for future challenges. One of these opportunities is the increasing number of product variants up to lot sizes of “1”. The production of individual products increases the complexity of production processes. According to this, employees in manufacturing companies face higher requirements. For handling these requirements, new competencies are needed. Therefore, the development of these competencies plays a crucial role. Learning factories offer realistic environments to develop these competencies effectively [2]-

The aim of the research project CaMPuS is to develop a physical learning and innovation environment for competency development in China. In order to optimize production processes – by using I4.0-technologies – the competencies of Chinese engineers and managers are analyzed. The project focuses on three identified I4.0-technologies: component traceability, worker assistance and cloud services. A basic prerequisite for digitized production is component traceability which enables all data and information in production to be linked to the corresponding component [3]. Based on this, digital worker assistance systems offer many advantages, as they are individually adaptable, real-time capable and location-based. Furthermore worker assistance systems support manufacturing or assembly processes and supply workers with the required information in a targeted manner [4]. This provides employees with individual support and enables them to avoid errors, such as during the assembly process. Component traceability

generates a large amount of data. To have access to this data most efficiently across production locations, cloud services can be a suitable solution. The most important competencies for production engineers and managers include the analysis of the benefits of the respective technology. Decisions on the implementation of the technology can only be made after an assessment of the benefits has been completed. For these decisions, competencies for the technical understanding of the technology are needed.

For the competence development, modular and mobile production lines can be used, that are called learning factory modules. However, so far no learning factory modules have been designed for component traceability, worker assistance and cloud services. Therefore, different design options for these three I4.0-technologies are developed in this paper. Furthermore, there is no structural approach that guarantees the optimal design of the learning factory modules: The goal of this paper is to find this optimal design. Therefore, a mathematical optimization model is used and formalized by a multiple-choice knapsack problem (MCKP). The model is based on utility values for each design option and maximizes the sum of all utility values while respecting the available budget. Utility values are determined with the help of a utility analysis based for the requirements of the learning factory modules: technical, organizational and didactic requirements need to be determined by literature research and expert interviews. These requirements are based on the abovementioned competencies for I4.0-technologies. Each design option is evaluated based on the degree by which the requirements are fulfilled. An exact algorithm for the optimization problem guarantees the highest utility value possible and therefore the optimal design of the learning factory modules. Varying utility values or a varying budget results in a varying optimal design. As a result of this competence-based approach, modular learning environments for I4.0-technologies can be designed systematically [5].

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## **2.15. Complementary colors and consumer behavior: Emotional affect, attitude, and purchase intention in the context of Web banner advertisements**

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### **Abstract:**

**Purpose:**

The purpose of this paper is to study how color contrast (complementary vs. analogous colors) affect individuals' emotions and attitudes towards advertisements and purchase intention in the context of online web banner advertisements.

**Design/methodology:**

Two surveys (Ntotal = 356) were conducted via the Qualtrics platform. The majority of participants were from the US and Estonia. The variables assessed included complementary and analogous color sets, Pleasure-Arousal-Dominance (PAD) scale, attitudes toward advertisements/brands, and purchase intention.

**Results:**

Study 1 showed that the complementary color set of green and red elicited statistically higher levels of pleasure than all other color sets (yellow-violet complementary; orange, orange-red, orange-yellow analogous; and blue, blue-green, blue-violet analogous). In study 2, the green and red complementary color set had more positive attitudes and higher purchase intentions when used as the background of a web banner advertisement than all over color sets.

**Limitations:**

The study used self-reported measures in online surveys, which are subject to biases.

**Research/Practical implications:**

One surprising aspect of our findings was that pleasure seemed to be the only emotion that was correlated to more positive attitudes and higher purchase intentions. This finding

is particularly important for marketing advertising, as it shows that a pleasurable color set, when all other factors are held constant (product, text, image) could have a profound effect on consumer's attitudes towards advertisement and their purchase intentions.

Originality/value:

This is one of the first studies focusing on the specific distinction between complementary vs. analogous colors in consumer behavior.

## 2.16. Coworking in Mid-Sized Cities: A Pathway to Local Economic Development

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### **Abstract:**

Key words:

Knowledge economy

Coworking

Sharing economy

Entrepreneurship

Urban revitalization

Regional economic development

Twenty-first century cities are facing increasingly complex environmental, economic and social challenges. In growth areas like Ontario, Canada, the provincial government has implemented a regional-scale plan to counter the negative impact of unchecked urban sprawl while also protecting the region's natural heritage.

The Growth Plan for the Greater Golden Horseshoe aims to change the provincial planning paradigm by directing how and where residential and commercial growth can occur in cities. This plan, to create complete communities, enhance transit corridors and revitalize downtowns, includes eight standalone mid-sized cities that are outside of the legislatively protected Greenbelt area and the primary Greater Toronto Area commuter-shed.

The growth plan mandates that these mid-sized cities achieve employment and residential targets in newly created urban growth centres that are located in their respective downtowns. This research explores the history of downtown decline in these once-thriving Canadian mid-sized cities and seeks to understand the role that mandated growth planning, and the parallel rise of a knowledge-intensive economy, can play in urban revitalization. Using an empirically-based, multi-city study, this research explores local

economic development strategies smaller urban centres can use to attract jobs into their downtown cores.

Beginning in the early 2000s, coworking emerged as a shared office space movement to support and attract knowledge and creative workers and related businesses in urban environments. Since the rise of coworking following the 2008 global economic crisis, and the subsequent increase in precarious employment, little attention has been given to how coworking spaces function in smaller urban centres. As such, this research asks: What role can coworking spaces play in fostering local economic development and urban revitalization in mid-sized cities?

Through 23 semi-structured interviews across seven mid-sized cities and 11 coworking spaces, this research highlights how coworking spaces can begin to contribute to downtown renewal, build the knowledge economy in smaller urban centres, foster a culture of entrepreneurship, and support regional planning in Ontario's mid-sized cities.

Findings illustrate that coworking spaces are helping support local economic development and cultivate knowledge industries in smaller urban areas. Coworking spaces mirror their global counterparts by catering to a new generation of entrepreneurs and knowledge workers. Moreover, coworking spaces in mid-sized cities have also emerged as an important urban ally. Through well-appointed downtown office spaces; carefully curated programming; stewardship of heritage buildings; and partnerships with local non-profit groups, business associations and universities, coworking spaces are actively contributing to urban renewal.

While this model of organizing labour is relatively new in mid-sized cities, the ability of coworking spaces to cultivate niche, knowledge-based industries, and retain affordable workspace in rapidly gentrifying downtowns, is worthy of further study and analysis.

While this study is focused on a range of mid-sized cities in a growth area of Ontario, Canada, the methodology can be replicated in other growth and non-growth regions in Canada and internationally. This study is limited in that it does not track the impact that coworking spaces have on downtown economies over a longer period of time. New research in this area could track the number of businesses incubated in coworking spaces and whether they eventually grow and rent independent space in their cities.

## 2.17. CREATING A KNOWLEDGE-BASED ORGANISATIONAL CULTURE CONDUCTIVE TO KNOWLEDGE SHARING: ROLE OF KNOWLEDGE LEADERS

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### **Abstract:**

The characteristics of the new economy together with globalised technological and cultural advances changed organizational environments significantly. In order to stay competitive, organizations need to acknowledge the value of their knowledge assets and the necessity to become knowledge organizations to transform and adapt to these changes through knowledge management. Although there are many studies on knowledge sharing, few examined the role of knowledge leaders and the combined effect they have on the culture of the organisation. The commonality of most recent research indicates an emphasised focus on the knowledge management of information creation and sharing to create a knowledge-based organisational culture conducive to knowledge sharing. This emphasises the role of and need for knowledge leaders for positive intervention to enhance knowledge sharing for problem-solving and innovation by efforts to develop a culture of trust and commitment. Where knowledge management focuses on two main theoretical perspectives, namely human capital and knowledge based theory, the leadership theories emphasise that leaders should acknowledge the premises of the strategic intent of the organization through the management of information, creative media strategies and environmental scanning based on trust, loyalty, integrity and credibility. Hence, it is argued that the role of knowledge leaders in knowledge management is a combination of continuous enquiry on the systems and processes of an organization as well as how the functioning of the organization can be improved through proactively and interactively managing the intellectual capital (individual and collective knowledge) under its leadership. The degree of individual knowledge is personal and based on the individual's willingness to acquire and/or share this knowledge which is difficult to manage. Individual sense making refers to the relationship between the signifier (norm) and the signified (sens) and the meaning created. This means that individuals should participate in the knowledge creation and sharing process in such a

way that they interpret the world as their own understanding to ensure meaning is created to others. Although organizational knowledge has been recognized as a valuable intangible resource that holds the key to competitive advantage, little progress has been made in understanding how knowledge sharing at individual level could benefit knowledge use at collective level to ensure added value. Furthermore, although leaders paid attention to the learning organization initiative, it was not implemented in organizations which created the realization that knowledge management should be applied to the entire organization at all levels to ensure that learning takes place through knowledge creation, codification, storing and sharing. During the change process, it is argued that leaders should comply to the following: empower individuals (like employees) to respond creatively; adopt personal and active attitudes towards individual and organizational goals to contribute to resonant leadership practices; should be self- and socially aware (and therefore be able to recognize, understand and react empathetically to his or her own and others' emotions and goals); be equipped with skills such as self- and relationship management (which are characterized by transparency, adaptability, collaboration and inspiration); should be associated with a supportive organizational climate due to a constructive organizational culture; and their role in the change process is to inspire people. This is in contrast to the traditional approaches which focus mainly on rationality and control to maintain organizational goals, resources, structures and the people involved with these. Because knowledge management is presented as the theoretical foundation for this study, specifically the importance and role of change agents or experts which can manage all information at all levels (individual and organizational), the term knowledge leaders has been adopted and highlighted in the theoretical framework. This set the scene for the move towards the concept of knowledge-oriented leadership or knowledge leadership linked to organisational culture. The need for further research on knowledge leadership to create a knowledge-based organisational culture provided impetus for the research problem that a lack of studies exists to investigate the role of knowledge leaders to create a knowledge-based organisational culture. This study seeks to address this gap with the main objective to critically review existing literature through an exploratory interpretivistic approach and to propose a theoretical framework for knowledge leaders to create a knowledge-based organisational culture. Interpretivism as research methodology stems from an epistemological position and refers to the critical application of analyses of various academic traditions to study the social world.

## 2.18. Cyber security-centric business models and processes for the industry 4.0

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### **Abstract:**

**PURPOSE:** Business models and business processes that are applied in the industry 4.0 are, to a large extent, based on the principles of informatization, digitalization and automatization. For this reason, they are becoming substantially exposed to cyber security risks and vulnerabilities, which may cause financial losses, decreased competitiveness and market share, system downtime, or even negative socio-economic, political and regulatory consequences. It is therefore essential to minimize cyber security risks that pertain to business models and business processes, as well as to establish proper mechanisms that enable efficient recovery after possible cyber attacks, data breaches or other types of security breaches. It is our assumption that, in relation with the industry 4.0, cyber security should be at the core of each successful business model and business process. The purpose of this research work is to define and introduce a general framework and a methodology for cyber security that, on various levels, prevents cyber attacks, cyber risks, security breaches and data misuses that pertain to informatized business models and business processes for the industry 4.0. In this way, such models and processes become cyber security-centric at their core.

**MAJOR THEORETICAL FOUNDATIONS:** The research is based on several relevant theoretical areas: (1.) cyber security, (2.) information systems, (3.) business process management, (4.) business model theory, and (5.) industry 4.0. All of these fields have strong and comprehensive theoretical foundations, and have been subjected to many important and successful practical applications and implementations. They hence represent a solid and encouraging basis for the original and innovative research at their intersection.

Cyber security, in particular, is becoming an increasingly important and well researched field due to the fact that the number and intensity of cyber attacks is rising at an incredible speed according to several statistics and studies. Cyber security mechanisms and policies are therefore, at least partially, implemented in numerous organizations, companies and IT/OT-integrated systems. Many providers of cyber security services are also present on

the market. However, to the best of our knowledge, a formal, holistic and theoretically sound approach to integrate cyber security into the core of business models and business processes for the industry 4.0 has not been introduced yet. This research hence builds extensively on the existing theories in order to establish a sound theoretical basis for cyber security-centric business models and business processes, as well as to lay formal foundations for their applications.

**DESIGN/METHODOLOGY/APPROACH:** The main approach on which the presented research is founded is to theoretically define and propose an original methodology, to design an accompanying cyber security framework and to introduce the appropriate infrastructure that is related to information technology and business processes. Several research methods are applied: overview of related research work, study of theoretical foundations and underlying scientific areas, formal introduction of a theoretical framework and methodology, SWOT analysis, and case study.

We develop and introduce a general framework and a methodology for cyber security that prevents cyber attacks, cyber risks, security breaches and data misuses that pertain to informatized business models and business processes for the industry 4.0. The framework is twofold. On one side, it directly integrates mechanisms and elements of cyber security into business models and processes. On the other hand, it allows to design and develop new business models that provide and sell to customers cyber security solutions in the form of individual, autonomous or supplementary services. We hence establish the subprocess of cyber security as an integral and central building part of a generic model of informatized business models and business processes for the industry 4.0. We also define and introduce a new generic formal business model to provide, market and sell individual components or sets of related components of the cyber security framework.

We specify a wide and comprehensive set of framework components and elements that target all key aspects of the cyber security process and life cycle – prevention, detection, response and recovery. This set of factors also addresses three basic attributes of information – availability, integrity and confidentiality.

Complementary to the main methodology and framework, we further extend the research by the means of several additional goals. Firstly, we place the cyber security process and life cycle into the domain and competence of the security operations center, whereby we establish the role and organization of this center. Secondly, we evaluate the efficiency of

the proposed approach with a case study. Thirdly, we present a few applications and special cases, such as the protection of critical data transactions and business data in the distributed persisted blockchain. Finally, we analyse the strengths, weaknesses, opportunities and limitations of the approach by the means of SWOT analysis.

**ORIGINALITY/VALUE:** The primary contribution of the presented research with regard to the originality and value is that it introduces a formal, holistic and theoretically sound approach to integrate cyber security into the core of business models and business processes for the industry 4.0. In this way it establishes the basis for cyber security-centric business models and processes that consistently and directly incorporate key cyber security elements. It systemizes these elements into a comprehensive standardized framework. It also lays foundations for various applications and defines a generic model to provide, market and sell components of the cyber security framework in the domain of industry 4.0.

**FINDINGS, CONCLUSIONS AND EXPECTED RESULTS:** The presented research introduces a methodology and a complementary framework. They are both expected to be fully applicable and to perform efficiently according the case based study, several applications and the evaluation which is based on qualitative criteria and the SWOT analysis. By applying the proposed approach, business models and processes for the industry 4.0 are expected to be potentially improved. Services and processes may become more stable and secure, and can gain a higher added value. Innovative cyber security-centric models for the industry 4.0 may also be introduced that build on the introduced theoretical foundations.

**PRACTICAL AND RESEARCH IMPLICATIONS:** Practical implications include: (1.) the increase in reliability and security of business models and processes for the industry 4.0, (2.) the optimization and a higher added value of such models and processes, (3.) the ability to introduce new innovative models and services, and (4.) a systematical approach to consider elements of cyber security in the industry 4.0. From the research perspective, the study is interdisciplinary and opens several further possibilities to synergistically consolidate different research fields. It formally, comprehensively and systematically addresses a topic which has not been extensively studied in the past.

## 2.19. Do Managers Have an Illusion of Explanatory Depth in Digitalization?

### Results from Experimental Tests

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#### **Abstract:**

##### Theoretical Foundation and Research Gaps

The illusion of explanatory depth (IEOD) refers to “people’s limited knowledge and their misleading intuitive epistemology” (Rozenblit & Keil, 2002, p. 522). It explains the overly optimistic self-assessment regarding someone’s understanding of complicated causal patterns. Rozenblit and Keil (2002) have shown that an IEOD can be observed as an overconfidence in explaining devices (such as a flush toilet, a zipper, or bicycles, see Lawson, 2006), and natural phenomena (e.g., how tides occur, why comets have tails, etc.). In addition, they have shown a modest overconfidence in geography facts, but no such overconfidence regarding narratives (movies) and procedures (e.g., how to tie a bow, bake cookies).

Further research on this topic has replicated the IOED-effect for devices (Alter, Oppenheimer, & Zemla, 2010; Mills & Keil, 2004; Roeder, 2018; Silk-Eglit & Kurtz, 2012; Zeveney & Marsh, 2016) and has also shown an IEOD-effect for political policies, positions and voting (Alter et al., 2010; Fernbach, Rogers, Fox, & Sloman, 2013; Roeder, 2018; Voelkel, Brandt, & Colombo, 2018), mental disorders and treatments (Zeveney & Marsh, 2016), science based behavioral recommendations for health improvement and climate protection (Bromme, Thomm, & Ratermann, 2016), and how products work (Fernbach, Sloman, Louis, & Shube, 2013). In all these contexts, the participants believed to understand the mentioned phenomena better than they actually did.

The participants of these studies were either graduate or undergraduate students (Alter et al., 2010; Bromme et al., 2016; Lawson, 2006; Roeder, 2018; Rozenblit & Keil, 2002; Silk-Eglit & Kurtz, 2012), cycling experts (Lawson, 2006), children under 12 years (Mills & Keil, 2004) or a sample of adult participants from Amazon MTurk or an online panel

with no specific background (Alter et al., 2010; Fernbach, Rogers, et al., 2013; Fernbach, Sloman, et al., 2013; Roeder, 2018; Voelkel et al., 2018; Zeveney & Marsh, 2016).

The experiments exploring the IOED in different topics mentioned above use self-written explanations (with occasional, ad-hoc auxiliary sketching) as a moderator for the adjustment of the self-assessment, only the bicycle experiment used a visualization (drawing of a bicycle, Lawson, 2006). This choice of mode for the self-explanation fits the goal of these researches, to show an IOED-effect for different topics. More simply put, the participants realized the limitations of their own knowledge when having to describe the phenomenon in writing.

Based on this current state of research, we have identified three pressing research gaps regarding the IOED:

1. The phenomenon of the IOED has not yet been shown for the population of experienced managers with a responsibility of strategic decisions, although they experience many of the factors that the IOED theory predicts lead to this phenomenon. Rozenblit and Keil (2002, pp. 522–523) have identified four factors – and thus potential predictors, producing an IOED: a) a confusion between what is represented in the head with what can be recovered from a display in real time (confusion of environmental support with internal representation), b) a confusion of higher with lower levels of analysis (hierarchical explanations – from explaining a unit to explaining a subcomponent), c) because of the complex hierarchies of explanations, they have indeterminate end states, and d) the rarity of production (rarely given explanations of certain phenomena).
2. Additionally, the IOED phenomenon has not yet been shown for managerial issues and topics with “complex causal patterns” like topics of digitalization (e.g. “how well do I understand how blockchain works”) which are part of strategic decision making processes and fit the definition of “explanatory, theory-like knowledge that may converge to convince people they have vivid, blueprint-like senses of how things work, even when their actual knowledge is skeletal and incomplete” (Rozenblit & Keil, 2002, p. 522).
3. There is also no existing research in analyzing mode effects in the adjustment of the IOED-effect. We do not know whether writing is in deed better than visualizing (sketching) in order to make a person aware of their knowledge limitations – and thus support a potential facilitation of strategic episodes.

## Purpose and Value

These research gaps lead to the following research questions:

1. Can the illusion of explanatory depth be replicated with participants with a management background on an explanatory, theory-like issue linked to decisions made in companies (“how well do you understand how Google ranks its search results”)? (Preliminary experiment 1)
2. Can the illusion of explanatory depth be replicated with participants with a management background in the context of explanatory, theory-like digitalization issues with a link to strategic decision making? (Experiment 2 and 3)
3. Do mode effects (text/visual) lead to a difference in the perception and adjustment of the individual illusion of explanatory depths in strategic contexts and therefore help to reduce the individual bias in the belief-adjustment in strategic decision making? (Experiment 2 and 3)

Thus, the purpose of this research is to extend the concept of IOED to the additional population of management practitioners with experience, in a managerial environment, involved in strategic decision making and with topics relevant for strategic decisions. A central objective is to show, that there is an illusion of explanatory depth in strategic management decisions and how the facilitation of strategic episodes can take care of this by reducing the illusion in the belief-adjustment in the most effective mode.

## Research Design and First Results

First results of the preliminary experiment 1 (“how well do you understand how Google ranks its search results” with 241 managers from 30-55 years) already show a significant IOED in this population, replicating the results of the original study in this new environment and thus answering research question 1: Between the measure T1 (original self-rating), T2 (self-rating after a self-explanation of the phenomena), and T3 (after a diagnostic question concerning the phenomena) there is a significant drop in the self-estimates (means T1=3.36, T2=3.11, T3=2.84, repeated measures ANOVA:  $F(2/639) = 9.7911$ ,  $p < .0001$ ).

In a next step experiment 2 will be executed, focusing on two different aspects: Mode effects (via two manipulated conditions in the self-explanation phase) and the extension of the IOED-effect on more complex patterns with a strategic context, the understanding of current key concepts of digitalization: Artificial intelligence, blockchain, internet of things, 5G mobile, virtual reality, augmented reality and big data analytics.

To bring this research even closer to the reality of strategic episodes, the third experiment, a replication of the second, will focus on the understanding of how the participants understand not only how these concepts of digitalization work, but how they influence the participant's business model within the next five years and thus how much managers of today have to adjust their self-knowledge about knowledge that influences their strategic decisions.

The results of experiment 2 and 3 will be part of the conference paper and conference presentation.

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## 2.20. Are Massive Open Online Courses More Effective than Traditional Classroom?

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### **Abstract:**

The acceleration of Information Communication and Technology (ICT) has dynamically changed the landscape of tertiary education which replaced the conventional teaching method (CTM) in delivering the lesson content. The CTM emphasizes on usual teaching method, by using marker, white board, talk and written notes, while learning is based on memorizing. To adapt to the advancement of digital lifestyle, educators have to be alert, dynamic and always up-date to the latest changes in technologies. They are no longer the dispenser of information, but rather plays the role of facilitator, providing suggestions and encourage students to explore the information. Educators, therefore, should be proactive and creative to transform non-creative design courses to effective multimedia teaching aids as to ensure effective teaching and learning engagement.

In relation to this, Massive open online course (MOOC) is invented as a platform for learning and teaching in relation to multitude of courses on the web. Educators, are encourage to develop and post their teaching course via MOOC. All web users worldwide are invited to join the course that promotes convenience interactive multimedia. This open on-line course provides incomparable classroom experience by developing effective learning engagement, through the multimedia material extensively on an interface screen. The presence of this digital course continues to grow in higher education, and many students eager and exited to learn with technology.

Many prior studies found that MOOC is effective in improving students' academic achievement (Bahadir, 2017; Liong & Mohd Yassin, 2016; Kueh, 2010; Ting, 2010). On the other hand, several studies have different views, of which they opined that MOOC are not suitable for students that have no or difficult access to internet (Moeller et al., 2011; Lee & Kang, 2002). The different in views becomes debatable and motivates this study to decipher the effectiveness of both methods namely MOOC and CTM on students' academic achievement. Apart from that most of prior studies examine this issue by using qualitative or quantitative approach by using survey questionnaire. To enhance

understanding of the issue, this study intends to examine the issue in different context, of which experimental approach is applied in analysing data.

In relation to this, the objective of this study is to decipher effectiveness of MOOC and Conventional teaching method (CTM) in Integrated Case Study course among Malaysian's accounting students. Integrated Case Study is a final course for undergraduate accounting student. The course is dull, dreary and boring that emphasizes on critical and analytical thinking, and problem solving. An experimental study was employed with non-equivalent pre-test and post-test control group design. Respondents consisted of sixty accounting students from one of Malaysian's public university. This study is an experimental study with non-equivalent pre-test and post-test control group design of which the hypotheses were tested by using inferential statistics. The respondents were divided into experimental (EG) and control group (CG). Each group had 30 students of which they were equally divided based on prior examination performance. These steps were taken to ensure a homogenous composition of respondents in both groups with regards to the level of academic achievement.

Three instruments were used for this study namely pre-test, post-test and a set of questionnaires. A pre-test (O) was conducted for both groups, the EG and CG. The pre-test contains of a case study of 2 pages and 3 main questions. Marks would be awarded on appropriate answer given by the respondents. The maximum score is 100 and the minimum score is 0. After completing the pre-test, the EG was taught through MOOC in learning multiplication (UFM) (X1) while the CG was given a conventional teaching method (CTM) (X2) treatment. To ensure that the teaching adopted a purely MOOC/CTM, the researcher explained the respondents on the meaning of the MOOC/CTM method, scopes, schedule and duration of teaching session before the teaching were conducted.

The Case Study teaching for EG and CG was conducted with the same scope, schedule and duration. They had a similar lesson plan for each session. To ensure that both researchers have properly conducted through MOOC or CTM, the sessions were monitored by a checklist. The checklist contains 13 items that describe the situation or behaviour of an educator when handling the teaching and learning sessions. The researcher was required to indicate either "yes" or "no" to each item based on the situation or what was usually done by the teacher. The checklists are important to ensure that there is no bias against EG or CG. The sessions were conducted 4 hours in a week for a period

of one month, totalling to 16 hour lessons. As the contents only cover one topic, the period of teaching for two hours per week is deemed appropriate.

Data were analysed by multivariate of MANOVA and paired sample t-test. Results indicated that both groups showed that there is a significant difference between the pre-test and post-test integrated case study assessments within group. However, EG who was treated with MOOC has higher magnitude of effect over CG who was treated with CTM. There is also a significant difference in integrated case study assessment between groups in the post-test but not in the pre-test. The study provides useful insights to various educational communities in the context of diversifying the delivery modes. Emphasizing MOOC, along with CTM in educational curriculum would impetus students' interests in learning, increase motivation and self-esteem, and boost their academic achievement. Diversifying and mastering many delivering methods would not only make the learning fun and enjoyable but also effective and workable.

The study provides implications to students, educators, higher institutions and educational authorities to play concerted efforts either individually or collectively to support, adopt and practice MOOC apart from CTM in learning and teaching. It is hoped that this initiative would prepare students for the future and be agile to meet the challenges in relation to the vibration of technologies and thus elevate Malaysian students' performance to be on par with other developed nations.

## 2.21. Ecological policy versus socio-economic development of the EU countries.

### Selected aspects

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#### **Abstract:**

a) purpose:

comparison of the effectiveness of the EU ecological policy impact on sustainable socio-economic development in the aspect of climate policy challenges, indication of ineffective areas and formulation recommendations for the governments of the EU countries,

b) major theoretical foundation:

Previous analyzes have focused primarily on the cost effectiveness of ecological policy, while they have not taken into account the effectiveness of its impact on socio-economic development of the EU countries. They were also not based on the DEA (Data Envelopment Analysis) method.

c) research methodology:

The DEA method derives from microeconomics and is a method of efficiency testing based on a production function constituting an empirical envelope of data. In DEA, the concrete form of the data envelope is shaped directly by the system of empirical points, and not, as is the case, for example, in econometrics or mathematical economics, from interdependencies and considerations of a mathematical or economic nature. On the basis of the data envelope analysis, many interesting properties of the technological process can be determined, for example: performance indicators of objects, size of economies of scale, patterns for ineffective objects, the form and structure of optimal technologies, inputs and effects of a critical nature for a given object. The DEA method has found extremely wide empirical applications, including in areas such as: financial and insurance sector, educational institutions, farms, military institutions, cultural institutions, hospitals and health care facilities, sport and tourism, trade, transport, production, law and forensics, company or product rankings, and analysis of the performance of listed companies. In the analysis carried out on the basis of the DEA method, a distinction

between three types of efficiency: technical, pure technical and in the scope of economies of scale plays a crucial role. Technical Efficiency (TE) refers to the productivity of inputs (Sathye, 2001). This efficiency informs how efficiently the company (compared with other companies) converts input inputs to achieve effects, in comparison with its maximum potential in this respect, as shown by the Production Possibility Frontier (PPF) (Barros, Mascarenhas, 2005). Thus, technical efficiency (TE) in the case of an EU country means the efficiency of its government in the use of specific social policy tools in order to influence its effects (ie outputs). An EU country can be considered technically ineffective if it is below the capacity curve (PPF). The measure of technical efficiency, assuming Constant Return to Scale (CRS), is defined in the literature as a measure of Total Technical Efficiency (OTE). It helps to estimate both inefficiencies associated with inadequate inputs/outputs configuration (1) as well as the inadequate size/scale of operations performed by the company (2). In the case of an EU country, they can be interpreted as: (1) inadequate government selection of the tools of its social policy or (2) inaccurate scope / scale of its impact. When using the DEA method, total technical efficiency (OTE) can be divided into two mutually exclusive and non-additive components: pure technical efficiency (PTE) and efficiency of scale (SE). This decomposition allows to identify sources of inefficiency. The Pure Technical Efficiency Index (PTE) is obtained by estimating the Efficient Production Possibility Frontier (PPF), assuming Variable Returns to Scale (VRS). It is a measure of technical efficiency that does not take into account the efficiency of the scale (SE), which reflects only the efficiency of input management in the production process. In the case of an EU country, it defines inefficiencies in the manner of conducting environmental policy, or ineffectiveness in the use of its tools (for example in the form of ecological expenses). Dividing the measure of total technical efficiency (OTE) by the index of pure technical efficiency (PTE) allows obtaining a measure in the form of scale efficiency (SE), which shows the ability of the management to select the optimal size of resources, ie the selection of the optimal production scale. Inadequate company size/scale of production may indicate the existence of technical ineffectiveness called the inefficiency of the scale, which may take two forms: decreasing and increasing Returns to Scale. The occurrence of decreasing RTS, also known as diseconomies of Scale, means that the company is too large to achieve optimal benefits from the scale of production, while the existence of increasing economies of scale (Economies of Scale) can be interpreted as a situation in which it is too small to achieve the optimal scale of operations carried out by itself. On

the other hand, the company achieves optimal size / scale of production when it is in the area of Constant Returns to Scale (CRS). In the case of EU countries, this can be interpreted as follows: decreasing economies of scale means that a given country is pursuing an excessively broadly designed environmental policy, while growing economies of scale - conducting its environmental policy on a too small scale. In the first case, the country should limit the scope of this policy, while in the second - increase the scale of its impact. The aim of this kind of activities should be to be in the area of permanent economies of scale, allowing to achieve the optimal size/scale of this policy,

d) findings and conclusions:

1. Ecological policy is playing an increasingly important role in the social and economic development of EU countries.
2. The European Union aims at unifying the ecological policy, first of all by influencing the implementation of homogeneous rules of this policy in the member countries of the grouping.
3. The impact of environmental policy is very diverse in individual EU countries, mainly due to the different levels of their ecological development.
4. Ecological policy is in the sphere of soft competences and therefore it is more difficult to implement it by EU countries.
5. EU countries have different priorities in the field of ecological development and therefore the impact of environmental policy on their economies is different.
6. Ecological policy is an essential element of EU climate policy.
7. Ecological policy must be highly coordinated with economic and social policy.

e) originality/value:

1. The analysis carried out will allow to compare the diversity of the effectiveness of ecological policy conducted by individual EU countries, thanks to the use of DEA method, relatively rarely used in research so far.
2. The conducted research will provide the basis for making decisions in the field of ecological policy by the governments of individual EU countries.

f) practical and research implications:

The indication of the directions of further research plays a particularly important role, in particular:

1. Extended comparative analysis of the literature on the subject with particular emphasis on innovative research methods in the field of empirical analysis.
2. Conducting extended comparative studies, taking into account other research methods, in particular based on modeling of structural equations.
3. Investigating the significance of impact using selected methods.
4. Providing knowledge on the effectiveness of using specific ecological policy instruments in EU countries.

## 2.22. EFFECTS OF FINANCIAL MANAGEMENT AND CONTROL SYSTEM IMPLEMENTATION ON BUDGETS OF COUNTIES IN CROATIA

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### **Abstract:**

Development of financial management and control system in the public sector has positive effect on the reduction of irregularities in the public administration and contributes to detection of different manipulations with public funds. Furthermore, it reduces the corruption risk and ensures preconditions for effective public fund management. Financial management and control system is established and developed to ensure efficient financial management in public sector. This system is designed to control business performance in a manner to support the realization of goals ensuring that funds are spent on economical, efficient and effective way. The key purpose of this system is to ensure the financial statements' reliability and comprehensiveness and to protect public funds from losses caused by inadequate management and unjustified spending. The Republic of Croatia has developed this system on the request of the European Union. EU required from all member states to develop an appropriate system that would be in charge of (1) monitoring the operation and management of public sector units as well as (2) informing society on spending public funds. The aim of the paper is to investigate the effects of financial management system and control implementation on the budgets of counties in Croatia, precisely to research to what extent the implementation of this system influenced the counties' budgets. Empirical research was based on secondary data collected from the consolidated annual reports on the system of internal controls in the public sector of Croatia over a period of ten years. The data collected will be analysed using the correlation and regression analysis method. The paper presents the correlation between the development of the financial management and control system and the selected financial indicators calculated on the basis of information collected from budgets of counties in Croatia for ten years' period. The method of correlation analysis will be used to determine the degree of correlation between the two observed variables (selected factors of the financial management and control system and indicators from counties' budgets). In addition, if there is a statistically significant connectivity between the

observed variables, a regression analysis would be performed. This method explains the causal relationship between the observed indicators; in paper will be estimated the value of the dependent variable; and an appropriate regression model that describes the relationship between the observed variables will be developed. The representative of the obtained regression model will be verified by the coefficient of determination and the coefficient of regression variation.

## 2.23. EMBEDDING EKOLOGICAL REQUIREMENTS INTO NEW PRODUCTS

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### **Abstract:**

Ecology generally pertains to the study of relationships between various organisms and their environment. This includes consideration of plant, animal, and human populations in terms of rate of population growth, food habits, reproductive habits, and ultimate death. Growth of the world population, combined with the technological changes associated with our living standards, has created a greater consumption of our resources, resulting in potential shortages. The amount of wastes has increased significantly. The net effects of this have caused alterations to the basic biological process, and to some extent these alterations have been harmful. Those problems are of particular concern:

- Air pollution and control
- Water pollution and control
- Noise pollution and control
- Radiation
- Solid waste

Ecology needs to take into consideration all processes involved in product production, use and after using. Comparatively new approach is consideration all life of the product i.e. product life cycle. As new product with its features is created in process of design and manufacturing, so it is rational to consider all 'ecological' features of the product during design.

Design with the ecology in mind involves much more than designing so that products may be manufactured with minimal environmental impact. Very important consideration is the amount of environmental impact produced by products when and after they are used. Unlike the extraction or manufacturing environments, which are under the direct control of corporations, the use and maintenance of products after it passes to the consumer is largely constraint only by the product design. This circumstance places special responsibilities on the designer to envision aspects of design that minimize impacts during the entire useful life of the product.

Simultaneously considering in the design all phases of the product life, including production, consumption, maintenance, and the end-of-life, is called design for life cycle. This implies that, even in the conceptual phase of a product, the design of appropriate production systems and dismantling systems should be considered, because these systems depend strongly on the design of product itself and vice versa. Yet to apply such approach in practice a lot of information is necessary which is not available at the beginning of design.. Moreover, solutions that are preferably from the environment point of view , are not necessarily of the value for clients. For example, the client may not prefer the cover of engine made from environment friendly plastic. Thus, satisfying ecological requirements is not only important but also difficult task for producers. Consideration of requirements for products and processes relevant to any phase of the product life is obligatory for engineers, particularly for designers.

‘Design for Life Cycle’ methodology helps solving the problem. It considers all life of the product – from raw materials through their conversion, manufacturing and use to the after-use (reverse) period. Products should be easy to repair and disassembly (possibly without destroying of elements), reuse and recycling. Product design should regard ecology in all product life – as in exploitation phase as after it. It means: use materials that meet ecological requirements, apply environment friendly technologies, avoid generation of harmful scraps and other toxic substances, minimize energy and water consumption, utilize renewable resources and so on. Materials should be kept as much as possible in a closed loop while the reminders should conform to the natural biological cycle.

In the design of products, all phases of the life cycle must be addressed, including the product retirement and material disposal. Thus, the designers need to be sure that the materials selected can be reuse if possible, will not cause any toxicity problems, and can be decomposed without adding to the solid waste inventory that currently exists in many areas. Care must also be taken to ensure that the product characteristics do not generate the need for a nonreusable container or packing materials for transportation that will cause problems.

Product properties important for disassembly, recycling and reverse logistics show up in post operation phase only. Including these properties concurrently into design process is not an easy task. This has become possible only recently owing to the special-purpose computer programs for calculations and simulation, as well as by means of engineering data bases. These modern tools should be used to establish the information feedback

connecting retrieval technologies with the product designers [8, 11, 12]. It is estimated that at least 80% product attributes have been decided during development process primarily at conceptualization. Consequently, design teams are responsible for taking into regard problems of the product reverse part life cycle including disassembly for remanufacturing [8,6,12].

Designers are recommended to consider subsequently each phase of life cycle and note the pertinent requirements. This can result in a base for benchmarking in order to rank a new product on market. After exchange of views and discussion among designers and experts from other disciplines, for example, enterprise managers, economists, and ecologists it is possible to answer for five cardinal questions.

First question is about the product structure, its material and function including physical processes. Its composition, size, appearance, etc. If it will consists of elements of different usefulness to recovery after end of life easy process of segregation during disassembly should be considered.

In second question assessment of disassembled elements value for the producer is considered. Recurrent use of some elements can be economically profitable, e.g. electric engines, joints and other. A preliminary list of required materials should be created not forgetting of principles of value analysis.

Potential threats to the environment is subject of the third question. A list of parts that need special treatment when not used again should be prepared. A look into problems in ecology that may arise in distant future is necessary

What will be treatment of retired products – who and how is going to make assembling and sorting: Producer, user or a professional firm? How many stages will the process consists of? What will be final result? This information will help formulate product design requirements. It Is the content of the fourths question.

Finally, intention of the fifth question is searching for possible improvement of the product present concept. Is it possible to amend some ecological indicators by means of some parts exchange? How would it impact on the product long life? Duration of the product life and its parts should be estimated as well as its influence on maintenance, service, and repairs. Information resulting from these analyses is the basis for further product development.

Demands for reusing parts and materials result in formulation of a number of new sets of requirements for the modern products. They complement traditional set of the conventional design requirements. The general guidelines are listed in order:

- 1) Design of products adapted to remote repair or modification.
- 2) Comprehensive use of reliability information.
- 3) Design for predetermined life time.
- 4) Modular constructional structures for easy exchange of wear out parts.
- 5) Avoiding of noxious, difficult to disposal materials.
- 6) Design of products for which the manufacturer holds ownership for all their life cycle.

Above questions do not disturb or complicate engineering design, they only complement the traditional approach by taking A number of environmental features checklists have been prepared to offer general DfE guidance to product designers. Here is one of the best (adapted from P. Kaldjian, Ecological design: source reduction, recycling and the LCA, Innovation, 11-13, Special issue, 1992).

- Make it durable.
- Make it easy to repair.

Design it so that it can be remanufactured.

- Design it so that it can be reused.
- Use recycled materials to make it.
- Use commonly recyclable materials.
- Make it simple to separate the recyclable components of a product from the nonrecyclable components.
- Eliminate the toxic and problematic components of a product or make them easy to replace or remove before disposal.
- Make products more energy and resource efficient.
- Make products manufacturable using environmentally superior processes.
- Work toward designing source reduction-induction products (i.e. products that eliminate the need for subsequent waste).
- Adjust product design to reduce packaging.

## **2.24. Environmental dimension of CSR in retail with an emphasis on information flow**

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### **Abstract:**

The purpose of the paper is to define and explain dimensions of corporate social responsibility (CSR) by putting main focus on environmental dimension of CSR. Firstly, paper will give theoretical background on CSR dimensions. Secondly, paper will analyze four Croatian companies from retail sector and communication of this companies with their consumers in terms of CSR with special focus on environmental aspects. The main idea is to point out existing good practices of environmental dimension of CSR in communication with consumers and public in retail industry. Based on case studies, suggestions for improvement of information sharing in this area will be derived. Therefore, this paper could be useful to managers in retail industry when implement communication strategy in area of CSR. On the other hand, the paper could be a good starting point for future empirical research of CSR communication practices in retail, but also in other industries.

## **2.25. ERP in the edge of knowledge retention: how to prevent knowledge loss in customized manufacturing?**

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### **Abstract:**

Customized manufacturing entails a personalization demand, which turns manufacturing into a complex task difficult to solve automatically. Customized manufacturing requires completely new technological solutions and long and careful prototype development and testing. The unique requirements increase production costs, extend manufacturing time and entail frequent errors in the product quality. Customized manufacturing struggle with cost estimation, consequently, cost estimation at the initiation stage increases production complexity, and stimulate greater demand for organizational knowledge retention. Knowledge retention has been defined as “maintaining, not losing, the knowledge that exists in the minds of people (tacit, not easily documented) and knowing (experiential action manifesting in behavior) that is vital to the organization’s overall functioning” (Martins et al., 2012). Meanwhile, the impact of knowledge loss is a largely unexplored area of strategic management (Massingham, 2008). There are three sources where knowledge could be loss. It is loss of qualified personnel, loss of repositories (data and information storage loss) and failure to capture critical knowledge. All free sources of knowledge loss could be tackle by knowledge retention measures. From that perspective, knowledge retention can be implemented distinguished three approaches: technology-based; interaction-based (capturing the process and practices); culture-based (best practices with interactions of professionals). One of the major challenges for organisations is to manage knowledge assets for the purpose of gaining competitive advantage in every sector of industry including the customized manufacturing (Fong & Choi, 2009, Arif et al., 2012). Technology based approach rely on collection and preservation of information and facts and ERP is the most common solution to realize that approach (Blankenship & Brueck, 2008). So far, the knowledge management framework partially supported by ERP systems provide many advantages for companies knowledge management, mainly for data storing, sharing and structuration. Even though in general organizations acknowledge the benefits of knowledge management for their business operations (Chatzoudes et al., 2015). However still fails to respond to the

customized needs even though ERP's provide plenty of innovation solutions for prognosis, trending, etc.

The goal of this paper is investigate the path of knowledge preservation recognizing the ERP role and defining the stimulus to preserve knowledge for future decision of cost estimation in customize production.

Probst et al. (2006) divided knowledge preservation process in to three stages: selection, storage, and actualization, which will be used as a frame in further research in order to identify suitable information and communication technologies (ICT) tools for knowledge preservation.

## **2.26. European Union's research and development potential after British withdrawal – areas of influence**

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### **Abstract:**

The effects of the UK exit process from the European Union are the subject of numerous studies and analyses from the perspective of the British and EU economy as well as for the third countries. Researchers and politicians analyse the effects of Brexit on various levels, which is entirely justified, because the UK economy is among the largest in the European Union, and the integration process has been deepened. The unprecedented process of leaving the European Union will result in almost every area, and importantly, the real consequences can often be difficult to predict.

As a result, in the second decade of the 21st century, there are major changes in the world system of research and development, where in 2015, the centre of Asia accounted for 36.5% of global R & D expenditure, in the US - 26.7%, and in the EU - 28 - 20.5%. It is worth noting that up to the 1990s, the United States implemented over 40% of global R&D. It is a paradox that the processes of decentralization and internationalization of global R&D activity (UNCTAD, 2005a, pp. 7-10) are accompanied by a persistent strong concentration (Odrobina, 2015), because in three centres in 2015 it was 83.7% of global expenditures on R&D (OECD, 2018).

Decentralization of global expenditure on R&D, observed since the 1990s, manifests itself in involvement in research and development activities of other countries besides traditional triad centres (UNCTAD, 2005b, pp. 3-4, OECD, 2010). It is worth noting that by the end of the 1980s, R & D expenditures were implemented mainly in five countries (USA, Japan, Germany, France and Great Britain), which accounted for approximately 85% of global R&D expenditure (UNCTAD 2005c, pp. 97-103). And at the same time the leader's position was clearly visible - the USA, where expenditures were higher than the total expenditures of the remaining four (OECD, 2011, pp. 118-121). It was not until the second half of the 1990s that two Asian countries joined the forefront: South Korea (since 1995) and China (since 1997). Since then, China's importance in particular has started to increase significantly, so that since 2004 it has been in third place (after the USA and Japan), and since 2009 they have steadily strengthened in the position of vice-

leader in terms of R&D expenditure (Huang and Sharif, 2015). While South Korea from 2010 it ranks fifth in the world.

This article attempts to estimate changes in spending on research and development from the EU budget after UK resignation from membership and to determine the forecasted distribution of funds between EU member states. The conducted research was limited to the EU budget, excluding the participation of Great Britain in the European Investment Bank and financing of British projects by the European Fund for Strategic Investments. The study emphasizes the importance of innovation policy in the whole European Union as an answer to globalization and competitiveness with the third countries. In line with theory-based impact evaluation approach, the authors analyse future R&D situation and financing in the EU which has substantial implications from practical (real economy influence) and research point of view. To date there are only a few studies on the subject (Cipriani, 2014; European Commission, 2017, 2018; HM Treasury analysis: the long-term..., 2016; Núñez Ferrer J., Figueira F., 2011; Rubio, Pellerin-Carlin, Rinaldi, 2016; Veugelers, 2016; Zimmermann, 2015).

The aim of the study is also to determine the impact of the UK on the EU in the area of research and development and the importance of the EU in the global economy. As a result, an attempt was made to assess the extent of Brexit's weakening of various areas in EU R & D. The background to the considerations is the EU's position in the global R & D system.

The following research hypotheses were adopted:

- weakening the research and development potential of the EU after Brexit will negatively affect the EU's position in the global R & D system, especially in the area of enterprises,
- an increase in the EU budget for research and innovation will contribute to improving the European Union's position in the international arena, but only in the medium term, ie after the end of the multiannual financial framework 2021-2027.

In this context, Brexit will pose a serious challenge for the European Union, which will experience a weakening of its R & D potential, and the analysis has shown that the strength of this weakening will be visible at a level of several percent. In principle, this would not indicate a breakdown of the EU's research and development activity, but in view of the need to catch up with the US and East Asia, Brexit will be a serious problem, undermining the efforts already made to accelerate and accelerate technological progress.

## **2.27. Evidence-based HR: The promise of data analytics to enhance strategic HR and the challenges ahead**

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### **Abstract:**

This paper aims to take the shape of a provocative style of paper that is intended to present a number of questions coupled with a series of possible propositions or statements that highlight the state of affairs of evidence based HR and how these may evolve into the future. In essence, the paper will fulfil three specific purposes: The first part will be a brief introduction to Evidence-Based Management in general (Barends et al., 2014; Rynes and Bartunek, 2017) and a closer focus on Evidence-Based HR (Bezzina et al., 2017; Jacobs, 2015; Wright and Ulrich, 2017). Rousseau (2012) defines Evidence-Based Management (hereafter EBM) as “the systematic, evidence-informed practice of management, incorporating incorporates scientific knowledge in the content and process of making decisions” (p. 20). The first section will thus focus on summarising and synthesising the main findings, so far, of a number of studies that highlight the misconceptions of people in HR (c.f., Gill, 2018) when it comes to specific practices and principles that illustrate the current state-of-affairs of the field (Rynes et al., 2002; Sanders et al., 2008; Barends et al., 2015; Bezzina et al., 2017).

These studies emphasise the fact that such misconceptions are not specific to any one country but are very common amongst the HR community of professionals. Given such misconceptions, it will be argued that the improved use of evidence by HR professionals may lessen the extent of such misconceptions which are often bred due to personal biases and self-preferences (Pfeffer and Sutton, 2011). Notwithstanding this, it will be notified that even such a model of Evidence-Based HR is not without its limitations as it has often focused primarily on the input level (content level) rather than on the process and outcome level (which represents the consequence / result level). To this effect we shall argue that we are in need of a more elaborate Evidence-Based HR model that looks at the fuller aspect of the decision making process; in this sense we will critically evaluate the evidence of HR impact on firm performance (Combs et al. 2006; Jiang et al. 2012), and look critically at the ‘promise’ of utility theory to enhance this seeming gap in spite of the

fact that utility theory has been around for circa 40 years and little has been done (Cascio and Boudreau, 2011).

In view of this, the second part of the paper will then introduce HR data analytics as a potential vehicle of creating this bridge and improving the role of Evidence-Based HR. The point of departure for our argument is based on the simple but powerful premise that decisions lie at the core of 'management' (Cassar and Bezzina, 2017), not least HRM, and (organizational) data is a sure resource for decision-making as indicated in the definition of EBM (Briner et al. 2009). Turning data from HRM practices into information and knowledge that is applicable is often not direct or straightforward and therefore does not come easily. For example, noting a remarkable high percentage of people leaving the organization is not directly tantamount to low satisfaction, unless other data corroborates that conclusion. At that point, the data becomes more informative and tells us something that we may not have known before. While these are interlinked processes, they exist in a perpetual cyclical fashion.

Transforming data into information and knowledge is developmental and sequential. Managers may adopt a degree of selective attention to the most appropriate and valid data that can elicit applicable results because not all the information gathered can be justified with a favourable level of good evidence. Moreover, translating information through evidence into practice will require closing the gap between what is known and what is practised. Turning data into evidence, and in turn into practice is a process of critical thought, insightful reflection and active questioning. Thus, we will explain the pros and cons of the state of affairs, the advantages and disadvantages of data analytics and the promises and setbacks induced by this approach.

There are several points that will be raised in evaluating HR Data Analytics and five specific points shall be elaborated in the paper: The first is that HRM analytics is not HRM Metrics; better still, the latter represent a subset of the former. Metrics, in this sense, are measures of key HRM outcomes, classified as efficiency, effectiveness or impact. Thus analytics represent more of an approach, a methodology and a way of treating and thinking about important information rather than a static yardstick or a signpost that merely projects an estimate or a numerical fact. The second point is that HRM analytics do not focus exclusively on HR functional data but involves integrating data from different internal functions and data external to the firm, such as ROI, capital investments incurred and earnings per-share. These additional data require a consideration in view of

the fact that the HR element is critical to business success. Thirdly, HRM analytics involves using information technology to collect, manage, and report data. Fourthly, HRM analytics is about supporting people-related decisions while linking HRM decisions to business outcomes and organizational performance. This last remark about HRM analytics captures the most compelling aspect of this concept and links it to the strategic HRM literature. As pointed out by Marler and Boudreau (2016), HRM analytics have the potential to connect HRM processes and decisions with organizational performance; this is indeed an avenue to elevating HRM to playing a more strategic role and joining other business functions at the strategy table thus assisting better the connectivity between human capital and firm performance (e.g. Crook et al., 2011). Some researchers predict that by 2025 HR analytics will be an accepted established practice within business, and it will have proved its added value (Van den Heuvel, Bondarouk, 2017).

Building on these evaluations this paper shall then emphasise the third part. Thus, taking a critical view on the subject will allow us to draw fundamental questions as to how HRM can become more strategic in function through the improved utilization of data analytics. Global paradigm shift from a business era to a data-driven business era is required so that managers may attend to the big-data world, become skilled in its methods and analytics and learn to explore big data to develop competitive advantage (Carillo et al, 2018). Despite the obvious advantages offered by big data analytics, awareness of its full scope remains limited with regards to the HRM field of management (Khan, Vorley, 2017; Van den Heuvel et al, 2017). Another issue is what possible competency framework challenges will this entail for the 'future' HR manager. Carillo argues that the new challenge is to engrain and develop a set of analytics-related methodological skills and knowledge and overall positive attitude toward statistics in future managers (Carillo, 2016).

But despite the enormous interests in human capital analytics (HCA) organizations have struggled to move from operational reporting to analytics (Boudreau, Cascio, 2017). Still not many firms base decisions on impartial details or systematically deliberated balanced considerations. Only 8% of surveyed companies viewed their organizational capabilities in this area as "strong" (Bersin et al, 2015).

In this paper, we will draw on the argument of strategic HR, where it is and where it is heading and how data can be useful or limited in enhancing this role. Many researchers

point on the role of employee competencies in strategic HR (Gangani,2006), moreover they underline the significant and positive effect of HRM competency on firm performance (Ngo et al, 2014). However, significant group of enterprises misses linkage between competencies management and their strategy and only those which update competencies are able to create strategic alternatives for themselves (Kupczyk,Stor, 2017, p.166-167; Soderquist et al., 2010).This situation will not improve until competencies management is treated as a business imperative (Loew, 2016). And data handling and data usage is no exception.

To see this linkage we will first present an exposition of the typical or accepted competency model associated to HR. We will question the current validity or sufficiency of this competency model and whether this requires a revision or improvement in view of global workforce challenges.

To this end, we will question the current set of competencies in the view of growing importance of data analytics as a decision-making tool (competency-data analytics). Within this framework we will then leverage on the notion of competency development and ask ourselves the extent that HR managers are readily prepared within this scenario and if not what can be the internal and external factors for this impasse.

The paper will conclude with neither an optimistic nor a pessimistic image of the future but with a strong realistic view and one that considers the function of HR within the wider organizational context and the social significance it has to the wider social and economic development of the organization from a data analytic perspective. We will also provide some initial conclusions and way forward in terms of research and practice.

## **2.28. Factors Leading to Innovative Work Behavior of Employees in the Insurance Industry in Thailand**

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**Institution:** National Institute of Development Administration.

### **Abstract:**

The objectives of this study were 1) to define innovative work behaviors of staff in the insurance industry in Thailand, and 2) to explore factors leading to innovative work behaviors of staff in the insurance industry in Thailand. This exploratory, interpretive study employed qualitative method using semi-structured interviews with open-ended questions. Participants consisted of 12 key informants from life and non-life insurance companies in Thailand which included executive managements, middle managers, and staff. The participants were selected from employees whose task involved opportunities and responsibilities to create innovation. Content analysis with analytic induction was applied. The results demonstrated that, definitions of innovative work behaviors of staff in the insurance industry comprised six categories: 1) Idea Exploration, 2) Idea Decorating, 3) Idea Transformation, 4) Idea Generation, 5) Idea Championing, and 6) Idea Implementation. With respect to the second research question, nine factors leading to innovative work behaviors were identified: 1) Open Mind Culture, 2) Work Autonomy, 3) Non Routine Works, 4) Engagement with Customer, 5) Rational Thinking Outside the Box, 6) Support from Leaders, 7) Have Mutual Goals and Vision, 8) Intersect Functional Teamwork, and 9) Prefer Process Improvement. Suggestion for the organization that nine factors affecting innovative work behaviors were formed into ownership, meaning the feeling of ownership in people who performed their work autonomously, independently, and as a challenge to create innovations in the insurance industry in Thailand.

## **2.29. Financial constraints to firm's R&D investments and the role of the active innovation policy**

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### **Abstract:**

It is widely agreed that corporate financing decisions are crucial in determining investment decisions and the existence of barriers in accessing external financing influence the ability of exploiting investment opportunities.

R&D has a number of characteristics that make it different from other types of corporate investments. These include: high level of uncertainty as it comes to R&D output, asymmetric information problems between the financial providers and firms performing R&D, being embedded in human capital, offering low collateral to possible lenders. Raising external capital for innovative investments is difficult and the problem is only partly mitigated by venture capital. In line with the pecking order theory, R&D intensive firms mainly rely on their own internal finance. Limited access to external financing may result in rejecting good and valuable investment opportunities, which in turn hampers innovation. While theoretical underpinnings of financial constraints to firm's R&D investments are well developed, the empirical evidence is rather scant, because it is difficult to assess whether a specific firm is confronted with this problem and to what extent. Financial constraints are not empirically observable and there is a problem in measuring them. Some studies test the presence of financing constraints by showing the sensitivity of R&D investments to changes in cash flow (Fazzari, Hubbard and Petersen, 2000, Hall, 2008). According to Brown, Martinsson and Petersen, 2012 the scale of problem is dependent on the firm's characteristics: size, age and financial strategies. Ferrando and Ruggieri (2015), building on the Pal and Ferrando (2010) approach, develop a composite indicator of financial constraints at firm level, using a classification based on a firm characteristics and various measures of financial pressure.

The purpose of the article is to present the theoretical background of financial constraints to corporate R&D and describe innovation policies tools intended to address this problem. The research hypothesis is that financial constraints for R&D investments are more pronounced in the emerging and developing economies due to the underdevelopment of financial sector and weak level of intellectual property (IP) protection, which implies a

crucial role of the state policymaking to prevent this. Government subsidies and R&D tax incentives are important instruments in supporting corporate R&D, but due to a large deficit of R&D funding, it is necessary for the state to expand innovation policy tools beyond the traditional ones and to become not just a market fixer but a market shaper (Mazzucato, 2013).

### **2.30. Foreign Ownership and Performance: The case of Portuguese industrial SMEs**

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**Abstract:**

The objective of this paper is to empirically examine the relationship between the firms' ownership and control structure, in particular the presence of foreign capital, and its financial performance. The literature about performance determinants is abundant, however, the relation between performance and ownership and control structure is much less studied. The performance of the Portuguese economy is still highly dependent of the foreign investment inflows directed to the industrial sector, a sector mainly comprised of SMEs that are responsible for the majority of job creation, innovation and exports. The paper uses an unbalanced panel data of firms for the period from 2011 to 2017, researching if the presence of foreign capital influences financial and economical performance, and controlling the effects of other variables such as size, age, indebtedness, sector of activity and the degrees of international experience or innovation. It is also tested if different modes of foreign presence display different effects on performance, for instance, differentiating between wholly owned subsidiaries and joint ventures. Finally, possible non-linear effects or moderating and interaction roles between variables are also tested. At the light of the current literature about foreign investment, ownership and control advantages and firms' performance, this paper extends the literature performing an empirical application to a less studied topic and country.

### **2.31. Process Innovations through a strategic alliance: the importance of the duration of the alliance and the size of enterprises**

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#### **Abstract:**

Purpose: This article characterises theoretical problems in the scope of the essence and conversion of knowledge between enterprises within the frame of strategic alliances. The objective of this article is to characterise substantial aspects related to obtaining and conversion of knowledge in a strategic alliance. In this context, the results of empirical research are presented, with the purpose to determine the significance of selected aspects of obtaining and sharing knowledge within the formed alliance. This article also presents the influence of obtaining this knowledge for introducing product, process and organisational innovations by the enterprises in the alliance. As a consequence, it was shown that obtaining, creating and sharing knowledge within an alliance determines the introduction of innovations by partner enterprises. Based on the empirical research we also indicate the probability of product, process and organisational innovation depending on the alliance duration and the size of companies. The objective of conducted empirical research was to identify the relationship between specific features, which determine obtaining and sharing knowledge and the specificity of cooperating enterprises and the characteristics of an alliance. The authors also searched for the answer to the following question: Is there a relationship between the size of partner enterprises and the duration of an alliance, and the type of implemented innovations as a result of a commenced alliance?

Major theoretical foundation: Intellectual attributes of companies are the driving force of innovation, and contribute to the increase in intensity of competitiveness by providing new opportunities to compete (Belderbos et al., 2018). Therefore, they can constitute the foundations for building, maintaining and/or strengthening competitive advantage by presenting new sources of obtaining it. Zack, McKeen, & Singh (2009) suggest that the practices of knowledge management, which promote generating new knowledge and organisational learning, have fundamental significance for achieving benefits based on innovation. Donate and Guadamillas (2011) also associate these practices mainly with product innovations, connected with building new sources of competitive advantages.

This capability is determined by the skills of flexible operations through quicker introduction of new products/services adjusted to the changing needs and preferences of customers. The process of creating knowledge means transforming the intangible knowledge into a formalised form, update and modify learning routines to target innovation efforts better (Walsh, Lee & Nagaoka, 2016). The process of knowledge management serves this purpose, as a result of which an enterprise strategic characteristics can be improved (value, intellectual potential, competitive advantage). This concerns obtaining knowledge which is not easily available to the competition, sharing it and retaining key knowledge. As a result, a company gains advantage on the market thanks to possessing and using knowledge, which market rivals lack. Sarala et al. (2016) found that knowledge transfer between cooperating enterprises is universally considered as an important source of competitive advantage and can be defined as “successful knowledge transfer, including sending or presenting knowledge to potential recipient and absorption of knowledge by the recipient” (Sarala et al., 2016). Many authors focus on internal factors within the alliance, they emphasise the significance of social-cultural connections between companies and relational capital, that can help partners foster innovation and creativity (Subramanian & Soh, 2017; Cuevas-Rodriguez, Cabello-Medina & Carmona-Lavado, 2014; Ho & Wang, 2015; Vlasisavljevic, Cabello-Medina & Perez-Luno, 2016). These connections complement employees’ skills, trust, effective management of cultural integration, the routine of sharing knowledge and HR flexibility (defined as adaptation to changing conditions). The aforementioned constitutes another reason for considering the processes of knowledge management and sharing through strategic alliances. However, absorption capabilities and organisational inertia exert conflicting pressure on the search and exploration in relation to the function of the alliances value chain, partners’ attributes and position (Lavie & Rosenkopf, 2006). In this context, most research focused on the strength of the external industry, which suggests that turbulences and market uncertainty can generate both exploitation and exploration of knowledge (Beckman, Haunschild & Phillips, 2004; Rowley, Behrens & Krackhardt, 2000). Only resource limited enterprises create alliances based on utilising resources in turbulent industries (Park, Chen & Gallagher, 2002). However, even the research, which analyse the characteristics and features of a company, resulted in various evidence concerning previous research concerning search and exploration. For example, Rothaermel & Deeds (2004) noticed that exploration increases relatively to the size of a

company, whereas Beckman, Haunschild, & Phillips (2004) proved that the size of a company also contributes to searching for resources.

**Design/methodology/approach:** The dissertation is based on literary sources in the field of knowledge management and strategic alliance. In the empirical part, the results of research were presented, which included a group of 70 Polish enterprises. The data has been collected by means of an electronic questionnaire. For the purpose of accomplishing the research objective, the correlation strength of the researched variables was tested, which was subsequently expressed as a numeric value by means of Czuprow's correlation coefficient. Moreover, we also applied the logistic regression model, that allows us to predict the occurrence of analysed phenomenon – in our case it is the introduction of innovations. For the purpose of the article, 3 models of depended variables were created. We try to predict the probability of introduction product, process and organizational innovation depending on size of the company and alliance duration.

**Findings:** The achieved results signify that the relationship between the size of enterprises participating in an alliance and a strong evaluation of the acquisition and sharing of knowledge is closer than in the case of the duration of an alliance. The research results also allow for the statement that there is a closer relationship between the implementation of innovations and the duration of an alliance than in the case of the enterprise size. Finding the relationships between the assumed variables for acquiring and sharing knowledge as well as connecting them with the enterprise size and the alliance duration is an added value to what has already been achieved in this area.

**Practical implications:** The paper includes implications for companies involved in the strategic alliance in the scope of innovations creating. These proposals are an important course of action for companies in the context of acquiring or creating and transferring key knowledge that forms the basis for innovation development.

**Originality/value:** Due to the fact that the considerations in the paper relate to general proposals for action, the results can constitute a starting point for in-depth research in the future.

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## 2.32. Income Polarization among Self-Employed in Europe: Evidence from EUSILC

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### **Abstract:**

While self-employment has been promoted by EU level and Member State as a way to reduce unemployment and increase entrepreneurship (European Commmission, 2018), it has become increasingly disputed whether self-employment provides better quality work compared to regular employment (Bernhardt, 2014; Codagnone et al., 2016; European Commmission, 2018). This study examines one dimension of the quality of work, the differences in earnings between self-employed and employees, in the EU-28. It also examines whether these differences vary along the whole earnings distribution and between countries, sectors and knowledge intensive occupations, in particular STEM related, and less knowledge intensive ones. Differences in the earnings between self-employed and employees could vary across countries due to differences in wages and employment protection legislation (Román et al. 2011) and across sectors/occupations due to differences in technology and organization methods used (Berglann et al., 2011). Following the seminal paper of Hamilton (2000), a large number of studies documented mostly, for specific countries, lower earnings for average and median worker in self-employment compared to regular employment (for a recent review see Praag and Versloot (2007)), although several studies found the opposite effects (Berglann et al., 2011). The literature proposes several explanations for lower earnings of self-employed compared to employees. These include negative selection in self-employment, in particular for necessity self-employment, non-pecuniary rewards for self-employment, such as the desire for autonomy and flexibility, and super star model. However, the evidence on the importance of each of these explanations is mixed, and to differ across countries and definitions of self-employment and earnings of self-employment. This paper provides novel and comprehensive evidence on differences in earnings between self-employed and employees in the EU28. It documents these differences for the entire conditional distribution of earnings in the EU28 and also for groups of countries in the EU28, including for CEE countries, for which less recent evidence exists, and for different sector and occupations that differ in their knowledge intensity, using comparable

cross country data from individual level from EU SILC. The data used comes from Cross Sectional EU SILC wave for 2016, which contains detailed information on individual and household characteristics, labor market status and income from different sources at individual level. The dataset is compiled by Eurostat from national surveys conducted using uniform questionnaires and a harmonized data collection framework. It is widely regarded as the reference data source for comparable, cross-country, income micro-data for the EU. The use of very recent data ensures policy relevancy.

Following Hamilton (2000) and most of studies on this topic, the standard Mincerian earnings framework is used. In this framework earnings are regressed on self-employment status and on other individual characteristics that might affect earnings, including, gender, level of education, experience, occupation, sector and country fixed effects. The coefficient of self-employment status shows the difference in earnings between self-employed and employees for the average worker. Given the fact that the distribution of earnings is dispersed and that the differences between self-employed and employees could vary along the distribution of earnings, the study also estimates these differences for different quantiles, using quantile estimation methods (Buchinsky, 1998). To provide a comprehensive picture of the conditional distribution, these effects are estimated for the 10th, 25th, 50th, 75th and 90th quantiles.

The study shows that self-employed differ in several important aspects from employees, in particular with regard to gender, experience, education, occupation and sectors of activity. Regarding earnings, descriptive evidence shows that the distribution of earnings of self-employed is more dispersed than that of employees and that its central tendency is less than that of earnings of employees. Both patterns are more pronounced in EU15 compared to CEE countries. Moreover, the study also shows that on average, self-employed earn less than employees in most countries, sectors and occupations and the differences tend to be larger in high wage sectors and occupations.

The preliminary results from OLS and quantile regressions indicate that, in the EU, for the average worker, for the median worker and for those below the median, self-employed earn less than regular employees. However, starting from 75th quantile self-employed earn significantly more than employees. These results are in line with the both descriptive studies that focus on the EU or OECD (Fondeville et al., 2015 Eurofound, 2017; OECD, 2017) and econometric studies from country specific studies (Earle and Sakova, 2000; Hamilton, 2000; Praag and Versloot, 2007; Raknerud and van Praag, 2014; Katz and Krueger, 2016). These results remain robust when estimating the model separately for

men and women, for full time and part time employees, for different country groups and sectors, as well as for net and gross income.

For skilled intensive occupations, in particular for those related to STEM (Science Technology, Engineering and Math) skills, we find a similar pattern, with self-employed workers earning less than regular employees for median and below median worker, and more than regular employees for top quantiles. Furthermore, the differences between self-employed and employees tend to be larger than for non-STEM occupations, suggesting a more polarized earnings distribution in STEM related occupations. Overall, the results suggest that for the median or below median worker self-employment pays less than regular employment, but for those above the 75th quantile, and especially for those at 90th quantile self-employment pays more. These findings suggest a more polarized distribution of earnings of self-employed, compared to that of employees, which itself has been become increasingly polarized in recent years. Polarization is even more pronounced in more knowledge intensive occupations, in particular in STEM related occupations.

These findings suggest the need for further research to understand the low earnings in the lower quantiles and possibly the need for policy actions to protect or support self-employed in these quantiles.

The study also explores the relevance of several possible explanations identified by the previous literature for the differences in earnings of self-employed and consistent with the findings of the study. In particular it explores the importance of negative selection in self-employment at lower end of the distributions, the importance of non-pecuniary rewards for self-employment, such as the desire for autonomy and flexibility of work program, and the relevance of super star model for specific labor markets.

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### **2.33. Independent Professionals: Knowledge-intensive work between the professions and new expert occupations**

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#### **Abstract:**

The nature of work and the institutional structure in which work is performed have changed multiple times throughout history. With the evolution of digital technologies and the Internet, many of today's jobs did not exist a few years ago and routine work is likely to be automated in near future (Frey & Osborne, 2013). In this disruptive economic environment specific personal skills become important for people to secure their jobs (EPSC, 2016). A highly skilled and creative workforce is seen as a main driving factor for competitive advantage in the knowledge economy or “informational economy” (Castells, 2010) where ideas and knowledge are the engines of economic growth and prosperity (Audretsch, 2009).

Currently, the majority of workers in Europe still hold permanent contracts however, with those enormous changes in the digital economy we recognise shifts away from permanent employment relationships to alternative work arrangements such as short-term contracts, part-time work or teleworking (Spreitzer, Cameron, & Garrett, 2017). Independent professionals (iPros), mostly called freelancers in the creative industries, are at the core of these developments in workforce (Leighton & Brown, 2013). They are mobile, independent workers who provide their specific services to clients (e.g. in the areas of design, software, video, advertising, consulting) personally, independently and professionally. They offer their workforce on the external labor market outside of standard employment relationships and mostly outside of or in-between established organizational boundaries (Osnowitz, 2013). As such, they are generally classified under the statistical category of solo self-employed workers in the service sector, differing from other (solo) self-employed workers in the agricultural, commercial or trade sectors (Bögenhold, Heinonen, & Akola, 2014).

The growth of iPros in the labour market is closely related to the importance of “knowledge intensive business services” (KIBS) for innovation and innovation systems in digital economies (Muller & Doloreux, 2009). KIBS are services “that provide

knowledge-intensive inputs to business processes of other organisations such as Computer services, R&D services, Legal, Accountancy and Management services, Architecture, Engineering and Technical Services, Advertising and Market Research” (Miles, Belousova, & Chichkanov, 2018, p. 5). Through their specific knowledge and skills, iPros contribute significantly to generate value for businesses by helping in the development and implementation of innovative products and services based on modern information technologies (Burke & Cowling, 2015).

The provision of KIBS is dependent on people who have the necessary expertise in specific knowledge fields. Traditionally, the (liberal) professions represented the social form in which “expert knowledge” (in form of specific services) could be made available to the economy and society in general (Susskind & Susskind, 2015). In the second half of the 20th century or so we have seen the emergence of new “expert occupations” (e.g. software developer) who differ from traditional “liberal professions” in their patterns of organization and delivery of expertise (Muzio, Ackroyd, & Chanlat, 2008). Although, they lack characteristic patterns of organisational or collegiate professions there are obvious similarities between traditional forms of professional work and new patterns of knowledge work (Alvesson, 2001).

In the traditional (liberal) professions as well as in new expert occupations people apply their “practical expertise” as a service to help their clients to cope better with specific problems or challenges (Susskind & Susskind, 2015) This expertise comes in terms of advice or other symbolic actions and is grounded in a more or less systematic field of specialised knowledge (Hughes, 1963). Expertise in a specific field requires extensive training and substantial effort and devotion to the subject and is closely connected to the work of peers. Different aspects of knowledge (e.g. technical, procedural, tacit) relate in complex ways to produce what is called “practical expertise” and which can be seen as the core of professional work (Susskind & Susskind, 2015).

This paper will examine iPros as agents in innovation-driven economies and as a growing part of self-employed workforce in knowledge intensive sectors. In the theoretical part of the paper we will take a closer look on knowledge intensive service sectors, professions, new expert occupations and “knowledge-intensive work” as the core of professional expertise. Furthermore, we will draw on data from the 2017 Austrian Labour Force Survey (LFS), which is a representative sample of the Austrian labour force and which

gives us the opportunity to compare iPros with employees according to different occupational and socio-economic indicators.

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## 2.34. Innovation and design processes as cooperating with an unfolding future

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### **Abstract:**

Facing the world's huge challenges in our days, innovation and design have received new attention over the last decade (e.g., Fagerberg and Verspagen 2009; OECD/Eurostat 2005; Binder et al. 2011); not only in the sense of creating novelty or new technologies, making things aesthetically more appealing, making devices smarter, or enhancing the usability of user-interfaces, etc., but rather as a means and as a tool for creating sustainable solutions/futures for these grand challenges.

It has become clear that these challenges can only be tackled in a collaborative and interdisciplinary manner. This is due to the fact that our economy, technologies, and society have become hyper-complex, digital, dematerialized, highly specialized, and follow an exponential dynamics. We are living in a world that is characterized by high levels of volatility, uncertainty, complexity, and ambiguity ("VUCA world"; Bennett and Lemoine 2014). These are problems and challenges that go far beyond bounded rationality (Felin, Kauffman, Koppl, & Longo 2014), ill-structured, or wicked problems (Dorst 2006), as they are dealing with uncertainties about a future that is not only unknown, but also unknowable (Sarasvathy et al. 2003).

In order to come to grips with such complex challenges we need to employ strategies that are based on collaboration and interdisciplinarity. The claim of this conceptual paper is that these kinds of challenges cannot be solved only in the "classical" manner and understanding of "together", namely in the sense of (social) collaboration or co-creation. Rather, this paper suggests to go beyond this understanding, to investigate alternative and more profound concepts of "together", and to show, how they are related to design and innovation. We suggest three forms of "together" that build on each other:

#1 | Together ...with others... | Together as social, collaborative, and interdisciplinary (epistemic) practice

The roles in innovation and design process have changed over the last 15+ years (e.g., Sanders and Stappers, 2008): while in classical user-centered design/innovation the user was a more or less passive object of study, the user becomes more of a active co-creator in a co-design setting. By including various stakeholders in the design/innovation process it becomes a socio-epistemic technology and practice (e.g., Peschl and Fundneider 2008). In the field of innovation, such approaches can be found in, for instance, open innovation (e.g., Chesbrough et al. 2006). The idea is to introduce diversity of perspectives and, by that, achieve interdisciplinarity, multi-perspectivity, and emergent effects which cannot be brought about by a single designer or innovator only. The underlying assumption is that this diversity opens up new (and more adequate) spaces and opportunities for solutions.

## #2 | Together ...with oneself and the “material”... | Together as co-becoming

The classical understanding of design and innovation is based on the assumption that an agent (e.g., an innovator or designer) has an idea, a form, or a concept in his/her mind, and he/she shapes the environment or material according to this form (= production of an {innovation} artifact). In other words, the material more or less passively “receives” its form by the activity of the agent. Taking a different perspective (e.g., Ingold 2013, 2014; Roth et al. 2016; Peschl and Fundneider 2016) suggests to rethink this relationship in the following manner: one can think of both the creative agent’s and the material’s dynamics as two streams of becoming or as a flux of activities that are joining in the process of innovating or designing. It is true inter-action, a process of joint growth in which both, the agent and material are active and passive; it is about our engagement with materials and materials engaging in our lives causing a kind of coupling, correspondence (Ingold 2013), mutual modulation and co-becoming, and “dance” leading to an emerging unity. In such a process we do not only shape the environment, but the (designed) environment is “designing back” on us, we are shaped by it by gaining intimate knowledge and insights about the environment, by “knowing it from within” (e.g., Ingold 2013; Depraz, Varela, and Vermersch 2003; Bortoft 1996).

This implies that in such a perspective, we cannot make a clear distinction between the designer/innovator and the designed object any longer. The designer cannot separate him-/herself from the object as he/she is involved in an existential (and not only cognitive)

process of co-becoming, of personal change, of being exposed to, as well as being together and growing with the material. Instead of mastery of the material it is a process of undergoing (leading to mastery) (compare Ingold 2014).

#3 | Together ...with an unfolding future... | Together as “learning from the future as it emerges”

This third form of “together” is based on the previous point: however, it is not only about co-becoming, but about co-creating a future by “learning from the future, as it emerges” (compare, for instance, Scharmer 2007). Whereas “#2-together” suggests a process of co-becoming between/with the designer/innovator and his/her material, “#3-together” focuses on the aspect of the future and of bringing forth novelty and innovation. However, it is neither meant to be a process of problem solving nor a kind of creative process of “out-of-the-box thinking” or brainstorming.

Rather, we suggest that being based on the intimate knowledge (“knowing from within”) and relationship between the designer/innovator and the designed one tries to identify hidden future potentials, make sense out of them, and bring them into the present in order to develop and incubate them into concrete innovations. Hence, novelty is not so much a projection of our own creative (“out-of-the-box”) ideas into the future, but the future potentials themselves are teaching and attracting us (in the sense of *causa finalis* and emerging purpose); by that, future is co-created in a process of joining, making use of the dynamics, and shaping the process of an unfolding reality. In that sense, we are developing together with the future.

This conceptual paper will discuss these three forms of “together” in detail and their relationship between each other. We will sketch the implications for a new perspective on how innovation and future-orientedness becomes an intrinsic part of design and vice versa.

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### 2.35. Integrating Knowledge Dynamics in the Decision-Making Process KM

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**Abstract:**

The purpose of this paper is to explore the role of knowledge dynamics in the managerial decision-making process. The Western economic tradition of explaining the managerial decision-making process is based on rational knowledge and rationality, or limited rationality as proposed by Herbert Simon. When time for making decisions is rather limited and the degree of uncertainty is rather high, managers use mental shortcuts called generically intuition. Research in neuroscience shows that our thinking process is based on two systems: System 1 which is reactive and very fast, and based on emotional knowledge, and System 2 which is reflective and slow, and based on rational knowledge. Thus, System 1 is in charge with intuition and System 2 is in charge with rationality. However, decision-making cannot be explained only by using these two limiting processes of intuition and rationality, and ignoring the transformation process between them. The purpose of this paper is to explore this transformation process between intuition and rationality by considering the theory of knowledge fields and knowledge dynamics. The quantitative research has been done by using a survey based on 250 questionnaires given to managers in different companies. Results show that knowledge dynamics plays a significant role in any managerial decision-making, comparable with rational or intuitive decision-making.

## 2.36. Introduction of e-learning environments in university settings

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### **Abstract:**

Computer-mediated teaching and learning are being introduced at all levels of education from kindergarten to university throughout the globe with various challenges unique to each setting. Administrators, academic staff and learners expect computers and Internet technologies to facilitate teaching and learning to make education easier and more widely accessible in order to promote the skills required for a viable knowledge society. The introduction of so-called e-learning environments, however, poses cultural, technological and didactic challenges that impact the work of all stakeholders in education and especially in higher education settings where both staff and learners largely rely on traditional knowledge transfer methods such as face-to-face seminars and lectures. The paper aims to identify organizational and didactic challenges surrounding the introduction of e-learning environments in traditional higher education systems like universities and looks at a good practice example for the introduction of an e-learning environment at a French university in New Caledonia.

Universities graduates can be seen as knowledge workers. Universities are expected to prepare their graduates for work in knowledge societies. As such, they find themselves in a double bind as they have to respond to the political demand for more graduates and the market demands for well-educated and well-trained knowledge workers at the same time. University systems across Europe merit special attention as they differ from other European higher education settings (such as Universities of Applied Sciences or the French Grandes Ecoles) in that universities grant academic staff a high degree of autonomy when it comes to teaching practices. Also, universities are very traditional institutions in which professors and other teaching staff do not see themselves primarily as 'teachers' in the classical sense. At universities across Europe, there is little room for didactic concerns when it comes to initiating knowledge transfer and knowledge generation in higher education settings; university professors see themselves primarily as researchers who share the results of their work as researchers with students. At universities both academic staff and students are used to face-to-face interaction and independent study. The introduction of e-learning environments acts as game changer in

this system as it requires a new approach to presenting research findings and interaction between students and teaching staff.

E-learning environments that entail the values of asynchronous and ubiquitous knowledge transfer, are expected to make education easier and more widely accessible in terms of time and location when and where learning takes place and in fact also in terms of who can access any learning offer. Making knowledge more widely accessible requires a new approach to the creation of courses and new concepts as to how learning outcomes are defined and attained and even tested. To round off the challenge surrounding didactic issues, the heterogeneous IT-skills of staff that faces e-learning requirements set forth by institutions means forcing a major change on a comparably rigid and traditional system. In order to identify the special challenges surrounding the introduction of e-learning at universities I analyzed the introduction of the Moodle e-learning environment at the University of New Caledonia. To this end, I conducted qualitative guided interviews with administrators, instructional designers, professors and student representatives along the constraints set forth in literature dealing with qualitative analysis. The interviews were carried out over the course of a semester, transcribed and analyzed with MaxQDA. The results of the interviews were put in context with literature that treats the introduction of e-learning environments in education settings.

The University of New Caledonia served as example because the institution chose a very structured approach to the introduction of e-learning, whereas such introductory processes have been described in the literature as processes that are often started thanks to initiatives of individual staff or IT-friendly departments. At the University of New Caledonia, however, a team of instructional designers was hired to accompany the process to alleviate technological and didactic concerns surrounding the process. Also, major infrastructure investments are made to promote an environment in which e-learning materials can be produced (recording laboratory, computer laboratory).

The structured approach to the introduction process serves as an example of good practice as there are various stakeholders involved to tackle a common goal: modernizing and optimizing teaching and learning in higher education. To analyze and evaluate the approach at the University of New Caledonia, a literature review and user interviews with administrators, instructional designers, academic staff and student representatives were carried out and placed in context with similar settings described in the relevant literature so as to identify the challenges and possible solutions and best practice examples. The results show some of the most common challenges in the introduction of e-learning

environments on macro, meso and micro level. It presents how academic staff tries to implement Moodle-based courses, how administrators provide the technological framework to enable an e-learning environment and how a professional instructional design team helps stakeholders in adapting teaching materials, respecting didactic, cultural and location-specific constraints. It also demonstrates the efforts of the team to improve the heterogeneous IT-skills of both the academic staff and students as end-users of the e-learning environment in place.

The results show furthermore that the introduction of e-learning at the University of New Caledonia is carried out in a highly professional manner in terms of technology and didactics. Still, the process - structured as it is - faces common change management challenges. The primary challenge to be tackled in the introduction of computer-mediated teaching and learning is closely tied to the role of academic staff at universities. Over the course of the study, it quickly became clear that much is technically feasible but that any successful introduction of e-learning at universities hinges on the commitment to e-learning of the universities' academic staff, as they are the primary source of material and context in which e-learning is materialized.

In order to professionalize e-learning offers, more attention should be paid to how universities go about persuading their staff of the merits that e-learning environments entail and to standard change management processes and how they can be mediated in higher education. In order to implement e-learning as accepted variety to traditional instruction, stakeholders need to become convinced that e-learning entails added value for higher education and for the users themselves. At this stage of maturity, more research is needed into how staff can be motivated to engage in the introduction of e-learning and how more staff can recognize the value of asynchronous and ubiquitous teaching and learning in universities.

## 2.37. Institutional Theory as a Theoretical Umbrella for Organizational Change Research - The Particular Case of Institutional Logics

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### **Abstract:**

Institutional theory is one of the social theories used by researchers within the interpretive perspective. Following a pragmatic-interpretative view of management accounting, the main concern is with management accounting practice, including the organizational consequences of its applications. The gap between theory and practice (Scapens, 1990, 1994) implies that management accounting must be seen, above all, as “social and institutional practice rather than the direct application of textbook techniques” (Wickramasinghe and Alawattage, 2007: 8). Moreover, institutional embedded praxis also deserves great empirical attention by researchers, being an essential driving force of institutional change (Seo and Creed, 2002).

Institutional theory has become very popular in organizational analysis. Particularly, new institutional sociology (NIS) branch considers the active roles of institutions to help in understanding accounting practices (Wickramasinghe and Alawattage, 2007). NIS highlights political and cultural reasons (rather than technical ones) for the existence of certain social and organizational practices, which may come along through institutional pressures. These practices encompass change processes being the role of change, ambiguity and constraint, and the implications of these organizational characteristics for the social structure as a whole, very important factors to analyze in the neoinstitutionalism domain (DiMaggio and Powell, 1983).

However, NIS framework presents some limitations, such as the static character and the way it deals with intra-organizational issues. NIS has focused primarily on convergent change involving outcomes or the diffusion of new practices. Yet, it neglects “how new practices emerge and treats organizations as unitary, passive entities or black-boxes that only gain legitimacy by conforming to environmental demands” (Hopper and Major, 2007: 64). Moreover, NIS has been criticized for neglecting internal organizational

dynamics and factors (power, conflict or change processes) at a micro-level. Indeed, macro and micro-level are strongly linked (Zucker, 1977).

Combining both perspectives, Dillard et al. (2004) developed a model (institutional relational dynamics model) that considers macro-level and micro-level analysis, highlighting, beyond the dynamics of embedding and change at the organizational level, the socio-economic and political context, and also the organizational field level.

However, Dillard et al. (2004) model concentrated on the study of the pressures of the macro to the micro-level and of recursive bottom-up influences, and has not deepened the internal dynamics of the organizations, in particular dynamics of change. These internal dynamics of change arise frequently from voluntarism of actors and may imply the implementation of more effective outcomes (Cruz et al., 2009; Hopper and Major, 2007; see also Scott, 2008). Consequently, Hopper and Major (2007) proposed an extended model of the Dillard et al. (2004) model, translating operating and legitimate practices (in the original model) into a working practice enacted at intra-organizational level (versus the original organizational level). However, a gap still exists, and more studies are needed that connect institutional change to variation in the scope of organizational practices, which explains the concept of practice variation (Lounsbury, 2001; see also Ezzamel et al., 2012). The concepts of logics and multiple logics (Lounsbury, 2007, 2008) also help to analyze and interpret practice variation.

The ability and role of actors in the creation, diffusion, change or stabilization of organizational practices is crucial to the understanding of new institutional analysis of organizations. Hence, the role of actors and action in the process of institutionalization began to be analyzed and investigated (Christensen et al., 1997). Consequently, the importance of institutional change processes and the interaction between actors' actions and the institutions/organizations where they are embedded, have been highlighted nowadays by institutional theory (Leca and Naccache, 2006). This perspective is closely linked to the concept of institutional entrepreneurship, which is defined as the "activities of actors who have an interest in particular institutional arrangements and who leverage resources to create new institutions or to transform existing ones" (Maguire et al., 2004: 657). Consequently, institutional entrepreneurship is fully associated with change and today institutional theory addresses institutional change (Scott, 2008). Complementarily, Battilana et al. (2009) mention that "institutional entrepreneurs, whether organizations or

individuals, are agents who initiate, and actively participate in the implementation of changes that diverge from existing institutions” (ibid.: 72).

More recently, a new branch in institutional theory was highlighted, the institutional logics perspective. Institutional logics can be defined as ‘the broad scope of cultural factors and material practices in organizations, where institutional actors are embedded, that influence and underpin their behavior and decision-making’. Considering this new umbrella, a qualitative research was undertaken. Particularly a case study was conducted in a Portuguese government agency, where a profound process of institutional change occurred between 2004 and 2013. The organizational context was deeply analysed in the context of institutional theory. Particularly the institutional logics perspective (Friedland and Alford, 1991; Lounsbury, 2007; Thornton and Ocasio, 2008) was used to inform the investigation. The empirical study showed evidence of a strong interaction between the macro (societal) level, the meso (organizational/institutional field) level and the micro (organizational) level. Therefore, main insights came from the 'Integrative model of the microfoundations of institutional logics' (Thornton et al., 2012). This model combines the interinstitutional system and the cross-level effects, identifying the mechanisms or elements that can influence change processes resulting in social practices and structures, and emphasizing the action of actors.

To support the investigation, a longitudinal, retrospective and in-depth longitudinal case study was conducted at the field site, where two research questions were posed: i) how did the organization embark on an organizational change process, and which were the main elements and mechanisms found in the process?; ii) can the 'Integrative model of the microfoundations of institutional logics' (Thornton et al., 2012 – Thornton et al.’s model) explain the process of institutional/organizational change and the implementation of innovative management accounting frameworks and practices in the government agency? Thus, interviews were conducted inside and outside the field site, and specific data and written material were collected, so that findings and evidence could imply the full answer to those research questions. The case study is mainly explanatory as existing theory is used to understand and explain the specific (Ryan et al., 2002).

Sets of multiple logics were found in the field site. Concretely, public administration mode logics, compliance logics and management logics emerged as a response on the organizational (micro) level to pressures and trends from the upper field levels – societal (macro) and organization field (meso) levels.

Findings indicate that the main elements or mechanisms, which supported the change process and the implementation of innovative management accounting frameworks, were culture, communication/negotiation, mobilization, power, and the role of actors, directed to decision making. One of these elements is identified in the Thornton et al.'s model at the societal and the organization field levels - culture. Power is linked to negotiation/communication and mobilization, and is seen in the model as a link between the micro and macro levels. Moreover, the combination and linkage of the several elements of the Thornton et al.'s model were mostly identified in the empirical study. Thus, the Thornton et al.'s model explains basically the events that occurred in the field site where the research was conducted as well as the reasons why the change process took place. This is a contribution of the research. However, new approaches derive from the investigation. First, in the field site, all those elements were found at the micro (organizational) level. Second, other elements were found in the organization (micro) level, particularly the role of actors which is not seen in the Thornton et al.'s model. This is a contribution of the study.

**Keywords:** Institutional theory; institutional logics; multiple logics; role of actors; case study

### 2.38. Innovation performance of family firms

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**Abstract:**

Family businesses are commonly operating in the economy, accounting for 60 to even 90% of all enterprises depending on the region of the world. Considering the fact that they are usually included in the sector of small and medium enterprises, their significance for building economic growth is also huge. The functioning of family businesses should therefore be an element of particular concern for the economic authorities as well as an interesting subject of research. Family businesses are usually the smallest enterprises in terms of employment as well as those taking the simplest form of activity. This means that reaching such entities and obtaining data may constitute a certain limitation in the examination of their activities. Family businesses have a special type of resources created through family-business interaction. Appropriate use of these resources often requires specific management skills. Family firms structure, goals and strategy are designed and implemented with a scope of unique pattern of ownership, governance, management and succession (Gudmundson et al., 2003; Corbetta & Salvato, 2004; Sirmon & Hitt, 2003).

The authors in their research repeatedly draw attention to the difference in the efficiency and behavior of family and non-family enterprises. The innovativeness of family businesses is still unexplored. Innovation is considered to be essential for growth and expansion of all firms (Schumpeter, 1934; Wolfe, 1994; Cefis & Marsili, 2006). Therefore, a question arises about the importance of innovation in the development of family businesses. And further, whether the specificity of family businesses and their limitations allow for the creation of innovations. Family business leaders have little or no experience in other organization and are not exposed to the ideas from other industries, they know better how their business should be run and they are skeptical about adopting external ideas. Opinions about the relatively high risk aversion of family businesses are also common. Is the specificity of the activities of family businesses allowing for engaging in innovative activity at all? The business reality shows that also among family businesses are real leaders creating innovations that determine their competitive advantage over much larger market players. It is worth mentioning here for example

Herr's Potato Chips or Rent-a-Car.

The aim of the article is to identify factors determining the innovative activity of family businesses. Attention will be focused on the analysis of two types of innovations: product and process innovations. The product innovation is the introduction of a good or service that is new or significantly improved in terms of its features or intended uses. These include significant improvements in technical specifications, components and materials, embedded software, user friendliness, or other functional features. Product innovations include both new products and new applications for existing products.

New products are goods and services that differ significantly in their characteristics or purpose from products previously produced by the company. New product applications is the development of a new product application with minor changes in technical specifications is a product innovation (Griffin, 1997; Utterback & Abernathy, 1975) A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques. Process innovations may be aimed at reducing the unit cost of production or delivery, improving the quality or producing or supplying new or significantly improved products. Process innovations can be distinguished by means of production methods or delivery methods, or both. Methods of production include techniques, equipment and software used to produce goods or services. Examples of new production methods are the implementation of new automation equipment on the production line or the implementation of computer-aided design to develop the product. Delivery methods relate to the company's logistics and include hardware, software and techniques for acquiring materials, assigning supplies to the company, or delivering end products (Davenport, 1993; Zheng, 2010).

The subject of the study will be 100 leading family businesses operating on the Polish market. In addition, enterprises that are non-family firms will be randomly selected with comparability in terms of employment and size. Companies from various sectors and of different sizes will be analyzed. The data for the study will be selected from database. The variables consist of financial and non-financial ones that can determine innovation activity of the companies. Among financial data R&D expenditures, investments in assets as well as turnover will be analyzed. In the context of family business some non-financial variables seems to be crucial. That is why the ownership structure, firm age and employment will be considered. The results will be obtained by using a multiple regression model testing hypothesis on determinants of family firms innovation activity

as well as comparison of family firms with non-family ones. Findings will be discussed in comparison to existing literature.

### **2.39. International business performance and the enhancers of the internationalization strategy in Portuguese firms.**

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#### **Abstract:**

As business has become increasingly global, firms have been defied to develop a distinct approach in terms of business resources, skills and capabilities. The way in which these factors are organized and directed depend on the role played by the entrepreneur within the company. In other words, the entrepreneur's role can define the company's ability to acquire and operationalize its resources, thus being able to influence business performance, especially of international business.

Research on factors affecting internationalization is attracting growing interest, but few empirical works focus on the perspective of the entrepreneur.

Aiming to analyze the existence of association between international business performance and the factors that act, on the entrepreneur perspective, as enhancers of the internationalization strategy, an online questionnaire survey was conducted with several variables, based on the literature review.

Data collected from the 311 valid responses (Portuguese international firms) were treated by IBM SPSS Statistics 24.0 software. The statistical analyses used for the data analysis were Descriptive Analysis (frequency analysis, descriptive statistics and graphical representations), Inferential Analysis (Spearman's ordinal correlation) and Factorial Analysis.

In accordance with Network theory, International New Ventures Theory, and the Strategic Choice view, it is expected to find evidence of the importance of Networks, individual Knowledge and International Experience in international business performance.

## **2.40. KM Methods in use and Requirements of Standards – a growing divide.**

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### **Abstract:**

Purpose – Scholars and researchers as well as management consultants excel in inventing new methods and tools for knowledge management. Every doctorate candidate is required to come up with “his NEW approach”, frequently only re-labelling existing material or adding complexity that does not add substantial value for commercial organizations. Alternatively, a solution is crafted for a marginal problem. The outcome in both cases is the same, the topic of KM in general is regularly ignored.

Design/methodology/approach – KM methods recommended in a guideline for Quality management by the German Society for Knowledge Management are tested regarding application and level of satisfaction in German enterprises. Over a timeframe of four years, the survey yielded about 200 responses annually on average. This data was supplemented with qualitative interviews and cases from the side of auditors to create a comprehensive view. This paper reports on the effectiveness of application of these KM methods.

Originality/value This survey delivers current data (as of 2018) on the implementation of knowledge management methods in German speaking enterprises.

Practical implications – Management standards such as ISO 9001 or ISO 16949 and more recently, ISO 30401 or excellence models such as the European Foundation for Quality Management define “requirements” that need to be covered before getting granted a certificate. The requirements are plausible, but it remains to be discussed whether or not the instruments are delivering on the promise.

In this paper, the impact of KM instruments in use in German speaking organizations and recommended by German speaking Consultants are related to the requirements of a (knowledge) management system. A survey covering certified organizations reveals empirical evidence on the state-of-practice. This is related to conceptual requirements of the strategic development of a knowledge-based organization and critically discussed.

## 2.41. Knowledge Blockchains: A Conceptual Analysis

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### **Abstract:**

Blockchain is a decentralized cryptographic technology that enables storing of information in a tamper-proof and irrevocable manner. This innovative technology has increasingly gained importance in the last few years. The paper provides conceptual analysis of the role blockchains can play in enhancing the transfer and sharing of knowledge inside an organization and across organizations, as well as outlining the challenges facing the use of this technology. A case study of a reward-based knowledge blockchain is presented where the advantages of incentivized participation in the knowledge transfer and sharing process are addressed.

## 2.42. knowledge, data and reality

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### **Abstract:**

Artificial Intelligence (AI) and Data Base Technology (DBT) are considered essential technology enablers to take care of complex tasks in the digital economy. Machine learning and knowledge representation formalisms progressively enable AI systems to perform tasks that involve intelligence and data processing capabilities already for a number of decades form the backbone of industry. The general mode of operation is that AI focuses on intensional logic (conditionality), whereas extensional logic (data) occupies centre stage in DBT.

The models that allow these technologies to do their work are engineered by humans or automatically produced as in machine learning. To create models, limitations and prescriptions of technical facilities are normally taken as a point of departure. This leads to the acceptance of 4 assumptions. The first assumption is that variables are a priori known and compensatory and that reality can be captured through quantitative terms. The origin of this assumption is the succes of quantitative models in physics where definitions of velocity, acceleration and mass display high precision based on the idea of the infinitesimaal (Newton, Leibniz). Another assumption is the conception that reality is describable through simple conditions and that ignoring details and interactions that occur in reality doesn't invalidate models. A third postulation concerns fixed categorisations where categories are not supposed to influence each other but have absolute value. A fourth assumption is that of inductive discovery that permits generalisations on the basis of a limited set of data.

These assumptions carry the implication that reality has to be forced into available representation formalisms rather than they are designed on the basis of explicit and adequate assumptions on reality. Accumulating evidence on the results yielded by the mathematical models of machine learning algorithms with respect to deep learning and Bayesian inference shows that a quantitative approach is not always appropriate and that inductive confirmation can be 'an optical illusion'. On another note, the fixed categories of the fields of DBT often appear to be oversimplifications of reality that lead to blurry semantics and emphasise the need for flexible categorisations. System artefacts therefore

dominate the models and this influences the effectiveness/efficiency of AI and DBT evidenced by disproportional development and maintenance costs over time. To move away from current implementation approaches and align technology to reality, the aim of this article is to review the assumptions underlying the models in AI and DBT. This forward engineering to reality entails the functional theory that characterises reality and provides guiding principles to reconstruct and automate intensional and extensional logic into more realistic models. The structure of the article is as follows. First, we expose the implicit assumptions underlying AI and data models by evaluating them from a functional perspective. Subsequently, modelling reality from a functional perspective is dealt with. Then, we focus on bridging the gap between adequate models of reality and models that can be implemented in the technology of machine learning, knowledge representation and data (-transformation). Finally, practical evidence in the financial sector and the economic value of functional thinking and technology are discussed.

## 2.43. Knowledge Management and Intellectual Capital: What frameworks from KM and IC are viable to measure competence?

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### **Abstract:**

#### 1.1 Purpose of research

Since intangible assets and intellectual capital have become a vital strategic asset in today's economy, the interest in measuring it have experienced a surge. As knowledge is referred to intangibles, this research will discuss different approaches to measure competence. Prior measurement methods only take financial measures into account, while the impact of intangibles is left out of account. The lack of measurement methods, respectively frameworks for measuring the correlation of KM activities and business performance constituted a new research field. In the beginning, it was researched for one finale solution meeting any requirements to get valid performance data. This approach refers to the objectivism perspective and my research will show why a finale solution is hard to find. Furthermore, the aim is to emphasize the importance of distinction of measurement approaches and to explain why the context, in which a measurement tool is used, is to consider and to provide a table of valuable frameworks to measure competence.

#### 1.2 Major theoretical foundation

In order to understand, why knowledge has become an important asset in today's businesses, it is necessary to be aware of the resource-based view and knowledge-based view in Knowledge Management. The resource-based theory considers organizations as heterogeneous entities characterised by unique resource bases. These resource bases are increasingly composed of knowledge assets. The knowledge-based view characterizes knowledge as the principal source of economic rent. [3]

In Addition, the distinction between explicit and tacit knowledge is vital to consider. Explicit knowledge is formal, systematic and easy to express and therefore easy to transfer. By contrast, tacit knowledge is generated through own experiences and actions and hard to transfer. The uniqueness and originality of tacit knowledge is the reason, why organizations are desperate to create tacit knowledge. The aim is to enhance the

organization's core competency, which is defined as "unique ability of organizations to deliver products or services, this ability is rather constant, is hard to copy by other organizations and is the basis for the benefit of the organization". [5]

Since there is a lack of a clear definition of the term competence, there is a vast number of attempts to find a coherent definition. The constructivist point of view allows a variety of competence definitions. The extent of the definition depends on the context in which it is used. However, there is still no clear guideline how to define competence, still the constructivist perspective allows us to define and allocate an appropriate approach to measure intangible assets. [5] Nevertheless, there are three broad concepts dealing with the definition of competence. Competence can be regarded as a prerequisite, in order to be allowed to perform specific work. The second concept describes competence as an outcome, which means a performance compared to a set standard. The third one defines competence as the capability to perform, using knowledge and skills, on a particular work task. As this research examines the organizational context, the focus will be on the third concept.

[4]

For a better understanding of how intellectual capital (IC) can be measured, a definition is required. However, there is no consensus about the definition of IC, but a vast number of authors classified IC in human capital, organizational capital and customer capital. Considering the aim of this research, the focus is on organizational capital and human capital. [1] Human capital has its focus on the value that an individual can produce and can be sub-classified into the employees' competence, relationship ability and values. Organizational capital has the intention to facilitate the functionality of human capital and consists of the supportive infrastructure. [2] In addition, there are three different views on organizational knowledge assets, namely positivistic view, interpretative view and organic view. The positivistic point of view (data as a knowledge) enables to determine economical value of an existing stock of knowledge assets and capture it in financial statements. The interpretive view of information as a knowledge-based asset examines the causal relationships between information and higher-level objectives. The organic view (knowledge as a resource) emphasizes the dynamic relational aspects of knowledge.

[3]

### 1.3 Design/Methodology/Approach

Since the aim of this research is to provide viable frameworks to measure competence and to explain the different frameworks regarding measuring intangibles, a rapid structured literature review (RSLR) was conducted. The RSLR enables a search, covering a vast amount of relevant sources regarding a research domain. By reading relevant sources regarding the definition of competence and measurement methods, search-terms were determined and tipped in the Emerald Management Xtra database. The result page of the database provided 196 articles, which were quick-reviewed by reading the abstracts and eliminated if not relevant for the research question. The limitation of this research is due to the missing practical evidence, as this research domain is very immature.

### 1.4 Conclusion

The conclusion of this research is, that there is still a missing consensus about the concept of competence and IC. Many authors strove to find a coherent definition. The domain of KM is still young and has a great potential, as today's leading organizations acknowledge KM as an important strategic asset. In order to be able to set the right KM initiatives, it is necessary to develop tools to measure or value the stock of IA, which supports the organizations in identifying opportunities, or whether an investment is lucrative or not. Traditional financial measurement methods fail to provide that information. The outcome of this paper is, that organizations should be aware of "what" they measure, even more importantly "why" they measure and in which context. The "why" is for different reasons important. One reason is to determine the goal of the measurement/valuation. Does an organization want to measure the performance, or value an opportunity? If a goal is defined, how detailed should the outcome of the activity be?

By knowing "why" an organization want to conduct a measurement or valuation, the "what" has to be clarified. Many approaches ask the user of an tool to identify the intangibles to be measured. This is a long term learning process in every organization, as it is hard to reveal every single intangible asset of an organization. With greater experience of an organization, the effectiveness of the measurement increases too. The ability to use a tool effectively is also an factor, which increases the organizational competence.

## 1.5 Originality/value

This research provides a comprehensive overview about current existing methods to measure IC and competence. It also explains why to consider different aspects like context, measurement or valuation method, or which views are reasonable to consider in a given context. Furthermore, guidelines are provided of how to define an appropriate framework in order to get valid performance data.

## 1.6 Practical and research implications

As there is an everlasting search for a holistic framework/ approach to measure IC, existing frameworks can be extended. The difficulties in this research derive from the many approaches to define the term competence and what IC consists of. Additionally every industry has its own specific characteristics and requirements, which exacerbates the search for a coherent definition. This explains also why the context in which it is used, is as important as the "why" and the "what" in relation to measurement tools. In the concept of competence, the context has also an strong role, at least from a constructivist point of view. This view allows to search an adequate solution dependent on the context in which it is intended to be used. [23] Further research can be conducted to determine typical factors of every industry and having the greatest impact on the context. Nevertheless, it is important to note, even if it is possible to determine these factors, every organizations' core competency is unique, which should also be regarded as an important attribute in the context. The question is, if it is possible to identify specific and typical factors of every industry known.

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## 2.44. Knowledge Management in SMEs: Theory or Practice – Paradigm or Experience

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### **Abstract:**

Purpose: According to a dictionary definition, ‘paradigm’ means “the accepted way of viewing reality in a given field, doctrine, etc.”. The word comes from Greek παράδειγμα (parádeigma) and literally means “pattern, example”. The definition of ‘paradigm’ devised by the philosopher Thomas Kuhn in 1962 describes it as a collection of concepts and theories that form the basis of a given science. Can the problem of ‘knowledge management’ be, therefore, treated as paradigm, or is it an economic concept, or, rather, the resultant of experiences, which, by definition, are practical, and not theoretical, in nature? The article aims to analyse the perception of this issue – the relationship between theory and practice – among small and medium-sized enterprises operating in today’s volatile market environment. Organisations which continue to learn, which skilfully combine the experience of their employees and external cues, which implement new processes and projects at a much speedier rate, which both maximise and benefit from the intellectual potential of their resources. To create such an environment, trust is required – both in the general human sense and in relation to collecting whole sets of knowledge to be processed – in each aspect of business activity. Knowledge management is not only one of the implementable and practicable suggestions of how to solve problems in enterprises, but it primarily is an open-minded way of thinking, arriving at constructive conclusions from one’s experiences and managing the intellectual potential of human resources. In their development, small and medium-sized enterprises face many obstacles. They have, for example, always faced credit discrimination, defined by J.K. Galbraith in 1957, which significantly affects their ability to grow and operate on a global scale. Major theoretical foundation: Small and medium-sized enterprises dominate today’s global economy. They account for more than 99% of all businesses in the market and have direct influence on key macroeconomic indicators, such as GDP or the number of people they employ (in Poland: 60% and 75% respectively). Therefore, the knowledge management competence among those who manage three-quarters of all Polish population capable of work is an especially weighty and economically justified subject.

They are incredibly smart and agile, showing flexibility and ability to react in flat management structures, given the shortages they face virtually every step of the way and the limited access to capital. Using mainly money market solutions, they often forget, and even are not aware of, the solutions that the capital market offers. And yet, the functioning and rules of the financial market, as well as the access to it, are now global. Managing a knowledge-based organisation is, however, a distinctive feature because it makes the enterprise unique, which, in a world of striving for continuous improvement of quality, becomes an added value given of any business. Essentially, the use of concepts associated with the idea of paradigm seems unquestionably prevalent in any area. They are created in the form of scientific theories recognised by most researchers. Why, then, can one so often see a dogmatic approach to scientific issues in the literature regarding the theory of the subject matter in question? Knowledge management is about intellectual resources and, for that reason alone, is not only a complex but also an interdisciplinary issue, as it touches upon social capital and human resources – thus sociology and psychology – and as regards the behaviour and attitudes of both managers and their people – also philosophy and ethics. Nowadays, business information has become an academic subject.

**Design/methodology/approach:** The article presents, against the background of a literature review, the results of own research conducted in the years 2016-2018 on a group of over 100 Polish entrepreneurs from the interior industry. Those results were analysed in terms of: (1) nominal variables, (2) qualitative characteristics, (3) continuous quantitative traits, (4) discrete traits. The results have been compiled into summaries in order to better illustrate the differences occurring in SMEs conducting various types of economic activity (retail stores vs. full franchise vs. partial franchise; services vs. services and trading vs. industrial activity). The results indicate certain differences, gaps and threats occurring between the perception of the issue of knowledge management in Poland in terms of the place and legal status of the business, as well as the socio-economic impacts observed by SME owners in terms of consumer behaviour, expectations and choices. The issue of perception of the role of information in business and the specific nature of some areas of its tasks and functions against the background of empirical research is presented. To obtain the results, mathematical analysis tools and elements were used, and the responses and trends elicited from the respondents were demonstrated using tables and graphs, based on a group administered questionnaire containing open and closed questions based on a 5- and 7-point Likert scale, and a chi-square test.

**Findings or conclusions:** Small and medium-sized enterprises have always been

accompanied by one goal: “first and foremost – to survive”. Knowledge management involves possession of knowledge. This, in turn, is a collection of information that is not necessarily sufficiently appreciated by the managers in the SME sector due to the very large share held by the business owners themselves and their often patriarchal system of doing business. The results of the research indicate certain diversity both in the way of managing knowledge and the possibilities of acquiring it. This concerns both the ability to choose the necessary training which will improve qualifications among managers and employees, but, above all, to see the needs in order to enable progress of the surveyed enterprises. Own research has shown that small and medium-sized enterprises are knowledge-oriented and aware of its importance for the development of the company, especially those that operate on principles of affiliation, receiving the support of purchasing centres and using common experience and internal procedures. At the same time, the use of processes related to the management of knowledge categories was discovered, while the gender of the entrepreneur making the key decisions in this respect was found to have no significance. The main differences, however, are due to the legal status of the businesses, where the retail market appears to be definitely limited, not only in the implementation sense, but also as regards the sole perception of the need resulting from the possibilities of knowledge management processes.

Originality/value: The building of learning organisations is not easy – neither in theory nor in practice. Introducing new solutions is always accompanied by changes. Usually, these are not perceived positively by employee teams, especially when they are accompanied by an element of innovation – to eliminate human error. The promoter of a knowledge-based society, P. Druker, at the end of the last century defined the changes that must take place for such a society to come into existence. Knowledge is already widely available and its absence does not justify incompetence or ineffectiveness. According to him, poverty is experienced by countries, organisations or people who are backward and ignorant. A knowledge-based enterprise is, therefore, no longer an innovation. In the face of ubiquitous globalization, it is a necessity in order to “first and foremost – survive”. Therefore, the answer to the knowledge management question should be sought among aspects of internationalisation, because there should be no “whether”, but “how and when”. The relevant literature discusses the issue of knowledge management primarily in relation to large enterprises, ignoring the specific nature and possibility of adapting solutions to the opportunities and alternatives offered by micro scale. Any attempt which illustrates the implementation of solutions related to knowledge

management among SMEs is, therefore, a valuable sample showing the perspectives and variants possible for this sector.

Practical and research implications: Skilful acquisition and use of available knowledge resources can be a factor in increasing the efficiency of management processes, and thus directly affecting the level and effectiveness of one's business goals. T. Khun claimed that "the man who makes an attempt to solve a problem defined by the existing knowledge and technology has no broader horizons. They know what they want to achieve and, in compliance with this, they design their tools and they are driven by their own thoughts". Thus, he paints a picture of scientists as biased and conservative thinkers who seek to confirm in reality what they have been taught and what has been applied in existing theory as an authoritative way to solve problems. Social sciences, by definition, enable interdisciplinarity. The results of the research indicated this component, namely practitioners who, while struggling with the day-to-day management of the company and being unable to name the processes taking place using terminology defined in the literature on the subject, do use tools indicated by renowned scientists. The strength and consistency of combining theory with practice, in this case – the competences and education of SME managers, is a key indicator that requires continuous improvement in enterprises of this size. Knowledge management in SMEs is, therefore, both theory and practice – paradigm and experience

## 2.45. Learning Assistance Systems in Manufacturing – Status Quo! Quo vadis?!

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### **Abstract:**

#### MOTIVATION

Competence acquisition, qualification and lifelong learning are considered as key factors for the successful implementation of the digital transformation. The digitalization of all sectors of the economy require adaption and continuous improvement of companies and their employees, especially with regard to skill gaps and mismatches. At the same time, technological change and increasing market dynamics require agile and flexible processes in the context of Industry 4.0. Hence, job requirements and necessary competence profiles are increasingly changing, demanding from employees a willingness to engage in lifelong learning but also creating a need for more efficient on-the-job education and training. In order to meet the requirements of increasing complexity and variant diversity in many areas of production, adequate qualification of the assembly personnel is indispensable. The total costs of continuing vocational training courses in the EU-28 enterprises represented an average of 1.7 per cent of total labour costs in 2015. There is broad agreement that the necessary expenditures for training and further education will increase massively, since traditional learning and qualification formats will not meet the diversified needs of companies and employees in the future. Due to the increasing qualification requirements on one hand and the shortage and even mismatch of skilled workers on the other, it is necessary to expand the pool of potential workers and reevaluate the job descriptions, thus increasing the diversity of employees and dealing with skill surplus or shortage. Hence, future education and training concepts have to strongly take aspects such as age, educational background, culture, language as well as differing motivations, abilities and learning styles into account.

Triggered by new technological possibilities, industry makes intensive efforts to intelligently network processes, data and products. Moreover, numerous solutions for learning assistance systems in manufacturing are currently developed. Such systems can be used to train new hires or existing employees for new assignments. Quality training is also required on selected topics, such as assembly processes that are particularly difficult

or prone to errors. Further developments are expected in the area of employee flexibility and job enrichment, due to a broader qualification of workers.

Especially in the area of complex assembly, a comprehensive employee training, assisted by modern learning assistance systems that provides guidance and feedback, knowledge acquisition and skill retention can be substantially improved. If, for example, the methodically correct sequence of movements for an assembly process is firmly anchored in an employee`s memory and the reasons, consequences and interfaces of the process are understood, the employee will be able to react more precisely to deviations from the normal assembly process. In the event of a minor malfunction, such as a deviation in the quality of the assembly parts, an assembly error does not occur directly, but the individual is qualified to select an alternative action. This also reduces the burden on foremen and master craftsmen, as they are only informed of major problems, thus providing workers with increased autonomy.

#### STATE OF THE ART

Learning assistance systems promise digital support of the learning process. They represent a subgroup of assistance and recommender systems with the specific aim of supporting qualification processes in all phases of learning. The content of a training course and the methodology chosen depend on the complexity of the content to be conveyed. As the degree of complexity increases, the use of various communication mediums such as visual and language-supported training makes sense. The range of qualification activities in manufacturing companies is very broad and spans from learning simple assembly activities to understanding complex technologies and the expert handling of sophisticated machinery. In addition to technical content, extended competences, which include social-communicative and methodological skills, can be built up.

In manufacturing and assembly, presently the focus of learning assistance systems is on imparting physical activities and motoric skills. The learning requirements for assembly employees vary considerably depending on the type of assembly system and work organization.

Not least due to the advancing digitalization, the requirements of the employees at their workplaces and thus qualification methods are changing. Progressively more "digital natives" enter the workforce and demand an environment that feels comfortable to them. In the context of training, great importance is attached to the approach of gamification. It increases the attention of the students and relaxes the learning atmosphere. The training

is no longer a pure transfer of knowledge, but involves the students interactively in an overall enjoyable experience. During a training session, for example, a live ergonomic evaluation of the trainees can be carried out with the help of a depth camera, such as the Xbox Kinect, in order to directly point out posture errors during the assembly training. The camera registers a person's extremities and tracks them during training. If the body posture is unhealthy, the corresponding body parts are shown in red and minus points are acquired, will good posture will earn you points. The playful approach creates a positive atmosphere while increasing the awareness for a healthy posture among the employees. The greatest potential is attributed to visual support of training activities, as it allows available information to be brought together, filtered and processed as required. In general, modern visual learning assistance systems can be divided into VR-based training, virtual 3D training and AR-based training. Head-mounted displays (HMDs) in particular are suitable for training support as they enable hands-free working and can display context-related information in the real environment. Moreover, external trainers can be consulted, if questions or problems arise. Initial research has shown, that visual assistance can help unskilled and experienced workers perform new tasks 30-40% faster. Due to ever faster development and production cycles, it is also necessary to start worker qualification earlier in the production process. Since today's plants often are built and equipped immediately prior to the start of production, qualification and training is only possible shortly before. In addition, the procedures to be learned are difficult to predict due to the increasingly autonomous and diverse processes of the plants. Virtual, interactive and immersive learning systems offer the possibility of simulating and experiencing these processes in advance.

A major challenge in the design of learning assistance systems is the balancing act between the continuous improvement of proven processes and the design of disruptive new processes in order to achieve the goals as efficiently as possible. In particular, the digitisation of the entire qualification process, from the preparation of documents to the implementation and documentation of training, offers great potential, as this enables centralised, standardised training management.

According to the trend towards the automated execution of simple repetitive tasks, while at the same time creating more complex preparatory or process-accompanying tasks at the interface between people and technology, makes novel training approaches for the latter a high priority. Finally yet importantly, the successful integration of assistance systems and their use must also be taught to employees in order to be able to exploit the

potential of new technologies.

## APPROACH AND RESULTS

This paper analyses the current state of research and application of learning assistance systems in production. This includes above all the use of cognitive assistance systems for competence transfer in the sense of work-integrated learning in the core areas of manufacturing companies, i.e. manufacturing, assembly, intralogistics as well as maintenance, quality inspection, service and industrial engineering.

As part of a systematic literature search of scientific publication databases (Web of Science, Scopus and Google Scholar), existing publications in the fields of "learning assistance" AND "production" are analysed and clustered. At the same time, existing industrial solutions will be classified according to their areas of application in production, their focus (training of new employees, training of all employees for new variants, quality training for complex processes, gamification, task-specific training, safety training and instruction, expert coaching as well as their learning approach (workplace-integrated (inline training), workplace-related (training island) and off-line training). Technologically, the analysed solutions are classified according to the (dominant) delivery medium (image- or video-based, VR-based training, virtual 3D training, AR-based training) used.

## DISCUSSION

Learning assistance systems for use in production are particularly driven by the developments of the technological requirements of companies and the expectations of a new generation of employees. Nevertheless, the actual use of learning assistance systems in today's production environments is mostly limited to image- or video-based systems, which usually react statically to the learning progress of the employee. Although some systems can be individualised, most of the systems do not adapt dynamically to the respective context of the work process and its future requirements. However, such adaptive and adaptable learning assistance systems are seen as the most promising future field of development.

## **2.46. Learning Organization Culture and Core Job Characteristics for Knowledge Workers in Korea**

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### **Abstract:**

The purpose of this study is to examine the relationship between perceived learning organization culture and core job characteristics in a sample of 264 knowledge workers from four organizations in South Korea. The dimensions of the learning organization questionnaire (DLOQ) and the job diagnostic survey (JDS) were used as measures. The result of a canonical correlation analysis indicated that the composite of learning organization culture (i.e., continuous learning, dialogue and inquiry, team learning, embedded system, empowerment, system connection, and strategic leadership) was modestly but significantly related to the composite of core job characteristics (i.e., variety, identity, significance, autonomy, and feedback), accounting for 34 percent of the shared variance between the two variable sets. More specifically, the effects of dialogue and inquiry, team learning, and system connection in learning organization culture were greater on feedback, autonomy, and task significance in job characteristics for knowledge workers in South Korea.

## 2.47. Linking Transformational Leadership to Knowledge Management in the Universities in Kenya; the Role of Teamwork Processes

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### **Abstract:**

This study analyses the effect of teamwork processes on the relationship between transformational leadership and Knowledge Management. The key objective was to examine the role that teamwork processes play in influencing a leadership knowledge management relationship in the Universities in Kenya. The study utilizes the work of Yammarino et al. (2003), Muchiri et al. (2012) and Atwater and Bass (1994) on transformational leadership, team performance and teamwork processes. The paper also utilizes Crawford (2005) research on the relationship between transformational leadership and knowledge management as well as the work of John D. Politis (2003) and Turner et al (2012) on Knowledge management and teams. Cross sectional data was collected and analyzed within a period of one year from September 2017.

Reviewed research found evidence of teamwork processes such as cohesion and communication improving team performance and functioning (Evans and Dion, 1991; Sundstrum et al., 1990). According to Yammarino, et al. (2004) for example, Transformational leadership (i.e. the four I's) may be mapped to critical teamwork process factors in such a way as to possibly develop team communication and conflict management skills, and promote team cohesion. Transformational leadership has been empirically linked to cohesion in the past. Specifically, Carless et al. (1995) found that cohesion mediated a transformational leadership relationship with financial performance of Australian banks. Sosik et al. (1997) reported similar findings in a study where group potency was found to mediate the relationship between transformational leadership and creative outcomes of teams. Additionally, using a military sample, Bass et al. (2003) found support for the mediating role of group potency on transformational leadership performance. Furthermore, Bettenhausen's (1991) review of group research linked team cohesion with team variables that included satisfaction, productivity and member interactions.

Following the demonstrated linkages between transformational leadership, teamwork processes and performance, the following hypotheses were developed for this study;

H1. Transformational Leadership has a positive influence on Knowledge management

H1.1 Transformational leadership has a positive influence on teamwork processes of cohesion and communication

H1.2. The teamwork processes of cohesion and communication have a mediating influence on the relationship between transformational leadership and knowledge management.

A conceptual model highlighting the hypothesized relationships was developed. The conceptualized model rests on the premise that in addition to previously supported direct transformational leadership-Knowledge Management linkages (Crawford 2005), the four dimensions of transformational leadership may produce key intermediate outcomes, which could positively influence team interpersonal processes of cohesion and communication. The product of these interactions may in turn influence Knowledge management initiatives of creation, sharing and utilization.

Relevant survey instruments were developed to enable data collection. These were captured in a three-section questionnaire. The first section focused on the transformational leadership characteristics as identified from the multi leadership questionnaire. The section listed a number of statements reflecting transformational leadership characteristics measured in a five point Likert scale, ranging from strongly disagree(1) to strongly agree(5). The second section of the questionnaire captured statements aimed at determining the perceived effect of transformational leadership on the two identified teamwork processes of cohesion and communication. The last section of the questionnaire included statements that reflect the different KM practices adopted and implemented in the universities in Kenya.

Kenya has 30 accredited Universities. Simple random sampling was used to select six universities for the study. Six Universities represent a 20% industry representation, which is considered adequate for a cross sectional study, Mugenda and Mugenda (2009). A questionnaire was sent via email to the heads of academic departments of the selected Universities. Sixty (60) questionnaires were sent out, 36 of the returned ones were found usable for data analysis.

The collected data was analyzed using descriptive statistics such as mean and standard deviation as well as inferential statics such as linear regression. Descriptive statistics were used to describe characteristics of the collected data while inferential statistics were used

to determine the nature of the relationships between and among the study variables. Transformational leadership was measured using items adapted from the Multi-leadership Questionnaire (MLQ). Items adapted from Fillius and De Jong, (2000) were used to measure the knowledge management dimensions. Teamwork processes was measured using items developed from literature review.

The results supported the view that transformational leadership has a positive influence on teamwork processes and knowledge management. Teamwork processes however were found to have no significant mediating influence on the relationship between transformational leadership and knowledge management. This was quite interesting since prior research has found teamwork processes to positively predict firm outcomes with transformational leadership as the predictor variable.

This study has theoretical implications. First, the results showed that transformational leadership has a positive effect on knowledge management. This is consistent with previous findings e.g. Crawford (2005) and Turner et al. (2012). Secondly, and consistent with previous research findings, the study confirmed the influence of transformational leadership on teamwork processes to be positive. The hypothesized mediating influence of teamwork processes in the relationship between transformational leadership and knowledge management was however not confirmed. Further research is needed to determine the specific teamwork processes and their combined and individual effect on the relationship between transformational leadership and knowledge management. One limitation of this work is that this is an initial attempt at understanding how transformational behavior may influence Knowledge Management performance via teamwork processes. Out of the studies reviewed, none has attempted to link the transformational leadership style to knowledge management through teamwork processes. Further research is therefore needed to validate the findings of this study.

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## 2.48. Management Control – The importance towards Organisational's success – Case Studies

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### **Abstract:**

Management Control, over the last few years, has been a discussion and research topic as it assumes from time to time more relevance in business reality. Due to the constant innovational development, organisations, and especially managers, seek for Management Control tools that are appropriate to their needs, to, consequently, perform according to the global organisational need.

Management Control tools enable managers to monitor all information in order to assure decision making, planning and achieving the whole organisational control.

In recent decades Portuguese business structure has undergone sharp adjustments, reflecting changes in competition (China and other Eastern European countries) and in the way to react to adverse external events (such as the recession). Despite of this challenges, the actual business is improving, highlighting that there are sectors that stand out more than others, namely wine, accommodation and catering, and even agriculture and fisheries in certain areas, but with even less economic importance.

Along organisations, small and medium enterprises (SMEs) have the greatest economic relevance as three-quarters of the organisations in the wine sector are SMEs and generate around 70% of the sector's turnover.

Based on this development, SMEs business success has increased supported by internal sets of management tools that are applied by business administrations and managers. Considering the importance of strategic Management Control tools, such as the interlinkage of the diverse organisational perspectives, Kaplan and Norton developed in the 90's an important performance evaluation tool. This measurement tool, namely the Balanced Scorecard, is composed by financial indicators that show the results of past actions, of customer indicators related to customer satisfaction, internal processes referring to the potential that the organization has to improve and also learning and growth perspective to lead to good financial performance in the future. Through this four perspectives, this tool characterizes and guides toward the defined organisational strategy, driving to the value creation. On hand of these four perspectives the BSC empowers a

strategic analysis directed to the creation of value, focused on mapping and monitoring the strategy of each organisation. This guide will direct managers to act in accordance to the competitive factors that can direct them to the success, interconnecting the operational performance to the strategic objectives. In this sense, strategic maps represent the key characteristics of organisational strategy, as they create relationships between the various objectives and each perspective.

Thus, the strategic map characterizes the whole organisational strategy, describing all the critical success factors of the organization such as the relationship between each of the four perspectives and their cause and effect relationships, showing an objective way of value creation to the entire organizational structure.

Nowadays, recognizing the impact of Management Control tools, several organisations are still implementing management control tools which, undoubtedly, are the driving force for their success, as only the implementation of an effective tool, in accordance to the organisational guidelines, empower the growth and success of the business.

Strategic success is driven by the relationship between the organisational performance, its competitiveness, and the growth and success of its business, according to the implemented organizational strategy.

The aim of this investigation is to confirm the importance of Management Control tools implementation towards business management success. In order to obtain all the needed information and to enable the empirical study of this investigation, a field study, based on detailed and rigorous knowledge of organisations, namely Multi Case Studies have been selected. In this sense, two Case Studies have been developed in two small and medium organisations of the wine sector in northern Portugal. One of these organisations has no Management Control tool implemented, while the other company has already a Management Control tool implemented. So, due to different scenarios, the comparison was even more powerful. Thus, this research focused on the qualitative methodology of an exploratory nature, based on an interviews as a part of the Case Studies. The sample was used to study the relationship between management control and business success, to measure and evaluate the results obtained in the time period under study, that is, between 2014 and 2017. This investigation, characterized their structures, management methods and the relevance that they give to Management Control tools to increase performance. The research results demonstrated that Management Control tools are vital for the development and success of the organisational business. In addition it was confirmed, that organization with Management Control tools. Based on the research results, we

concluded that the main objective of the investigation was achieved, having highlighted the importance that the Management Control tools have for business success, and in particular the benefits that it has brought to the organisational that adopted them, unlike the organisational which does not have the Management Control tools implemented. This research reveals that despite of the recognized notoriety of the Management Control tools, these are still underdeveloped. Thus, this research intends to highlight the importance of the implementation of the tool through the characterization of management differences between SMEs organizations with and without Management Control tools. The important role that management control systems has in the financial and non-financial performance of SMEs to achieve business success. In addition, the research showed that SMEs benefit from the implementation of Management Control tools that are appropriate to their needs and realities, consequently, these organisations were encouraged to adopt them, taking in consideration the importance and benefits towards performance and the measurement of strategic objectives.

## **2.49. MANAGEMENT: THE AFFECT OF KNOWLEDGE ECONOMY ON GLOBAL ECONOMIC DEVELOPMENT PATTERN AND QUALITY OF LIFE**

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### **Abstract:**

This paper addresses Knowledge Economy (KE) as a set of information designed to influence economic management system and examines KE as a tool for imputing change for stimulating economic output growth for business gains. KE is used in this discussion as a platform for economic development without involving the popular industrial age labor and technology economy terms. The origin of the KE concept began with the published works of management philosophers such as Frederick Taylor (Scientific Management), substantiated by Fritz Machlup, and amplified by Peter Drucker's knowledge company. Differential contexts of the term opened tracks to research platforms in various contexts and definitions. The use of KE in conversation involving business management evolved with users contextually and continued to differentiate into specific management platforms. Significantly, the evolution favored ambiguity that continually supported Foucault's position. Foucault opined the term economy was an unsubstantiated concept that pegged on tweaking imaginations of users. The concept of economy had no stand-alone tangibility until it was associated with tangible assets. Progressively, positive affect of KE has impressively manifested in assets management. For example, KE opened global communication boundaries for strategies in marketing, raw material sourcing and finished products advertisement through the disruptive innovation: the use of social media. The application of KE made global business prospects feasibly under improved costs. Exemplarily, industrial raw materials exploration and importation from Africa to Europe and America is induced through KE information applications via the social media. Intermediate partners are not necessary. The United States (US) banking system uses KE to boost or regulate currency exchange rates information globally through press releases. The Middle-East oil magnets apply KE information to control prices of goods sold to members of Oil Producing and Exporting Countries (OPEC) through social media. Similarly, the United Kingdom (UK) uses gold and diamond reserves value information to regulate the exchange rates for the US dollar

in international markets through social media. However, KE has shortfalls. KE empowers nations that pragmatically acquire knowledge through research and manufacture to design, build and regulate individual economic structures advantageously over those with low manufacturing knowledge capacity. For an example, the machine economy developed in the northern hemisphere: Europe and the US quadrant, sets up a direction of exportation to consumption areas: Africa, Southeast Asia and the Middle-East. Targeted consumers of these products are exposed to economic disadvantages that keep local technological and economic progress lagging behind the innovation rates of manufacturing organizations. Proven that designers and manufacturers of technologies are based in nations located in the northern hemisphere, manufactured technologies are exported to nations in the southern hemisphere at unevenly negotiable costs with respect to the resources used to pay for imported goods with low warranty and inadequate product information. This practice is one-sidedly profitable for business development of the manufacturers. Consequently, global economy has not been harmonized. Inflation rates across hemispheres are uncontrollable, and GDPs of individual nations decline. Why is the global economy constantly in an unbalanced position and seems irreversible? The paper addresses KE in terms of economic balance system (management system failures) that uses KE systems as a component of good practice for forecasting and directing the movement of products along the products demand gradient. Secondary data is purposefully analyzed to understand the KE affect in balance status of global business practices and growth rate factors for economy across the global economic zones. Outcomes from the data analysis should inform the directions and scope of further research in higher education. Optimization of evenly KE applications for global economic management should yield recommendations for supportive and competitive businesses across global economic zones.

## **2.50. On-Site vs. Off-Site practices of MSD intervention and its impact on Organizational Productivity, Absenteeism and Costs. Theoretical analysis with application.**

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### **Abstract:**

**Purpose:** The purpose of this study was to establish to what degree MSDs (musculoskeletal disorders) impacted employee productivity, and to compare the effect of using an On-Site, versus an Off-Site treatment strategy for MSDs, in the context of MSD related productivity losses (Nicholson, et al., 2006), absenteeism (Bycio, 1992; Paget, Schultz, & Lang, 1998; Yorgis, 2016), and the associated costs.

**Theoretical Foundation:** MSDs, primarily neck and back pain (Hoy, et al., 2014), have been shown to be a tremendous Global burden on society (BMUS,2014-2018), costing billions of dollars to treat each year as well as billions of dollars in productivity losses (Nicholson, et al., 2006), disability and absenteeism (Fit for Work Europe, 2013). MSDs negatively impact the quality of life of more people globally than nearly any other disease known to man (Haldeman, Carroll, Cassidy, Schubert, & Nygren, 2009). For the employer, MSDs have been shown to be the single greatest cause of long, short and permanent work disability globally (GBD, 2010), the primary driver of direct and indirect costs (BMUS, 2014-2018) as well as the most common reason employees seek medical advice (Hoy et al., 2014).

**Presenteeism,** the phenomenon when an employee is at work but not working to their full capacity (Koopman, 2002; Hemp, 2004; Schultz & Eddington, 2007; Johns, 2010), has been shown to cost organization more in financial losses than absenteeism or direct medical costs (Johns, 2010). This study seeks to find a correlation between MSDs, presenteeism and absenteeism, by measuring the productivity losses and absenteeism rates of employees suffering daily with MSDs.

**Methods:** The study consisted of evaluating similar types of working groups of employees from three large corporations in Lisbon Portugal, from the energy, consulting, and banking sectors. The first study was designed to measure the impact that MSDs have on

employee productivity. The first group (N = 260) were employees with recent or chronic MSD complaints who were processed and diagnosed as new patients in the On-Site clinics of each organization. The instrument used was; the WLQ or Work Limitations Questionnaire (Lerner, Rogers & Chang, 2005) which uses a scale designed to measure to what degree a person's physical or emotional problems impact their productivity ability at work in terms of; time management, physical work, mental and interpersonal tasks as well as work output tasks over the past two weeks. The instrument used an algorithm to calculate the percentage that each of these categories had on the individual, and the total was translated into a lost productivity score average per person and per company. This WLQ lost productivity score was then converted into total costs based on the average wage method (GEP, 2016; Trading Economics, 2018). The study was also designed to discover any correlations between productivity losses and MSD associated clinical symptoms such as neck and low back pain.

The second tool was a scaled questionnaire (Paget et al., 1998) designed to measure the amount of absenteeism that was caused by employee MSDs and make a comparison between employees of each organization who used the On-Site clinics in the past year, with employees with MSDs who chose Off-site options. A scaled Absenteeism Questionnaire was used, which determined the amount of time, in terms of days and hours, that an employee missed work due to their MSDs in the context of disability days, treatments, medical consults and diagnostics. On-Site (N = 163) and Off-Site (N = 111). An average wage calculation was used to convert the average number of work-hours into a cost per-hour, per-case, which was converted into the average cost per-year, per-case (employee).

Findings: The WLQ revealed an average Lost Productivity Score of 10.5% which translated into a total lost productivity cost to the company between €1,197.17 to €1,759.33 per person, per year with the younger population, average of 35 years old, being the lowest, and an older population, with average age of 54, being the highest. Productivity loss and age demonstrated Low linear correlation (.319), positive and statistically significant ( $p < .001$ ). Several statistically significant ( $p < .001$ ) correlations were revealed between the WLQ lost productivity score and clinical findings using a 2-tailed Pearson Correlation evaluation, including; forward head posture, neck pain, mid and low back pain and upper and lower extremity pain. X Ray findings of a reversed Cervical spine curve were strongly correlated with a higher WLQ score. The Pearson Chi-

Square Tests or “goodness of fit” statistic, demonstrated statistically significant differences ( $\chi^2(12)=93,267$ ;  $p<.001$ ).

Comparing the On-Site and the Off-Site models, the most significant findings as to the causes of absenteeism related to MSDs were average total disability hours per year (4.88 hrs vs 37.33 hrs) and hours for treatments (10.02 hrs vs. 24.35 hrs) respectively. Total average absenteeism in working hours per-person, per-year, On-Site vs. Off-Site were, 16.62 hours and 68.38 hours respectively which translated into €108.07 and €444.72 respectively.. The Absenteeism study revealed Statistically significant mean differences between the On-Site and Off-Site groups, Disability; ( $t(117.583)=8.477$ ;  $p<.001$ ), Treatments; ( $t(169.042)=13.567$ ;  $p<.001$ ), External Consults; ( $t(167.547)=9.270$ ;  $p<.001$ ), and External Diagnostics; ( $t(183.525)=8.183$ ;  $p<.001$ ). There was a very strong and statistically significant correlation between total absenteeism, On-Site vs. Off-Site, with statistically significant mean differences ( $t(273)=-20.022$ ;  $p<.001$ ). It was also revealed that the average time an employee needed to wait, from the time of onset of symptom, to the time of first treatment, was 3.6 days (28.8 working hours) and 14.09 days (119.2 working hours) respectively.

Conclusion: The study clearly shows that MSDs contribute greatly to costly employee productivity losses and presenteeism. MSDs also contribute to costly absenteeism in the form of disability and treatments as well as external consults. The study also revealed that employees seeking care On-Site have lower disability rates, require fewer treatments, external consults and external diagnostics than employees seeking Off-Site solutions. Employees using the On-Site clinic can also be treated very quickly compared to the Off-Site group, greatly improving the early intervention strategies of previous European and international studies. An On-Site MSD clinic model has been shown to save an organization a great deal of money each year by lowering productivity losses and absenteeism hours as well as direct medical expenses.

Originality: This study demonstrates the value of combining the disciplines of health care, human resource management, employee productivity strategies and strategic cost management methods, into a single, cost effective approach and strategy, to maintain healthy, working and more productive employees, resulting in tremendous direct and indirect cost savings, and thus, profits for a company that implements such a strategy.

Practical and Research Implications: The On-Site MSD clinic strategy demonstrated a major advance in previous studies which demonstrated productivity reductions by streamlining clinical processes and reducing disability days with MSD specific, early intervention clinics Off-Site. The On-Site model has shown to reduce and even avoid disability all-together in many cases, due to the ease of access for employees who may otherwise have spent days in bed or seeking external consults, rather than working. Duplication of the study in Europe and elsewhere, could potentially lead to a cost-effective strategy, with tremendous potential cost savings, and a decreased burden on the health care system, by keeping employees out of hospitals and local clinics.

## 2.51. Organization Diagnosis before Development: Case study of Public Hospitals in Thailand

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### **Abstract:**

Applying the sciences of the King Bhumibol Adulyadej (King Rama IX) “Understanding, Connecting, and Development” to the organization development context, Akaraborworn, Chareonsap and Yodrakang (2015) have developed “Nine Cells” as an organization diagnosis tool for public sector since 2014. Office of Public Sector Development Commission (OPDC) has a mission to provide consultation for public sectors in order to cope with change. Developing tools for organization evaluation and development is one of OPDC’s tasks.

Nine Cells is an organization diagnosis tool initiated from two major principles: (1) Nine Performance Variables by Rummler, G.A. and Brache, A. P. (1995) and (2) PMQA (Public Sector Management Quality Award) applied from Malcolm Baldrige, the Quality Management Criteria, U.S.A. The concept of organization diagnosis survey aimed to identify the alignment of goal, design and management in organization, department and individual levels.

Rummler and Brache (2012) have provided a holistic view of organizational diagnosis. They have divided organizational performance into three levels: organizational level, process level and individual level (p.12). They viewed organizations as “ecosystem” - complex network of interconnected system - and contended that to improve performance we need to understand the whole system. Since 1995. Rummler and Brache have introduced Nine Variable Matrix (see Table 1) that exhibits a comprehensive picture of the three levels of performance and other related factors. The first dimension of the matrix contains a framework. The second dimension includes three factors termed as performance needs, that determine effectiveness at each level of performance.

Table 1: The Nine Performance Variables

Goals Design Management

Organization Level Organization Goals Organization Design Organization Management

Process	level	Process	Goals	Process	Design	Process	Management
Job/Performer	Level	Job	Goals	Job	Design	Job	Management

Akaraborworn, Chareonsap and Yodrakang (2015) have applied these Nine Performance Variables to Nine Cells which represent three levels of organization, department / team and individual levels. They developed the questions in the survey from those two principles and tested by an expert team from OPDC. There are four questions under each cell, thus the total of questions is 36. The survey was tested with 563 government officers working in 10 departments and 10 provinces. Confirmatory Factor Analysis (CFA) and reliability were conducted and confirmed that the survey can be implemented. Each cell is called Cell #1 to Cells #9 as shown in Figure I. The arrows between the cells represent the needs for alignment in organization development.

Figure 1: Nine Cells – an organization diagnosis tool

In 2015-2017, Healthcare Accreditation Institute (Public organization) (HA) has adopted Nine Cells for conducting hospital diagnosis on-line under the project of “Engagement for Patient Safety”. There are 132 public hospitals with 90,932 subjects volunteering to participate in this project. The main objectives of this project are to provide an organization diagnosis tool for public hospitals and to develop a public policy for Thai health care development. Nine Cell diagnosis tool is one of three diagnosis under this project.

The participated hospitals are 40% of public community hospitals and 30% of the primary, secondary and tertiary care hospitals. Almost all of them (94%) are under the Ministry of Public Health. Most of them (83.33%) are accredited by HA Level 1 and 2. The diagnosis result presented the alignment of each cells under four groups of people: Administrative Group, Healthcare Professional Group, Healthcare Supporting Group and General Supporting Group. The results were showed separately from each groups in order to create sense of urgency and to create discussion among the management team.

Figure 2: Nine Cells – Comparing the diagnosis results from each group

In conclusion, the one of the results showed that more than half of the public hospitals (54%) needs to develop Cell #1 which is “Corporate goal”. While, many of public hospitals have responded that they have clear Department Goals and Individual Goals. However, these hospitals cannot perform effectively if they cannot align the department

goal and individual goal with the corporate goal which is unclear and not communicated well. The evidence showed that the corporate goals for public hospitals in Thailand were changed regularly to support the new policies from different governments. Thus, the recommendation is that the Ministry of Public Health should provide clear direction or goals in the form that is easy to understand and be able to communicate to those people who are the critical part of driving the corporate goals.

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## **2.52. Organizational values and human resource management factors leading to organizational engagement and sustainability in a local Thai NGO: A case study of the Pid Thong Lang Phra Foundation**

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### **Abstract:**

The objective of this research were to study the organizational values and human resource management practices that affected employee engagement in a specific organizational context; a Thai CSR-based non-governmental organization (NGO) named Pid Thong Lang Phra Foundation. The foundation was first established in 2008 to drive the public learning and development from 4,447 royal projects founded by King Bhumibol Adulyadej. To date, there have been minimal research studies on the role of local Thai NGOs and their discourse and practices (Sthapitanonda & Watson, 2013). We aimed to study the sustainability of this foundation from the dimensions of the organizational values and engagement through certain human resource functions. Why employees of the new generation would prefer to work in a local NGO? This exploratory research used a conceptual framework comprised of three variables: 1) organizational values modified from the classic Rokeach (1973)'s theory of values; 2) human resource functions (i.e. recruitment & selection, evaluation & performance management, training & development, and compensation & benefit) and; 3) Hewitt Association (2004)'s organizational engagement.

The qualitative research method was adopted in this study. The in-depth interviews were conducted with 9 respondents who worked at Pid Thong Lang Phra Foundation in three different geographical locations; Nan Province, Udonthani Province, and Bangkok. The results revealed that organizational values including understanding, connecting, and development obviously led to strong organizational culture and sustainable development as the values affect the way people perceive and perform their jobs. As for human source related factors, it was found that person-organization fit variable displayed during the recruitment and selection processes, feedback provided during performance evaluation process, appropriate and timely training and development courses, as well as coaching and mentoring process are the major factors that have retained employees in this Thai

local NGO. Non-financial rewards appeared to be more significant for all respondents than financial rewards as social altruism and voluntarism appeared to be the intangible factors leading to organizational engagement and employment sustainability.

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### **2.53. Perceived Overqualification and Work Engagement: The Moderating Role of Organizational Support**

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#### **Abstract:**

Overqualification is the situation where individuals have qualifications such as education and skills that exceed job requirements (Khan & Morrow, 1991). In the last decade, the issue of overqualification became a topic of interest to both labour economists, management and organizational researchers because of the economic downturn, especially in some European Union countries where unemployment rates are still extremely high. Overqualification has been operationalized in some different ways, from subjective approach as perceptions of being overqualified (Johnson & Johnson 1997) to possessing skills and education exceeding specific job requirements (Green & McIntosh, 2007; Verhaest & Omey, 2006).

The literature tends to treat overqualification as a negative phenomenon, largely due to existing available research demonstrating that when employees perceive themselves as overqualified, they have more negative job attitudes (Johnson, Morrow, & Johnson, 2002; Maynard, Joseph, & Maynard, 2006). But at the same time, there is some research that indicates that employees who feel overqualified perform better, overqualified employees are rated as higher performers by their supervisors (Fine & Nevo, 2008; Holtom, Lee & Tidd, 2002). This two perspectives can constitute a paradox and a challenge for organizations and human resources policies: shall we recruit overqualified employees or not? Overqualified employees may be less satisfied and more likely to voluntarily leave an organization, but according to supervisors, they also perform at a higher level (Erdogan, Bauer, Peiró, & Truxillo, 2011).

An important gap in the literature is identifying theoretically derived variables that might mitigate the potentially negative effects of overqualification, to investigate moderators is an important contribution to overqualification literature (Erdogan & Bauer, 2009) and,

also, with practical implication because it may help organizations to understand and benefit from the potentially high performance of these employees.

In this study we expected a negative relationship between perceived overqualification and work engagement and we proposed and tested organizational support as a moderator of the relationship between those two variables to verify if negative outcomes, such as lower job involvement, energy and enthusiasm, could be lessened while stimulating even higher work engagement. Those employees who perceive overqualification could be highly engaged in their work when they feel a high organizational support.

Hierarchical linear modelling results from a sample of 299 Portuguese employees showed that organizational support reduces the negative effects of perceived overqualification on work engagement. When employees feel high organizational support it did not affect the relationship between perceived overqualification and engagement; however, when they perceive low support from the organization, their work engagement is reduced.

Our results, show that organizational support is an important moderator, and further studies to identify other moderators variables should be encourage due to its relevance to overqualification research, in particularly among young graduates who past research (Erdogan & Bauer, 2009) has shown that constitute an important group that is affected by scarcity of qualified jobs and as a consequence they have to accept job for which they feel overeducated.

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## 2.54. Practical Data Curation and Knowledge Management in Complex Industrial Processes

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### **Abstract:**

Whether they are manufacturing physical products or delivering virtual services, corporations engage in a wide variety of processes that are interrelated within and across different phases along the product/service lifecycle. In addition to achieving the core functional purpose of each step along the lifecycle (e.g., manufacturing; testing; maintenance; etc.), each of these processes also yields information - about the product as well as about the process itself. There are countless examples of information generated during the product/service lifecycle such as data about the quality of the manufactured product in various production stages; about planned, scheduled, and executed testing procedures; performance/measurements data of the machines involved in the production process; etc. Corporations have started collecting and storing this information, expecting that the data might be useful to extract valuable insights about the product and the production process in the future (e.g., for improving individual process steps and individualizing the product/service for customers).

As information emitted during the product/service lifecycle are usually designed for a specific context and postprocessing, most of the acquired data is stored in formats that lack proper facilities for preserving metadata along with it (e.g., as plain comma-separated-values (csv) files). This represents a major obstacle to later analysis since it undermines the proper contextualization of the data. Colloquially, this way of storing data is referred to as “data lakes”: storage repositories that hold large amounts of raw data in its native format until needed, i.e. without annotations that would support later contextualization. The amount of data stored in this way is constantly increasing which by itself is starting to hinder efficient data analysis, as corporations are dealing with unstructured files of sizes in the range of Giga- or even Terabytes that cannot anymore be processed efficiently in practice.

For enabling the efficient interpretation and extraction of “actionable knowledge” from

data, it is necessary to store it in a way that ensures that relevant metadata (e.g., the data acquisition context and provenance information) is preserved and can be automatically processed. This is relevant already when attempting to optimize individual processes, since it holds the potential of saving significant amounts of time and effort, for instance by enabling customized testing processes that are optimized for an individual product and its context. Additionally, preserving metadata is crucial for the analysis of systems of interrelated processes – especially if these processes are related to different phases in the lifecycle of a product or service. In this case, metadata is required to construct contextual bridges across the product lifecycle phases to answer questions such as: “How do quality variations during production translate to issues during the in-use phase of a product?” or “What implications do product usage patterns have for the design of the product itself, and for add-on services?”

This article presents a semantic driven approach to the extraction of relevant information from process data generated within the product/service lifecycle, where semantic technologies are used to enrich the available data with context information. That information will be used later, when managing and processing the data. The authors discuss how semantic technologies, in particular ontologies, can be used in the context of this type of problem and present a way to extract useful information from them. In particular, the important thing in the context of complex industrial processes is to develop structures that enable the simultaneous processing and exploitation of structured and unstructured data. The article will demonstrate how information from industrial processes in different phases along with the product/service lifecycle can be stored using semantic web platforms and how such platforms can be used and integrated in the production process to inform decisions regarding the optimization of individual processes and the management of interdependent processes.

In order to create a system for managing and using such data, the authors used the Open Semantic Framework (OSF). The OSF enables an easy way of creating and managing groups of ontologies (so-called knowledge packs), thus providing the ability to maintain, curate and access knowledge that is relevant to a specific problem.

Ontologies and knowledge packs within OSF build on top of the Resource Description Framework (RDF), a specification by the World Wide Web Consortium (W3C) that was designed in the context of the standardization of Semantic Web technologies. Within RDF, a relationships between objects - henceforth “resources” - are described using subject-predicate-object triples, with the predicate constituting the relationship between

a subject and an object (e.g. “Apple is-a Fruit”). Triples can be combined into directed RDF graphs which can be queried via query languages such as SPARQL to retrieve context information.

Within OSF, the querying of knowledge packs is achieved via a REST API that is linked to dedicated SPARQL queries. The querying of knowledge packs in OSF is controlled by enabling only pre-formulated query templates that are specific to the knowledge pack, or group of knowledge packs, at hand. This gives designers of knowledge packs the ability to plan what information can be retrieved from a particular knowledge pack and eases the integration of the OSF in superposed processes as the integration can be achieved via well-defined REST calls. It also gives corporations the ability to price knowledge access based on the power/value of the executed SPARQL templates. Besides standard selection queries, OSF also supports update and construct queries. This allows a dynamic extension of knowledge packs during operation by integrating new data in the system, thus creating the possibility for the system (and its underlying knowledge packs) to incorporate new information, thereby “learning” about new resources and relationships along the way. A key challenge in this process is the question of how structured data that is stored in the form of directed graphs of resources can be linked to unstructured data (e.g., time-series data produced during production) and how the system can be used to gain information about the underlying production process that can lead to an added value for managing the production process - for instance, combining (unstructured) data about test results of individual components with (structured) context information about the production process of these components might yield insights regarding potential manufacturing optimizations. While unstructured data can be stored in a variety of formats, it usually lacks relevant metadata which would enable its integration in the knowledge management system. This article explores means to link structured and unstructured data by appropriate Web-based embedding of unstructured formats which will enable the usage of this data in the context of semantic technology platforms such as OSF. Concretely, we show that the Web-based nature of OSF makes it possible to embed hyperlinks to unstructured databases, thereby integrating these two types of information while not obstructing processes that depend on the raw unstructured data. Using the semantic relationships, it is possible to incorporate unstructured information (e.g. quality measures of a production process) in the process, thereby dynamically expanding the existing process knowledge and improving the expressiveness of the system and therefore the reasoning that can be achieved.

## 2.55. Preserving tacit knowledge into public organizations

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### **Abstract:**

Knowledge Management (KM) has been used by the organizations as a tool to organize the knowledge produced by social actors in order to preserve organizational knowledge. However, KM methodologies, usually supported by technologies, do not help organizations on how to treat tacit knowledge in a systematic way. The goal of this research is how to identify and preserve tacit knowledge of experienced employees in order to create and maintain organizational knowledge. A case study was undertaken within a public research and teaching organization, in Brazil. By using the fundamentals of Grounded Theory, activity analysis and self-confrontation techniques, it was analyzed the task of calculation of quarterly GDP trying to identify involved activity's tacit abilities. The results show that it is possible to bring to the conscious of practitioner his tacit abilities and judgments. These are then used as the basis for a more effective training of novices, reducing the time of apprenticeship in a specific activity that need to be preserved.

## 2.56. Quality of Mutual Human-machine Learning processes in Smart Factories

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### **Abstract:**

#### 1. Introduction

In the new era of evolution, development and innovation in industrial automation technology, which is assisted by Internet [Bringing Internet to the things, which leads to creation of services to be utilized by humans and machines (Shaoshuai, et al. 2011)] titled as Industry 4.0, production industries have faced challenges in different sectors to manage their manufacturing processes due to newly aroused requirements within the whole system. Industry 4.0 comprises a shift from automated to an intelligent manufacturing concept and indicates the growth of physical and virtual worlds together (Klocke et al., 2011).

Knowledge in concept of industry 4.0 comprises „collection of facts, events, beliefs, and rules, organized for systematic use” (Niggemann et al., 2012) and can be extended through machine learning. Utilizing successful data collection and knowledge management is the basis of conducting the foreseen research. The aim of the research will be achieving better outcomes with regard to quality aspects from the mutual learning process.

In the context of Industry 4.0, Mutual Human-machine Learning is defined: “a bidirectional process involving reciprocal exchange, dependence, action or influence within human and machine collaboration, which results in creating new meaning or concept, enriching the existing ones or improving skills and abilities in association with each group of learners” (Ansaria et al., 2018).

#### 2. State of Art

Cyber Physical Systems (CPS) are brought about as one of the main concepts in Industry4.0. In order to define this concept, the cyber world will be connected to physical entities to collect, process, and evaluate data and share information with the aid of Internet. At this point Internet of things is defined as vision of computing is to connect physical world with the virtual world to facilitate communication between all connected entities to connect, act, communicate and control each other both autonomously and

within the total system with help of networking (Baheti and Gill, 2011; Thoben et al., 2017; Klein et al., 2017). CPPS (Cyber-Physical Production Systems) is a subdivision of CPS that is mainly in direct connection with production systems in order to increase the productivity and flexibility in manufacturing (Reinhart et al., 2013). Additionally, manufacturing systems are based on key factors such as production (planning), maintenance (management) and quality, which are strongly related and should not be underestimated; whereas models to combine these three are scarce; they have been examined in isolation (Colledani, et al. 2014; Fagher, et al. 2018). The word “Human” is used to emphasize on the importance of the human role in the total process of learning within Human-machine systems, which is one of the main concerns in this research. According to Wang et al. (2015) current advancement of CPPS depends on flexibility of humans and accuracy of machines that leads to productivity and resource effectiveness improvement, whereas appropriate interfaces are also required to make this interaction efficient and safe (Behati and Gill, 2011). Additionally, it is emphasized that humans will not be replaced with artificial intelligence yet the improvement of their capabilities is based on iterations of designing solutions (Klein et al., 2017). Therefore, it is added that the accomplishment of revolution and/or evolution in manufacturing industries will be specifically based on human’s competencies and abilities.

### 3. Motivation (Aim and Objectives)

To overcome the aforementioned challenges, intense and coordinated research will be promoted aimed at developing methodological and technical solutions. The main aim of the research is to facilitate and assess the human-machine learning interaction in the recently mentioned industrial change and to bring about anticipated outcomes for manufacturing sectors. Due to the mentioned industrial evolution and/or revolution new roles and tasks will be appointed within Human-centered CPPS; these will lead to more complex processes to be mastered. As a primary objective is to determine the definitions and features of mutual human-machine learning.

As a result of the industrial evolution and/or revolution, there are the cognitive skills of machines to be discussed. As mentioned above, to implement a concept for quality assessment the mutual learning interaction and skills of humans and machines, will be investigated and identified. Furthermore, the collaboration of these elements will be a basis for the concept, due to various quality aspects that are defined and quantified. An important factor is to understand, how humans and machines assist each other and

accordingly, respectively better outcomes will be brought about.

Beyond the human-machine mutual learning as the main objective of the proposed research, the central aim is to assess the quality of this mentioned mutual learning, explicitly to construct a model to be utilized further in industrial production sectors. This model will aid the actors within the CPPS to identify the most applicable learning process. The model will lead to better understanding of task allocation in the process of mutual learning and therefore production. Thus, this assessment model is centered as the fundamental aim of the proposed research.

#### 4. Research question/problem

In order to define and model a quality assessment, it is ought to go thoroughly through the definitions of quality within industry and production, identify quality attributes and construct a model on the basis of relevant definition. Either in new age of industry or in the previous stages, there are varied definitions for quality that only few can relate to this research. As the qualitative meaning of quality will be reasonably the main concern in this research, it can be related to quality of service or to some extend quality of performance. Furthermore, the main outcome of the research will be the quantification of the scale of parameters of quality assessment in process of human-machine mutual learning to enhance at first instance operational purposes and then to increase efficiency within production industry.

#### 5. Methodology

As the main methodology the comprehensive literature review will be conducted to represent the state of the art of the research. Furthermore, to attain the main outcomes of the research it is expected quantitative and/or qualitative models to be employed or developed to elevate the process of mutual human-machine learning; in which it will be possible to adopt the most appropriate modelling due to research requirements during the period of literature review. The outcome will be a model to assess quality, which through its iterative application on the actors of learning process, it can attain the expected quality. Data which are collected through the aforesaid process will be identified, acquired, processed, analyzed and help to develop a mutual learning process with reference to cognitive skills of machines.

#### 6. Predictions and Results

It is predicted to reach a comprehensive model to assess the quality of mutual learning process in the era of Industry 4.0, in which networked systems and learning machines are

its foundations. Due to this fact, the appropriate understanding of Data process and analysis, mutual human-machine learning mechanisms, quality assessment are required. Further findings will aid to find respective results, which are the main reason for production sector accomplishment and success.

## 7. Conclusions

The quality assessment model reflects the appropriate acquired mutual learning method by human and machines and overall production objectives in CPPS. The alignment of quality indicators with production crucial operating factors could result in target-oriented quality assessment model. It will be affirmed that this method will lead to attaining objectives within CPPS. With adopting human expertise and machine learning abilities the production sector will profit from the intelligent manufacturing concept utilizing the particular potentials from human, machine and their collaboration.

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Wang, L., Törngren, M. and Onori, M., 2015. Current status and advancement of cyber-physical systems in manufacturing. *Journal of Manufacturing Systems*, 37, pp.517-527.

## 2.57. Recruitment, Selection and Integration in a Portuguese Hotel

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### **Abstract:**

The world is a global village. Companies to survive have the need to grow across borders and expand into new markets. Therefore, globalization has contributed significantly to tourism, through the development of transport and infrastructure, along with the increase of leisure time and income. In the context of globalization, people management is important, because human capital is inimitable. In the tourism sector this topic is a challenge due to the high rate of turnover, absenteeism and lack of skilled labour.

According to Page (2007), quoted by Young-Thelin and Boluk (2012), states that many hotels lack HRM procedures, practices and policies. Thus, for Baum, Amoah and Spivack (1997), the poor image of companies due to low wage structures, difficult career progression, seasonal employment, overtime, rigorous work and isolated destinations are for Wildes (2007) and Cho et al. (2006), the last one cited by Davidson, McPhail and Barry (2011) justifying reasons for the employees increase turnover and even leave the industry.

The present study was developed in the following of a curricular internship, integrated in the Master's degree in Human Resources Management, in a Portuguese hotel. The purpose of this study is to describe and analyse two human resource practices, the recruitment and selection and integration in a Portuguese hotel.

As such, a review of the literature was carried out, based on technical books, manuals, scientific journals, online magazines, in order to have a general and specific knowledge.

By combining the literature review with the internship experience, were identified the strengths, the weaknesses, the threats and the opportunities in three perspectives the organizational, departmental and personal.

The results indicate that poor organizational, departmental and personal management cause impacts on turnover and absenteeism. According to Paauwe and Richardson (1997), the relationship between human capital management practices and outcomes indicates that different practices for people management have impacts on attitudes. These, in turn,

will have an effect on the performance of the organization. More specifically poor recruitment and integration have negative impacts.

On this basis, it is recommended that hotels use merit-based management, directors listen to their employees and customers in order to improve their retention indicators and customize their practices. Another aspect to be addressed is the training of the human resources management team and their personalization. Training is essential for developing soft skills and acting with greater sensitivity and to solve problems. Regarding the personalization of recruitment, selection and integration, it allows the appreciation of candidates and employees, promotes job satisfaction, commitment and motivation, reduces turnover and absenteeism, improves operational results and market value of productivity.

Keywords: Recruitment and Selection; Organizational Socialization; Human Resources Management and Jupiter Lisboa Hotel.

## 2.58. Relations between Academic Ethics and University System's Quality

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### **Abstract:**

Despite many positive changes since the Velvet revolution in 1989 – including a highly optimistic economic development of the country – no Slovak university afforded to promote among the top 500 World universities. Inversely, there have been several indicators of their stagnations. Our personal communication with partners from other Central and Eastern Europe (CEE) indicates that their local situation demonstrates many similarities. Many universities in this region face problems of ethics and morals: corruption, plagiarism, deflation of values.

The largest universities are public – and underfinanced by their governments. For this reason, many academics believe that an improved financial support of tertiary education will automatically lead to a suitable improvement in the quality of university education, research and leadership. In the authors' opinion, the roots of the problem are much deeper and have both internal and external origins.

The situation in the Slovak tertiary sector captured our attention first. Several cases indicate that the problem of moral of highest state officials and university leadership is intertwined. For example, the Chair of Parliament submitted his dissertation which has been composed from five books without his modifications, extensions or own ideas. It happened in 2000. When the case was disclosed in 2018, the university was for a while playing blind man' buff before they started any action. In our final version we will describe more details of this and similar cases. In particular, we will show examples of unethical behaviour by university representatives.

Universities do not exist in a vacuum. Universities and the various functions they perform reflect the overall social, economic and political situation of their surroundings. These observations resulted in our decision to compare the state of public moral and the position of universities in international rankings. The Global Competitiveness Report ranks 137 countries taking as the base not only economic factors but also some describing the function of their government and community factors. In the paper we will present a relationship between deficiencies in these areas, in particular the ones having their direct

impact on state services and the development of human resources.

Our first conclusions indicate relationships between badly functioning state services, insufficient quality of moral among population and low ranking of universities. Improvement in the quality of tertiary education will therefore require a deeper analysis of the problem and a significant improvement in conditions including self-reflection of universities and the entire social culture.

## 2.59. RESEARCH OF GENDER-BASED BEHAVIOURAL DIFFERENCES IN THE PURCHASING DECISION-MAKING PROCESS

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### **Abstract:**

The goal of this paper is to explore changes in consumers behaviour which were caused by modern consumers trends with the accent on the gender-based differences in the behaviour by the purchasing process. Consumers behaviour in the purchasing process depends on a great number of factors, and one of them is certainly gender of consumer. Shopping habits and gender-based consumer attitudes are significantly different and have changed during past several years. With arrival of new technologies and by using modern marketing tools, these gender-based differences are remarkably changing. The habits of men and women during purchasing decision-making process now have completely new characteristics.

It is very difficult to gain consumers trust in time when they can easily access great amount of informations in every moment and producers have to put in a greater effort to please every modern and informed consumers needs. The aim of this paper is to analyse the considerable differences between women's shopping behaviour and men's shopping behaviour, to research their attitudes and habits by the purchasing decision-making process and to determine new shopping trends of these consumer categories. Using a structured survey questionnaire and customized CSI scale in this paper will be explored the key differences of gender-based consumers presenting themselves in purchasing decision-making process as well as their habits and styles.

## 2.60. Segmentation of the population of solo self-employed

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### **Abstract:**

Until a several decades ago, the structure of the working population was quite clear. On the one hand, there were employees, on the other hand - entrepreneurs who hired them. Today, the situation has become complicated due to the presence of various types of economic activity that do not fit into this dichotomous division. These are forms of economic engagement between employment and running an employer firm, being typically labelled as (solo) self-employed, freelancers or own-account workers. Two important trends related to the above mentioned third segment of the workforce have emerged in recent years. First, its share in the total employment has increased in the recent decades. Secondly, the population of the solo self-employment is becoming increasingly diversified including such distinct groups from shopkeepers, craftsmen, ICT specialists, artists and entertainers to doctors and nurses. We may find solo self-employed in all sectors of the economy. Due to the increased ratios of solo self-employed and their heterogeneity, it is very difficult to address them systematically, both in research and policymaking.

Our study strives to explore the existing segments of solo-self-employed in the existing literature and to summarise the recent studies that aimed to identify patterns within this heterogeneous group. Based on the review of the literature, we offer an integrated framework of segmentation of the solo self-employed.

## 2.61. Soft Skills: The Hard Core of the Human Centered Knowledge Economy

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### **Abstract:**

Technology is changing the world and deeply impacting economies, people and societies. Yet large segments of education and the workforce remain anchored in unwavering outdated hard disciplinary approaches that are undermining productivity and obstructing the potential of people's contribution and the need for change. Postponing attention on the paradigm shift from the hard resources and process focus to the development of human capital secured in talent discovery and cultivation, embedded in Soft Skills, requires innovation aligned with the demands of the Knowledge Economy. To advance it is necessary to integrate the hard with the Soft cores of physical and social sciences to a much deeper extent. It is essential to develop Soft Skills through education and training covering a broad spectrum of applications covering all sectors of the economy and society. The development of Soft Skills facilitates social and economic progress propelled by the capacity of empathetic people increasingly agile to seek and optimize opportunities in the global VUCA (volatile, uncertain, complex, ambiguous) environment in a fast changing world. Moreover, studies report that today in less than a decade students forget hard skills in business schools because they become obsolete. In contrast Soft Skills are long lasting, transferable across different industries and cultures, and applicable in countries around the world. This paper presents Soft Skills framework and covers a new rationale aligned with fundamental principles of human centered management. The model emphasizes the urgency to integrate Soft Skills along the continuous of education and the workforce, and from the lowest education levels to executive suites to strengthen team building, agile organizations, increasing engagement and work satisfaction required to increase individual and organizational performance and productivity in countries around the world. The paper is based on a research continuum of Soft Skills using multidimensional projections and multidisciplinary approaches how to complement Soft Skills with deployment of hard skills to improve outcome and results. The paper provides substantial research on Soft Skills as central elements of management in the 21st century that until not have not received necessary attention, largely because Soft Skills involve more complex human behavior and are more difficult to teach, transmit and measure than

hard skills. Yet it is increasingly evident that without Soft Skills the performance of people in the Knowledge Economy is curtailed as is organizational competitive level. Moreover, Artificial Intelligence is estimated to substitute hard human skills to a significantly higher extent than Soft Skills, which will remain strengthening human participation in production processes.

Even though multidisciplinary literature confirms a fast increase in the exploration of Soft Skills, practical work is lacking and it is necessary to bridge deep gaps between disciplines, sectors and industries. The paper addresses Soft Skills from the dimensions of education, industrial/administrative implementation and business ethics. The study emphasizes a common denominator of new methodologies in training, coaching and deployment – not on a standalone basis, which commonly leads to failure, but in close junction with hard-core standards in management and performance assessment applied to business, the workforce and government and public service institutions. Soft Skills, like other cognitive skills, cannot be memorized but must be developed, practiced and strengthened over time.

The impact of Soft Skills is demonstrated with results of effective integration with hard skills and assessment of individual and organizational indicators that include performance standards, output/outcome, decentralization, and constructive competition.

Performance standards - Introducing collaborative methods to collectively develop and implement objective performance measures identifying clear goals, targets and indicators for improvement. Criteria for performance assessment leading to output / outcome assigning increased individual responsibility through decentralization and internal collaborative competition.

Output/outcome - Targeting and engaging all stakeholders concerned with assessment to develop and implement processes and standards to measure output and outcome. Assessment criteria must be based on a balanced mix of qualitative and quantitative performance indicators.

Decentralization - As staff members become empowered and encouraged to use their Softs Skills, the expectations are set for a shift from a hierarchical management system to a decentralized system in which managers are increasingly responsible for output/outcome to make the organization agile expediting change the workforce needs to optimize benefits and minimize costs of unavoidable disruptions.

Constructive competition - enhancing professionalism, increased reliability, learning to

cope with uncertainty and work under pressure, upgrading long-term planning competencies and communication skills, benchmarking and constructive competition between departments or agencies with high potential to be effective incentives for improvement aiming to lower cost of production, eliminate waste and achieve quality standards of work performance and service delivery.

The study concludes with an analysis of the hard core side of Soft Skills, proxy by assessment of tangible and intangible outcomes drawn on human centered management literature showing that organizations can optimize employees' engagement leading to organizational agility, effectiveness, improvement in risk management and the digital dimension. It exhibits case studies in business schools and educational programs the authors have developed in a comprehensive taxonomy of Soft Skills. It highlights the hard core of Soft Skills and their multiplier effects on professionalism, reliability, ability to cope with uncertainty, work under pressure, plan and think long-term, communicate effectively, interact with others assertively in written and verbal communication, using personal talents, enhancing creativity, self-confidence, self-management, engagement with work, willingness to deploy quality standards in synch with best selection and application of information technology.

The paper discusses the Soft Skills potential to increase effectiveness of human interaction within and beyond organizational strengthening ethical foundations of moral respect and egalitarian reciprocity. (Universal) moral respect implies recognizing the right of all human beings to speech and actions to participate in any conversation. The principle of egalitarian reciprocity in conversations is about providing symmetrical responsibilities and rights to all speakers; to give everyone a chance to initiate new topics and reflections about conversations. These principles are embedded in Soft Skill and communicative abilities in the workforce and society. The paper substantiates relation between Soft Skills and organizational goals aimed to facilitates assessment of high-level managers across sectors and organizations to integrate productive processes and service chains within and beyond organizations.

## 2.62. Solo Self-employment by Older People – Some Comments on an Often Overlooked Phenomenon

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### **Abstract:**

The aging and shrinking population in most developed countries is still seen as a major societal and economic problem. But the result of an ageing population is a growing number of healthy older people with human capital, financial resources, and time available to contribute to economic activities. Hence in the literature it is pointed out that this growing part of the population can be seen as a main driver of further economic development under the keyword silver economy. Significant growth potential has been associated with the silver economy, based on the rise in consumer spending in this age group and increasing efforts by public and private organisations to cater for its needs.

What is less discussed are the two other aspects of the economic potential of older people: Human capital and availability of time. Overlooking the workforce, the human capital of older people remains for the most part unused despite that some people are working e. g. as volunteers or as senior experts. Therefore, from an economic point of view the question arises, how to make best use of the underused economic potential of older people. One way could be the promotion of volunteering. Though this would exploit only parts of the economic potential as volunteering is carried out by a specific part of the elderly, mainly by the so called middle class people. Another option would be fostering entrepreneurship of the elderly. However most economic policy programmes focus on the support of young entrepreneurs and start-ups. This follows the perception that young people are creative, innovative, and lateral thinkers. Numerous courses at universities, business schools etc. try to convince and prepare young people to take the risk of becoming self-employed and running their own businesses.

But fostering entrepreneurship of the elderly may be an even better way to tackle the societal and economic problems of an ageing population as those people would stay in the labour force and even may generate economic growth by becoming self-employed. Yet little is known why older people become self-employed.

To develop adequate political measures for facilitating self-employment in old age, it is necessary to know whether this is a serious option for the elderly. It is necessary to know the main factors which support self-employment and what reasons may oppose becoming self-employed in older age. It is only when the main factors which explain self-employment of the elderly are identified, that it is possible to develop policy measures to support older people staying or becoming self-employed. However, self-employment by older people is an economic phenomenon which was mostly overlooked in the past. It will be discussed what factors may positively influence or may hinder older people in becoming self-employed. For example, income and wealth situation, time sovereignty, work experience, previous occupations, health status, household context, but also the institutional framework are exploratory variables which may impact significantly the labour supply decision of the elderly.

Overall, attention will be drawn to the relevance of older people in the field of business and entrepreneurial economics. Given the ageing population from an economic point of view it seems necessary not only focussing on young people but also taking into account the large and still growing economic potential of the elderly.

## 2.63. Self-Employment, Knowledge and Hybrid Labour in the Gig-Economy

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### **Abstract:**

In a framework of changing contextual factors, the paper deals with one-person enterprises as the smallest units of entrepreneurial companies, which already represent more than 50 % of Austrian companies. Within these micro-enterprises a special group of self-employed can be identified at the blurred boundaries between dependent work and self-employment: the hybrid solo-self-employed, which are primarily operating as a sideline business. These hybrid forms enormously differ from regular entrepreneurs that perform their self-employment as main business. Between solo-self-employment and freelancers exists a considerable overlap and it is sometimes difficult to draw exact lines of separation. Gig economy serves as a new semantic umbrella to classify many of those new existences of micro-entrepreneurship in recent economies. Empirical surveys hint to the heterogeneity of those small entrepreneurs with respect to their human capital, income, working hours or main workplace. The paper will highlight relevance and newness of the topic in order to develop research questions and agendas for the future.

## 2.64. A Review of Spirituality at Work

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### **Abstract:**

Research Purpose and Questions: Can the Spirit be managed? Can one manage with Spirit? Are there such things as spiritual management and spiritual managers? Do academia and the practice of management need to know about the Spirit at work? This is just a taste of the questions the proposed study is intrigued to uncover.

The new types of organizations and employment contracts presuppose different kinds of management styles and managers' characteristics. Hence, a logical deduction suggests the presence of a spiritual style management, as long as the product is the fruit of the spirit. Using this Biblical metaphor ('love, joy, peace, forbearance, kindness, goodness, faithfulness, gentleness, and self-control,' NIV, Galatians 5:22-23), what can be the fruits of the spirit at work? Can the creation of a spiritual ambiance substitute any management functions? Will this continue to weaken the mediating role of management in the employer-employee relationship?

Design and Methodology: The research questions above are a good sample of Q-Thinking (Adams, 2016)—a form of brainstorming where the goal is to produce more quest-worthy questions instead of answers. The premise is that people's mission is guided by the type of questions they seek to answer, which is what provides meaning in life and work. In addition, the methodology suggested here will employ a combination of literature review and a qualitative study of the perceptions of single individuals' cases from one organization on spirituality at work (Cassell & Symon, 1994).

Literature Review: This study will conduct a multi-disciplinary literature review in the fields of management, HRD (Human Resources Development), OB (Organizational Behavior), psychology, and religious studies.

Spirituality at Work: The quest continues fifteen years after Pfeffer's 2003 article "Business and the Spirit: Management Practices That Sustain Values." It all started with the reasoning that employees' eyes are on the good or bad motives of their managers. Management's intent (just as any human intent) is benevolent or malevolent because of the Spirit. Organizational missions, or management directions, that are in contradiction

with who people are, send a destructive message to the spirit of workers (Pfeffer & Sutton, 2000); whereas, Dimitrov's (2012) sources of meaningfulness at work could build the human spirit if supported by management.

Autonomy, Freedom, and Trust as Spiritual Needs: Being able to take decisions at work, to have autonomy of actions, and to exercise responsibility are conditions pertaining to the human spirit. Conversely, 'In a world in which some are told what to do by others' (Pfeffer, 2003, p. 35), quite the opposite reaction occurs – the spirit is suppressed and molded. In addition, fear as a motivator leads to internal competition, selfishness, loss of talent, demoralized staff, theft, and embezzlement– all negative moral issues, born by a bitter human spirit.

Work-Life Balance as a Condition for Workplace Spirituality: Another spiritual dimension Pfeffer (2003) discussed is when organizations are making people choose between their work commitments and their family-and-friends life. Hence, work-life balance (WLB) is seen as a spiritual need, in addition to being a lifestyle and a basic human need (Maslow, 1954). Here also, it is personality and consciousness that are metaphysically referred to as spirit; however, the question of how much can individuals explore their own spirituality “within a prefabricated organizational reality” (Ashforth & Pratt, 2003, p. 93) still remains more acutely ostentatious than ever.

The Spirit in Religion: Is spirituality at work spiritual in nature or does it have to do with the way various cultures and social needs are displayed? The answer is – there might be a religious root of the word “spirit,” but its current meaning at work is modified in essence (Giacalone & Jurkiewicz, 2003). Going back to the etymology, “spirit” is “breath” from the Latin “spiritus,” which is different from the Latin “anima” signifying “soul.”

Interview Results: A pilot data will be presented from the imbedded cases of five employees from a non-profit Christian organization in the United States. These individuals were interviewed in 2017 regarding the concept of the Humane Organization (HO), which was found to relate to the ideas of workplace spirituality (Dimitrov, 2009). A modified interview guide from Dimitrov's (2009) empirical study was used. Themes on how spirituality relates to employees' work environment and the nature of leadership in their organization will be formed and analyzed.

## Implications

**Research Implications/Limitations:** The paper is expected to expand the understanding of the spiritual workplace concept. The latter would be possible because the HO is closely related with spirituality at work (Dimitrov, 2009), but also because the studied non-profit is a religious organization built on a spiritual mission and principals. The limitations spring from studying just one organization, in addition to its nature being an ideal-purpose, non-profit, Christian church in the US.

**Practical Implications:** This new discussion on the meaning of spirituality at work will be especially beneficial to the new styles of management in a global economy of altered employment relationships. New models of employee management and development, as well as new (spiritual) features of leadership, will bring a fresh perspective in the HRD and OB practices.

**Social Implications:** The results will aim immediate implementation into the lives of millions and millions of working souls who carry spirits, as well as for the betterment and elevation of society. The quest will bring light into one philosophical and very existential question – Where are we as species?

**Originality and Value:** Business with spirituality in mind, becomes the sustainable new way of boosting productivity and achieving competitive edge. What would be the ethical and economic implications if all men and women knew what is right or wrong, good or bad, moral or immoral at work? (based on NIV, Hebrews 8:10, where God's law is inscribed on human minds and hearts).

## 2.65. Standout knowledge management practices in Finnish companies

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### **Abstract:**

Knowledge management (KM) scholars and business practitioners fully agree that knowledge is a crucial resource for all kinds of contemporary organizations and its systematic and deliberate management improves organizational performance. However, there is a vast gap between (1) what practitioners understand about academic KM research output and (2) what KM scholars know about the KM practices in organizations, i.e. what companies actually do to manage knowledge. This gap between academia and practice exists due to researchers' bias to study large business organizations. KM scholarship has since the mid-1990s focused predominantly on large enterprises, which is controversial, as the overwhelming majority of companies worldwide fall into the category of small and medium-sized enterprises (SMEs). In addition to the lack of studies among SMEs, also public sector organizations have been downright overlooked. The objective of this paper is to narrow the second gap by providing the academic KM community, as well as practitioners, examples of standout KM practices from mainly medium-sized Finnish companies.

Data for this study was collected by interviewing multiple case companies in fall 2017. The case companies were selected based on longitudinal KM survey study (2013 and 2017) among Finnish companies with at least 100 employees. The "best performing" KM companies were identified from the survey data based on the utilization and comprehensiveness of their KM practices, as well organizational performance (measured as subjective assessment of market performance against similar competitors). After applying these criteria to the datasets, a shortlist of 17 companies was attained, consisting of companies that had done better in terms of the KM practices and firm performance across both datasets. These shortlisted companies were contacted by phone in early fall 2017 in order to agree on dates for interviews. Eventually, six companies agreed to participate in the study and 3-4 directors in each of the six companies were interviewed in late fall 2017.

The themes for the semi-structured interviews were drawn from Hussinki et al. (2017) and further developed and modified by the authors of this paper. The interview themes

were related to supervisory work, strategic management of knowledge and competence, knowledge protection, development of KM-friendly organizational culture, human resources management (HRM), utilization of information technology (IT) systems, and data-driven management:

- Supervisory work: Supervisors support knowledge sharing, open and equal organizational culture and critical approach to existing knowledge and processes.
- Strategic management of knowledge and competence: Strategic planning and implementation activities primarily relate to identifying the future organizational knowledge and competence needs and finding ways to accumulate and develop the identified knowledge.
- Knowledge protection: Strategically relevant knowledge is protected through variety of formal and informal approaches, such as patents and licenses, as well as employee orientation.
- Development of KM-friendly organizational culture: In order to establish a fertile ground for the KM journey, it must be made sure that knowledge is considered as a key asset throughout the organization and that knowledge at all organizational levels is appreciated equally.
- Knowledge-based HRM practices:
  - Knowledge-based recruiting and selection: Recruiting and selection must be adjusted to match the needs of knowledge work and society. The candidate's learning potential, personal values and ability to collaborate are among the key criteria.
  - Knowledge-based training and development: Training and development opportunities are diverse and individual development needs and different learners are considered in the personnel training and development plan.
  - Knowledge-based compensation: Employees are rewarded based on knowledge they create, share and utilize.
- Utilization of IT systems: IT systems are integrated and user-friendly, in order to support work, business processes and decision-making. IT systems enable efficient communication, knowledge sharing and knowledge re-use.
- Data-driven management: The organization has access to relevant data and analytics competence to support decision-making. Decisions are based on analyzed data rather than assumptions.

All the interviews were transliterated by a professional research service provider. After that, the transliterated text output was coded (categorized and classified) by using qualitative data analysis software NVivo 12 Plus. The coding protocol was content-driven, which means that codes were established during the coding process without using any pre-determined content classification categories. Reliability of the coding process was tested by cross-validating the output of two researchers who performed the same coding task to a randomly selected text sample.

According to the results, the standout KM practices were those that improved organization-wide knowledge transfer and utilization. These were, for instance, as open as possible top-down communication of ongoing and even rather uncertain future issues throughout the organization, and active listening and co-decision-making together with employees. In addition, HRM practices were highlighted as particularly effective means to manage and develop the organizational knowledge base. The examples included hiring of employees with complementary or new knowledge to enrich the organization's knowledge base, development of individual knowledge through relatively heavy investments in courses and training programs, and retention of valuable employees by offering exciting and long-term career opportunities. In addition, it seems that data-driven decision-making has been recognized as a key area that needs to be ramped up, but there are still considerable differences between companies in terms of maturity of their data science competence.

This paper contributes to the academic KM discussion by identifying the state-of-the-art KM practices in high-performing medium-sized companies. Future studies can utilize the findings of this paper for diving deeper into the KM practices that were found particularly effective in the interviewed companies. For instance, it could be worthwhile to examine with a large sample of data if these standout KM practices make a significant difference in the company bottom-line. For practitioner audiences, the paper provides practical examples of the KM practices that can be directly implemented in their organizations. As a limitation, KM practices are culture dependent, which may limit the generalizability of the findings. Therefore, a future study could interview directors in different countries and compare the results with this study.

References: Hussinki, H., Kianto, A., Vanhala, M., & Ritala, P. (2017). Assessing the universality of knowledge management practices. *Journal of Knowledge Management*, 21(6), 1596-1621.

## 2.66. Strategies of intellectual property expansion on foreign markets performed by Polish video game producers

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### **Abstract:**

a) purpose: The aim of the paper is to identify and comprehensively present the features of main strategies of intellectual property protection on foreign markets performed by Polish video game developers.

b) major theoretical foundation: Last years have witnessed an explosion in patenting (e.g. Hall, 2005) – hence some describe current phenomenon as a pro-patent era (Granstrand, 1999) where the importance of Intellectual Property management has grown dramatically (Hemphill, 2014; Somaya, 2012). The availability and strategic use of barriers to imitation are central to sustaining firm competitive advantage, and preventing the erosion of profits from firm innovation (Barney, 1991; Lippman & Rumelt, 1982; Peteraf, 1993; Rumelt, 1984). Intellectual property rights, and patents in particular, have long been recognized as a significant type of imitation barrier (Mahoney & Pandian, 1992; Rumelt, 1984), and research has shed substantial

light on the strategic role played by patents in several important ways (Somaya, 2012). However, the decision to patent depends on a number of factors (Holgersson and Wallin, 2017). First, the innovation type impacts the effectiveness of various means. Typically, product innovations are more suited for patent protection (relative to secrecy) than process innovations (Arundel and Kabla, 1998; Brouwer and Kleinknecht, 1999; Granstrand, 1999). Second, as for most types of strategies, there are differences between large and small firms in terms of how effective various protection strategies are, and patenting has been found to be relatively difficult for small firms to benefit from (Davis, 2006; Hanel, 2006). Third, different industries are to various extent suitable for different types of protection strategies, due to the characteristics of the technologies, or legal situation (Chabchoub and Niosi, 2005; Hall and Ziedonis, 2001; O'Mahony, 2003). Fourth, the IP regime and the IPR laws and institutions available in either an industry or a nation impact the available managerial strategies. Patent protection on a market requires not only patent laws, but also that such laws are enforced (Hall and Ziedonis, 2001;

Somaya et al. 2011). Fifth, the market structure impacts the effectiveness and efficiency of various types of strategies. If a market is guarded by other means, for instance by state monopolies, it might be inefficient to protect it also by patent protection, since that is costly (Bekkers et al. 2002; Blind and Thumm, 2004).

c) design/methodology/approach: Based on the Forbes report on the state of Polish video game industry 25 Polish listed and private developers were chosen for the study. The analyzed dimension of Intellectual property protection was patent in the form of trademark. Such choice derives from specific features of the video game industry.

In order to fulfill the aim of the paper, data on patents is gathered externally (beyond the official corporate documents) from the world database of trademarks (<https://www.tmdn.org/>) which encompasses information on e.g.: type of patent, trademark office and territory, Nice class, application and registration date, direct/indirect application and seniority claim. The research process involved a multi case study approach with an analysis to investigate features of intellectual property protection strategies. Triangulation of quantitative and qualitative studies was utilized as well.

d) findings or conclusions: Exploratory study on chosen firms indicates that prevailing form of trademark is word, which in most cases refers to the name of newly released game. Trademarks are most often patented on the US market followed by European Union market (within the registration at European Patent Office). Patenting on Chinese market (largest video game worldwide) is rare. Standard trademark protection amounts to 10 years, rarely prolonged. The average time from patent application to registration equals two years in the case of US, and 1 year in EU. Nice class no. 9 was most often chosen as the field of intellectual property protection.

e) originality/value: To the best Authors' knowledge this is the first study that attempts to identify patent strategies on foreign markets on the sample of Polish video game developers.

f) practical and research implications: Proposed paper has several practical implications. First, it fosters further development of strategic thinking, about a key asset in the knowledge economy which are: patents, what is relevant for both academics and practitioners. Second, paper discusses the different aspects of patent strategy that need dedicated management attention and provides the key considerations to be taken into account.

## 2.67. Temperature curves of Knowledge Management Implementation in German speaking countries

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### **Abstract:**

Purpose – Management Standards such as ISO regularly suggest new requirements as stretch goals for certified companies in order to improve their competitiveness. The obvious motivation is to improve congruence of global market requirements as well as internal organizational structures in order to become an “excellent organization”. The less obvious motivation is to sell new methods and keep auditors busy. How readily organizations react to new requirements of the norm ISO 9001:2015, in particular to the management of knowledge and competencies, over a time period of four years from 2015, the introduction of the new requirements, to 2018, when it became obligatory for re-certification purposes, is the focus of this study.

Design/methodology/approach – Knowledge and competence as new topics are covered in section 7 of the ISO 9001 standard. The requirements of the norm ISO 9001:2015 were condensed in 4 topics for “knowledge” and 5 topics for “competencies”. The first section of an online survey refers to the interpretation and meaning of the norm for enterprises, the second section investigates the status quo of accomplishment according to a self-assessment of enterprises. The third section investigates methods in use to accomplish the requirements, the fourth section is dedicated to demographic data. Over a timeframe of four years, the slightly adjusted survey was sent to members of the German Society for Quality Management (DGQ) and yielded about 200 responses annually on average. This data was supplemented with qualitative interviews and cases from the side of auditors to create a comprehensive view. This paper is not focusing on theory nor is there a particular review of the literature, as it reports – plain and simple – on the “application of knowledge in the (German speaking) economy”. Three of the four TAKE-elements are addressed.

Originality/value – Empirical data is the one scarce ingredient in science. This survey delivers current data (as of 2018) on the implementation of knowledge management practices in German speaking enterprises, supported two strong national players in the domain of quality as well as knowledge management.

Practical implications – More than 14.000 enterprises are certified to ISO 9001 and thus need to demonstrate updated responses to the requirements. Knowledge and competence are firmly rooted in the scientific literature for decades, but get a boost by business-relevant standards. Coping with these requirements is a regular challenge for enterprises, who take advantage of insights from this survey as general orientation and a benchmarking opportunity.

## 2.68. The Effect of Customer Knowledge Management on Organizational Performance

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### **Abstract:**

Introduction - In the competitive environments of business operations, many organizations are attempted to utilize their intangible capital such as knowledge in order to improve their performance. Knowledge is a valuable asset for the company because it can help organizations share knowledge about business processes, share problems that occur in each departments, share experiences on things beyond the work that are beneficial to the development of organization effectiveness. In a modern organizations era, knowledge is the fundamental basis of competition and has a significant influence in determining the progress of an organization. Since the environment is rapidly changing, knowledge will experience obsolescence as it should be continuous updated through the process of learning. If organizations around the world are involved in knowledge management process and strategies, it can create a new and innovative opportunities. Thus, knowledge in organization has been a key factor for success in knowledge economy. Nowadays, the development of knowledge management does play an important role in the concept of Customer Knowledge Management (CKM). This development shows the rapid change in all areas of life, due to the effects of globalization and the development of highly acclaimed knowledge management. As a result, the role of science has become more prominent, because only with knowledge, changes that occur can be addressed appropriately. The tightening of competition globally, especially in the field of economics has made the business organization rethink its business management strategy's with the mastery of knowledge become an important choice to do in that context. The creation of knowledge is vital and it is a social process, created through interaction between individuals in their daily lives. On the other hand, CKM is considered important, because its implementation benefits the field of operations and services, that can improve personal competence, maintain availability knowledge, innovation and product development. Therefore, CKM can be seen as a systematic process for managing individual's three dimensions of customer knowledge namely; Knowledge about

customers (KaC), which can include knowledge of potential customers and customer segments as well as knowledge of individual customers. Knowledge about customers is an accumulation to understand the customer's motivation and their address in a personal way. Next is Knowledge for customers (KfC), which can include knowledge for customers about products, markets and suppliers. The third dimensions is Knowledge from customers (KfrC), which include knowledge from customers about their ideas, thoughts, specific product preferences, creativity, or experience of knowledge. The emergence of customer knowledge can be used by organizations or companies to identify, create, clarify, and distribute knowledge for reuse, discovery, and be learned within the organization. This activity is usually related to the organization's objectives and is intended to achieve a particular outcome such as mutual knowledge, performance improvement, competitive advantage, or higher level of innovation. Besides, with a good implementation of customer knowledge, organizations will be able to analyze the stage of purchase, taste, and the customer want and needs. Furthermore, the benefits of customer knowledge to customers are; improving customer convenience, service, profitability and customer-focused strategy. It is also customer knowledge role to capture and manage this data to enable it to be shared and discussed throughout the organization.

Problem Statement - Scholars regard CKM as a strategic resource for businesses to improve innovation, facilitate the detection of new market opportunities, and support long-term customer relationship management. However, literature suffers from a lack of understanding of customer knowledge's role in improving the performance of organization.

Purpose - The study was to investigate the impact of Customer Knowledge Management on organizational performance and to examine the most influential factors of Customer Knowledge Management on organizational performance.

Theoretical foundations - This study adopted Knowledge-Based View (KBV) as a theory underpin. This is because the importance of the existing knowledge has been given much attention with the introduction of knowledge-based view (KBV) theory. Knowledge-based view, which comes from the concept of resource-based view focuses on the value of intangible assets and suggests knowledge as critical to a firm's long term success. Therefore, with the implementation of knowledge-based view, managers can enhance a firm's capacity to produce and efficiently update knowledge. This study also uses Venkatraman and Ramanujam theory of organization performance because there are

subjective measurements that can lead to objective measurement. It is a measurement using two dimensions (i.e., non-financial and financial performance).

Design/methodology/approach - This study uses a questionnaire and statistical analytical techniques (Structural Sequential Equation Model) to explore the impact of customer knowledge on organizations performance and to achieve the objectives of the study. Due to the nature of the research, the data-collection method is "descriptive survey". The statistical population of this research includes 787 managers of insurance companies in Malaysia. The sample size was estimated 258 people by using Krejcie & Morgan Table (1970) and stratified sampling method was used. Data collection tool is close ended questionnaire with Likert's five-option scale. Therefore, 516 questionnaires were distributed and 180 returned questionnaires were analyzed. Measurement model was analyzed to determine data validity and the hypotheses were tested using structural model.

Findings – The findings showed that that Knowledge for customers (KfC), and Knowledge from Customers (KfrC) had a positive impact on the performance of organization and provides competitive advantages. However, knowledge about customers (KaC), indicated insignificant impact with organizational performance.

Research limitations/implications – Although this study found a significant positive impact in explaining the factors that affect performance, particularly in the insurance industry, it only takes into account only some external factors (knowledge about customers (KaC), Knowledge for customers (KfC), and Knowledge from Customers (KfrC). Proposed future research should consider a variety of other factors mainly related to external factors, such as competitor knowledge, supplier knowledge, economic development, growth potential, industry structure, and government policy.

Practical implications – This study provides clear implications related to the theory and contributions to the literature related to research in customer knowledge as well as in insurance industry. The study also provides invaluable insightfulness to various stakeholders including policy makers, institutional support and insurance agent about the importance of knowledge about customers (KaC), Knowledge for customers (KfC), and Knowledge from Customers (KfrC) in determining the performance of insurance industry. Moreover the results found that customer knowledge is indeed an important source of competitive advantage. Hence, organizations should acquire valuable customer

knowledge in order to enhance the relationship with customers, as well as enhance their performance.

Originality/value – The results provide supportive evidence that customer knowledge namely: Knowledge for customers (KfC), and Knowledge from Customers (KfrC) are important external factors in determining the performance of a firm, which is consistent with the theory of knowledge based view. Hence, the findings not only can strengthen both the theories but also make a significant contribution to the literature of the study, particularly in the insurance industry.

## 2.69. The goodwill relevance in cashflow forecasting – the Portuguese case

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### **Abstract:**

The use of International Financial Reporting Standards – IFRS in the European Union (EU) has become mandatory in 2005 for all companies with securities admitted to listing on the EU stock exchange market when preparing their consolidated accounts. This imposition has led to the elaboration of a multiplicity of studies seeking to analyse the economic and financial consequences of this mandatory adoption and the benefits for users of financial statements.

Among the rules that caused the greatest changes in reporting we find the IFRS 3 Business Combinations establishing the rules for the accounting when an acquirer obtains control of a business, defining the use of the acquisition method, which generally requires assets acquired and liabilities assumed to be measured at their fair values at the acquisition date. According to the International Accounting Standards Board – IAS, “IFRS 3 seeks to enhance the relevance, reliability and comparability of information provided about business combinations (e.g. acquisitions and mergers) and their effects. It sets out the principles on the recognition and measurement of acquired assets and liabilities, the determination of goodwill and the necessary disclosures”.

The IFRS 3 – Business Combinations define the concept of goodwill and established procedures for conducting impairment tests and this mandatory implementation is part of effort to harmonise international goodwill accounting and improve the quality of the information transmitted in the financial statements. The establishment of impairment tests (and non-amortization) was criticized and was widely debated among those that defended the impairment testing and those that defended the systematic amortization of goodwill, arguing the last group that managers would face strong resistance to impairment testing, leading to poor expression of impairment losses and the indefinite maintenance of the value of goodwill as company’s intangible asset. Several studies suggest that this is in part induce by the management tendency to avoid recognition of impairment losses (Ramanna & Watts, 2012; Filip, Jeanjean, & Paugam, 2015; Stenheim & Madsen, 2016; Li & Sloan, 2017; Ayres, Campbell, Chyz, & Shipman, 2018). Recently in 2016, However, this mandatory impairment test (and non-amortization) was changed, with

goodwill now being measured at cost less accumulated amortization, less accumulated impairment losses. In this context, several empirical studies try to assess the relevance of goodwill and goodwill impairments accounting treatment and consequent impact on the economic and financial information disclosed by listed companies. The research on goodwill and goodwill impairment losses has followed different orientations, and studies have been found on the accounting impact of applying new rules, the reaction of the capital markets, the impact on the decisions of non-capital market information users, among others. Several authors focus on the analysis of the market reaction to the goodwill and goodwill impairment losses recognized in companies' financial statements trying to assess the statistical significance of the recognition of goodwill in explaining stock price behaviour (Oliveira, Rodrigues, & Craig, 2010; AbuGhazaleh, Hares, & Haddad, 2012; Qureshi & Ashraf, 2013; Hamberg & Beisland, 2014; Vallius, 2014; Fernandes & Gonçalves, 2014; Fernandes, Gonçalves, Guerreiro, & Pereira, 2016; Bilal & Abdenacer, 2016; Souza & Borba, 2017). Other studies analysed the importance of goodwill and goodwill impairment losses for the different users of financial statements in forecasting future cash flows and in making economic decisions (Barth et al. 2001; Jarva, 2009; Lee, 2011; Bostwick et al. 2016; Amorós Martínez & Caveró Rubio, 2017; Choi & Nam, 2018).

Jarva (2009) study the hypothesis if goodwill write-offs are positively associated with expected future cash flows for companies listed on the New York (NYSE), American (AMEX) and NASDAQ markets. According with Jarva (2009) regression results, the estimated coefficients on goodwill write-offs are statistically significant and positive for one- and two-year-ahead cash flows.

Lee (2011) and Bostwick et al. (2016) examine the efficacy of Statement of Financial Accounting Standards No. 142 (SFAS 142) in USA by focusing focus on the projection of cash flows rather than on market reactions to goodwill impairments. As point out by Lee (2011, p. 241), "forecasting future cash flows is an important benchmark for the usefulness of accounting information" and his results show that the ability of goodwill to predict future cash flows has improved since the Financial Accounting Standards Board (FASB) adopted SFAS 142. The regression results show that the coefficient for the goodwill presents on financial statements is positive and significant suggesting that "SFAS 142 improves the informativeness of goodwill in terms of its ability to predict future cash flows by reflecting the underlying economics of those assets" (Lee, 2011, p.250). Using a sample of Korean listed firms, Choi and Nam (2018) find that goodwill

and goodwill impairments have a significant predictive ability for expected future cash flows up to two-year-ahead cash flows. Choi and Nam (2018) results indicate that, while goodwill is positively associated with future expected cash flows, goodwill impairment value is also positively correlated with future cash flows.

In the EU context, we only found a study for the Spanish market. With a sample of annual consolidated balance sheets from firms listed in the Spanish market, Amorós Martínez & Cavero Rubio (2017) conclude that the goodwill regulation in IFRS affects the financial information transmitted by companies and that goodwill and goodwill reduction explain future cash flows: goodwill has a negative and significant association with future cash flows and goodwill impairments has a positive association with future cash flows. Following this research field and aiming to contribute to fill the gap of studies in the EU context, this study aims to analyse in what extent goodwill and goodwill impairment losses are relevant to the cash flows forecasting in Portugal. Based on the approaches followed by Lee (2011) and Choi and Nam (2018), we explore the goodwill and goodwill impairments losses forecasting ability to predict cash flows using multiple linear regression models with one-year-ahead cash flows as a dependent variable of each regression model and including the goodwill and goodwill impairment losses in the independent variables.

Our sample includes Portuguese companies consolidated annual reports belonging to the PSI-20 index and covers the period between 2010 and 2017. The Pearson correlations analysis show that one-year-ahead cash flows are positively correlated with our key variables, goodwill and goodwill impairment losses.

Our preliminary regression results from the estimated models show that our key variable goodwill is statistically significant, indicating that the goodwill have significant predictive ability for one-year ahead cash flows being an important variable to consider by the users of financial statements in forecasting future cash flows and in making economic decisions. However, the goodwill impairment losses don't seem to be reflected in one-year ahead cash flows. Although the most common tendency in the literature is to establish a significant relationship between goodwill impairment losses and the future cash flows, Amorós Martínez & Cavero Rubio (2017) also could not establish a relationship between the goodwill impairment losses and one-year ahead cash flows. The results of this study are important for several information users, such as investors in general and regulators.

## **2.70. The Impact of Emotional Intelligence on Turnover Intention through the Mediation of Work-Family Conflict: The Case of Commercial Bankers in Vietnam**

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### **Abstract:**

The aim of this research is to examine the effect of emotional intelligence on turnover intention, noting the mediating roles of work-family conflict. Survey data collected from 198 employees at commercial banks in Vietnam was analyzed to provide evidence. Results from the partial least squares structural equation modeling (PLS-SEM) using SmartPLS 3.0 program indicated that there was a negative impact of emotional intelligence on employee turnover intention; this was mediated partially through work-family conflict. The main findings of this research provided some empirical implications for commercial banks. It implied that commercial banks should improve the factors of emotional intelligence to reduce employees' turnover intention.

## 2.71. The Implications of the Industrial Revolutions for Higher Education

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### **Abstract:**

The Industrial Revolution can be described simply as a period in history when human beings in several areas of society used machinery to carry out tasks instead of doing them manually. Economists (macro- and micro-) highlight the role of human capital in modern economic development. The evidence of research shows the link between higher education and the Industrial Revolution. Each historical industrial revolution created a system of education that addressed its needs. The current transformation of the knowledge system is changing the education system too. To understand these changes and their implications, we have to understand the fundamental needs of our society. Two core questions will therefore be addressed in our paper: 1) How is the world of higher education evolving? 2) What could higher education look like after the ongoing industrial transitions? Consequently, in this paper we discuss history with the aim of understanding the future. We conclude that all the industrial revolutions influenced the system of education from the beginning as memorisation, through Internet-enabled learning (digitisation), consuming and producing knowledge to the point of innovations. Education outside the classroom is not a desired objective any more, because the student can now learn anywhere and at any time. Almost every field has benefited from advances in artificial intelligence, however this has not included the education industry. We have tried to explore the question of why education is lagging behind.

## 2.72. The Incubator and the Strategy for the Competitive Success of its Incubated Enterprises

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### **Abstract:**

In the end of twentieth century there was a great change in the economy and labour markets in association with the globalization process and technological developments; western societies entered in a new era featured by more open markets and more unstable and competitive environment. (Held et al., 2000; Audretsch, 2010; Martins-Rodrigues, 2018).

The first model of business incubation was led by Joseph Mancuso in 1959, in the State of New York (Ortigara et al., 2011; Martins-Rodrigues, 2018). The conception of business incubators is based on the success reached in California, in the Silicon Valley region, from initiatives of Stanford University (Gadelha e Mâsih 2007). According to Martins-Rodrigues (2018), in the first model of business incubation, advocated by Joseph Mancuso, incubated companies were supported by physical infrastructures and also by a set of services that could be shared, namely, accounting, sales, marketing and secretarial, that allow a very sharp reduction in costs and a strong strengthening of competitiveness. In Portugal, the first incubators appeared in the eighties (Marques, 2009; Caetano, 2012; Martins-Rodrigues, 2018). More strictly, the first incubator appeared in 1987, named AITEC- Tecnologias de Informação, SA, created by INESC (Institute of Engineering and Computer Systems), in association with IPE (State Participations Institute), located in Oporto city. It had the incentive of European Union and its objective was to create a support network to found new companies, through support and promotion of creation of enterprises linked to the university (Martins-Rodrigues, 2018).

In the specialized literature there are different definitions of incubator companies. According to Vedovello (2000, p. 280), “there is no single definition that can be applied to all technology parks and incubator companies by virtue of the diversity and heterogeneity of their models”.

Generally, the incubators also named business nests are organisations that support the companies in its early stages of life, faced as a great promotion and economic development strategy of a region. They provide workspaces in individual offices or in co-working that include the management of mail correspondence, internet, water, electricity and cleaning services, and also business, accounting, financial and legal advisory services. Furthermore, they provide specific networking, focused in business actions in a sharing entrepreneurial environment. The monthly costs related to the surrender of space and to the supply of these services are very competitive. If a entrepreneur prefer to host his business or to work in his own home, the incubators have provided the supply of virtual offices, whose provision of services includes management of physical and virtual correspondence, as well as business advisory in its different aspects and offer spaces to hold meetings with their clients and providers.

Currently, the incubator programs keep the original three programs (technological, traditional and mixed).

In this paper we show the outcomes of an empirical study carried out in an incubator where it proceeded the analysis of the competitive success of incubated companies. The incubator enterprise, located about 20 km from Lisbon, in a Municipality with great business dynamics and with good access to neighbouring Municipalities, supports more than 50 firms that are engaged in the following economic activities: Architecture, Business associative, Footwear, Management and investment consultancy, Accounting and management, Development and scientific systemisation of innovative social responses, Design & Image, E-commerce, Social economy, Architectural and engineering consultancy and editions, Entrepreneurship, Energy and environment, Engineering, Training, Geology, Hardware, R&D, Real estate, Research, Games, Media and communications, Medicine, Open software, Event organization, Health, Services, Health support services, GIS, Software, ICT. The incubators management and the support given is highly specialized and aims to lead to competitive success. The research developed had as main objective to inquire and analyse the success of incubated companies in view of the implementation of new services and the improvement of the existing ones.

On the theoretical basis we develop the concept of competitive success. We give different definitions, but the majority of the proposed concepts of competitive success have in common the definition of competitiveness as the ability to generate competitive and sustainable advantages in the production of goods and services vis other competing

companies.

According to Umemoto (2002), the currently competitive factors, as globalization, the easy accessibility and dissemination of new technologies, the rapid technological development and the decreased life cycle of goods, are a constant and explain the need to evaluate, measure and manage the human resources in the companies to ensure their competitive success.

So, incubated companies were surveyed through a questionnaire drawn up for this purpose, previously tested and adapted to this study. The analysis of the answers given allowed to verify that enterprises considered as main important the way the incubator contributed to their competitive success: location and physical infrastructure, planning and management, marketing, company selection process and human resources available. The search results pointed to the need of improving the quality of some services and to create a structure that answered to some needs of the incubated companies and also contribute to the creation of new firms. In this context, in October 25th, 2018, was created the Business Support Office to respond to the initial needs of entrepreneurs in what concerns start-ups' accountability, legal and financial control. This office may contain other values, in accordance with the economic evolution and the needs of adaption to other requirements of the market. Currently, the office works in partnership with other organisations in different subjects, namely, accounting, financing, legal, banking, training and may be extended to the municipality itself, based in cooperation agreements for entrepreneurship in the areas of investment and licensing of this public body. According to the rules of the support office, the technical experts help in identifying innovative ideas, designing business plans and adopting business models to create one's own enterprise.

To substantiate the business dynamics, market integration, sustainability and competitive success of the new enterprises, the volunteering of specialized mentors is established in different areas, answering the requests of the new entrepreneurs. They follow the first steps of the enterprises, help in the implementation of the business plans, control the achievement of objectives, and establish new strategies to identify the deviations in order to minimize some poor performance and failures.

### **2.73. The mediating effect of learning orientation, proactive market orientation and absorptive capacity on the relationship between entrepreneurial orientation and organizational performance**

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#### **Abstract:**

In order to succeed and survive in today's rapidly changing business environment companies, regardless of their size need to constantly search, capture and create new opportunities to which possessing an entrepreneurial orientation (EO) has been recognized as beneficial (Wiklund & Shepherd, 2005). EO entails the willingness to innovate, take risks to try out new products, services and markets and act more actively than competitors in the marketplace (Covin & Slevin, 1991). The relationship between EO and organizational performance has been widely studied and examined. There is a general consensus that entrepreneurial orientation influences the performance of organisations, and entrepreneurial companies will have better performance and higher levels of product innovation [51]. And while research suggests the existence of a positive effect of EO on organizational performance the results are far from conclusive. For example, some researchers argued that EO-performance relationship is not direct but depends on certain organizational and environmental variables like organizational culture, organizational structure, availability of organizational resources, competitive and dynamic environments, and top management support (Covin & Slevin, 1991; Kuratko et al., 2004; Lumpkin & Dess, 1996; Mohamad, Ramayah, & Puspowarsito, 2011; Rutherford & Holt, 2007; Wang, 2008; Wiklund & Shepherd, 2005). Others posited that EO needs to be combined with other business orientations such as market orientation, learning orientation, and employee orientation for organizations to achieve optimum performance (Grinstein, 2008; Idar & Mahmood, 2011; Kwak, Jaju, Puzakova, & Rocereto, 2013; Wang, 2008). Additionally, it is also argued that high EO does not guarantee continued improvement in organizational performance, especially in emerging economies for lack of institutional support, organizational formalization, and experienced managers (Tang, Tang, Marino, Zhang, & Li, 2008; Tang & Tang, 2010). Therefore, it can be concluded that the relationship between EO and organizational performance is complex and needs to be further examined by considering all possible related variables

or factors that interact with organizational performance (Rauch et al., 2009). This study contributes to EO-performance literature by introducing learning orientation, proactive market and absorptive capacity as mediators to the relationship. The study did not find support that a learning orientation mediates the relationship between EO and performance. The results however, show that both absorptive capacity and proactive market orientation both have a mediation effect of the relationship between EO and performance.

## **2.74. The Project Team Members Color Preferences in the Context of Their Team Role**

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### **Abstract:**

Research background: The team role based on Belbin's concept described not only by Belbin (2003), but also by Bělohávek (2008), characterizes the individuals with certain features and tendencies to behave in a certain way - to prefer a certain pattern of behavior during the teamwork. This results from the interaction of the individual's personality, its acquired experience and, of course, also from the demands of the group, in the middle of which the team role is defined. The preference of certain team role proves the characteristics, features and preferences of behavior in the teamwork.

Color, especially if we use it as part of non-verbal communication, can become a representative of the characteristics we attribute to ourselves. Several researches prove that the preference of color is associated with the perception of one's own personality features and individual characteristics of personality (Crozier 1999; Lange, Rentrow 2007; Luscher 1997). At the same time, color may be used as a non-verbal means of self-presentation and of attempt to obtain a positive assessment from the others, as claimed by Madden, Hewett, Roth (2000, pp. 90-107).

It is obvious that color preference is associated with some personality features and can therefore be used as a means of self-presentation, related to behavior in a certain situation.

Purpose of the article: The aim of presented paper is to compare the preferences of certain team roles defined by Belbin (2003), (2004) with color preference in the context of project teamwork, to try to find the answer to the question whether the preference of a specific color reflects the preference of a certain team role.

The basis for our research is therefore this assumption: Values of the preference of a certain team role, and therefore the tendency to behave in a certain way, are associated with the preference of the specified colors.

The hypothesis of research is formulated as follows: H1: The scale of preference of a certain team role is different in relation to the preference of a particular color.

Furthermore, the zero hypothesis  $H_0$  is formulated: There are no differences in the preference of a certain team role due to the preference of a particular color.

By rejecting of the zero hypothesis  $H_0$  about the absence of a relationship between prioritizing team behavior and color prioritization, it would be possible to support the hypothesis of the existence of a reflection of preferred behavior in color choice.

Methods: The team role preference was determined on the basis of the Team Role Test, a self-perceptive questionnaire, which identifies the scale of tendency to behave in a certain way in the working environment. A questionnaire published in Bělohávek (2008) was used.

The color meaning and the characteristics of preferred roles were deduced from the description of team roles (Belbin 2003, 2004, Bělohávek 2008), with the same number of characteristics being selected for each role. Based on the choice of characteristics for the preferred color, it is possible to see, what the preferred color meaning for particular respondents is, and we could compare the color's characteristics with the characteristics of respondent's preferred role.

The research file was selected on the basis of several criteria.

Due to the demonstrable dependence of color preference on the cultural context, which is published in Wright et al. (2004), there was an effort to preserve the temporal and spatial coherence of the studied group in order to avoid the influence of cultural-historical, linguistic and geographical differences in the perception of individual colors. Therefore, the Czech and Slovak MBA students of the Business Institute, s.r.o. in Prague and in Bratislava and of European School of Business and Management, s.r.o. Prague, study program Project Management and Planning, aged 38 to 46, studying in the above mentioned institutions in different cycles in September - October 2018 were included. Students of the study program are expected to have experience with the project teamwork.

In the first place, the simple random selection method was used to generate a random number set (format corresponding to the student identification numbers of the listed institutions). A questionnaire in different variants was sent to the selected file. Since the questionnaire was administered by email and the possibility of participation in the research was voluntary, we can talk about some form of sampling of respondents; only those who were motivated enough answered. In total, 250 questionnaires were sent, the

answer was sent back to 76 respondents, the return of the questionnaire was 30,4%. In one case, the questionnaire was not correctly filled in, in one case the questionnaire format was not readable. Based on the reported color vision disorder, one respondent was excluded from the research. The survey was attended by 69 respondents, including 36 women and 33 men. The difference between the genders is not significant and on the base of repeated researches the significant difference in male and female color preference, except for the preference of a yellow color that men prefer significantly less than women, as Seefeld (1973, Lange, Rentrow, 2007), was not confirmed.

Findings & Value added: The hypothesis that there is a relationship between the certain team role preference and the preference of a certain color is confirmed. These results are probably related to the same origin of team role preference and color preference in the personality characteristics and complex of each individual's experience. The perception of color preference and of team role preference we consider as a selection clearly dependent on the context. The color can be a good means of sharing and presenting of certain information to our surroundings on the base of the context in connection with subjective processing, experience and meanings, those are attributed to the certain color in a given cultural and historical environment. In this respect there is lot of surveys (Eysenck 1941; Bakker, van der Voordt, Vink, de Boon, & Bazley 2015, Hanafi, Sanad 2015, Lange, Rentfrow 2007, Schaal 1966, Kaya, Epps 2004) dealing with the color preferences and particular personality characteristics.

## 2.75. The Public Good of Internet Usage and how Soft Skills can Bridge the Digital Divide

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### **Abstract:**

Whoever uses public goods is liable for their preservation, for their maintenance and, where they are underdeveloped, for their built-up and expansion. “Paying” for the usage of public goods is taken care of by taxes and excise, and, more recently, by duties like those levied on emission. However, the magnitude of public goods usage is rarely measured on either national or regional or local levels, let alone in monetary terms. When statistical indicators are set up to measure progress of sustainable development, there are almost none that link the macro-sphere to the business level, even though businesses are in a unique position to promote sustainable development. As businesses are often reproached for using public goods for free, they might want to demonstrate that they earn a return on the capital invested in public goods they use; they might be interested to know the value of those goods, and they would wish to show that the taxes they pay are at least on par with the “return” on what is invested in public goods in the geographic region(s) in which they operate. The Internet age has produced additional features in the provision of public goods: The Internet, at least from how it can be accessed, is certainly some type of public good; Internet usage extends beyond borders; monetization of the Internet affects the balance between individual rights and public good – overall, though, the foremost feature is that it not only promotes innovation and efficiency but social inclusion at all levels. The paper will explore the foundation of public goods and show how public goods can be accounted for, thus showing the shared role that businesses play in their communities and beyond in the internet age. One major theme is the empowerment approach of Internet usage.

It is a fact that public goods are indispensable for producing value and their usage is part of resource consumption in any business. In addition, the role of businesses as part of the broader societal and environment context is increasingly important and being recognized. However, businesses very rarely assigned a monetary value to public goods utilization. Of the two types of public goods, natural ones and social ones, it is only the natural

resources for which a few valuation methodologies have been developed. However, the application of those valuation methods to social resources is very scarce. This concern needs to be taken up increasingly by policy makers as it is one part of the discussion about whether the public good of Internet provision can be governed, whether Internet provision can be monetized and how this monetization changes the public goods character of the Internet.

One approach to public goods that has much relevance for the topic of Internet usage comes from P. Samuelson. He made an explicit distinction between ordinary private consumption goods which can be parceled out among different individuals and collective-consumption goods which all individuals enjoy in the sense that each individual's consumption of such a good does not lead to no subtraction from any other individual's consumption of that good. Jointness occurs both in consumption and in production of Internet usage, and this also has a social resources perspective: The term "social capital" is often viewed as a set of associations between people – social networks and associated norms that have an effect on the productivity of the community. Widening this concept would lead to encompassing the overall social and political environment that enables norms to develop and shape social structure. In all this, mastering soft skills of communication, of interacting with others assertively in written and verbal forms, using personal talents, enhancing creativity, self-confidence, self-management, engagement with work, etc. With the upcoming of the digital economy that has increased networks substantially, the inventory of social resources certainly needs an upgrade to include those soft skills. Also, the Internet as a public good, like with a common pasture used by all farmers in a region, without some mechanism for congestion control, this "commons" will be overgrazed, creating congestion that results in delays and outages. The paper will deal with these aspects and connect them to the topic of individual and business accountability, of moral standards and of monetization as well as to the role soft skills play in all those contexts.

On monetization, there are several dimensions: One is the impact of Internet usage and e-business adoption on profitability and value creation of a particular firm), one other is process (and cost) improvements in supply chains. Both types of impact can be measured directly. Then there is the subject of increased stakeholder dialogue where some effects are less direct (as they are, e.g., deploying soft skills), and there is the multifaceted effect of good working provider/customer/government relations on practical solutions in the

wide area of property rights, surveillance and legal frameworks. All these topics demonstrate that the Internet, while providing benefits for all users without exclusion and granting access to all users jointly, can be deemed to be a public good. It is not measurable in terms of attributed monetary value like natural resources use like for a firm to be allowed emissions or effluents into the environment. But it definitely delivers economic benefits. So cost-benefit analysis could help with monetization.

Publicness of a good implies that the nexus between individual contribution and benefits becomes loosened. When a good is wholly private, the user “gets what he pays for”. When it is good is public, the beneficiary mostly contributes nothing towards its reproduction in exchange for the benefit. But there are so many interdependencies within an economy that the behavior of one Internet user can adversely or positively affect the consumption of a it by another user - which might per se not be socially desirable. With the Internet, we have new patterns of cooperation, transnational networks, cross-national ties, societal inclusion, inclusive organizations and inclusive business approaches, with digital inclusion being one of the primary concerns both at the business and the macro levels.

All of this concerns the cost-benefit paradigm. But digitization has changed this paradigm as it has also changed the economic potential of businesses and the patterns of economic competition on markets.

There are four aspects of market digitization, and each one affects how cost and benefit of Internet usage are demarcated: The collection, processing and commercial use of data by big business changes the interplay between data, market power and public authorities, above all those that watch over competition. Secondly, the transaction cost conception gets new relevance: Internet usage increases transparency between suppliers and customers, and it generates new types of task sharing that in generate new types of benefits, such as, e.g., reduced information asymmetries between consumers and suppliers. Thirdly, prices may lose their relevance when competition is at work on non-price factors like data and network accessibility. Last, not least, with all sorts of Internet users accessing a firm (and saving the firm time and money in, e.g., order processing) “labor” (and labor cost) is no longer confined to what is expensed for the people who are on the payroll of the firm (the click-workers phenomenon).

here are a pessimistic and an optimistic outlook: When businesses do not exhibit that they internalize the cost of public goods and how much they contribute to preserve and expand

the societal commons, agitation from pressure groups increase. On the more optimistic end, the rise of collaborative arrangements between public and private institutions is creating novel ways for enhancing the provision of public goods. The pertinent arrangements will only work if both private and governmental organizations deploy willingness and ability to participate in such arrangements and if they include all constituencies of the “public domain”.

## **2.76. The relationship between financial distress and well-being: Exploring the role of self-employment**

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### **Abstract:**

This article investigates the relationship between financial distress, well-being and employment status (wage-employed versus self-employed). The analysis employs two measures of financial distress and four indicators of well-being: physical health, mental health, life satisfaction and quality of life. Using data for wage-employed and self-employed workers aged 50 and over from 21 European countries, results show strong and consistent evidence for a negative association between financial distress and well-being, thereby confirming earlier literature. The novel finding is that this relationship is moderated by employment status in the sense that financial problems are more strongly associated with poor well-being for the self-employed compared to the wage-employed. Hence, when self-employed workers find themselves in a situation of financial distress, the negative consequences for their well-being are more severe. This holds both for the self-employed with and without employees.

## 2.77. The Role of Financial and Non-Financial Reporting in Systematic and Comprehensive Monitoring of Companies' Business Activities

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### **Abstract:**

Today, more than ever, every kind of business is influenced by a new way of thinking and acting. Information communication technology (ICT) is developing rapidly making an impact on all segments of business. Traditional ways of thinking and acting have been replaced by modern ones. In that context, intangible assets (IAs) have become an inevitable part of the firm's resources, making a huge impact on the firm's value. There are two types of intangibles: intangible assets recognized in the balance sheet under the long-term intangible assets and intangibles not recognized in the balance sheet. Development expenditures, concessions, patents, licenses, trademarks and service marks, software, goodwill, prepayments for the acquisition of intangible assets are recognized under the long-term intangible assets in the balance sheet since there are generally accepted measurement methods for such intangible assets. On the other side, there is no generally accepted measurement method for measuring employees' knowledge, knowledge management, know-how, customers lists, mailing lists of clients, brand name, firms' procedures and strategies. Such intangible asset is not recognized in the balance sheet even it increases the market value of the firm and, unfortunately, is not disclosed by the general purpose financial statements. There is an option to disclose such information in the notes to financial statements, but previous researchers have found that such disclosures do not exist or are at a low level. However, by the time, firms are encouraged to disclose such non-financial information on other reports like non-financial report, annual report, management report, balanced scorecard, integrated report. Such information is a valuable resource for firms' stakeholders, in the first line for investors. Regardless of external reporting, firms also prepare internal reports. The balanced scorecard has been recognized as a powerful tool for reporting on and measuring of intangible assets as well as firms' set goals and strategy. There are many studies that have proven that firms which prepare additional reports and disclose additional information make better results in terms of business performance and sustainability.

In order to get an insight into the influence of additional reporting on business performance and sustainability the research will be carried out. The goals of this research are to investigate (1) the existence of additional information disclosure regarding the intellectual capital, (2) the frequency of preparing internal reports in order to monitor the impact of set goals and strategy, and (3) the measurement methods used for the valuation of intellectual capital which is not presented in the balance sheet, if such method is used in the firm. A theoretical part of the research will include a review of current studies related to the identification and measurement of intellectual capital, reporting on it, its influence on business performance and cost of equity as well as studies regarding the importance of internal and external reporting. The empirical research will be carried out through the questionnaire which will be distributed by the email. The first part of the questionnaire will include general questions regarding the organization's structure and performance based on the multiple-choice questions. The second part of the questionnaire will include specific questions regarding the internal and external reporting and the methods of measurement used for traditional accounting reporting as well as for additional measurement of intellectual capital. Using the descriptive statistic and statistic's tests the results will be interpreted. The research sample will include high-tech firms registered in Croatia since they should have a great value of intellectual capital which is not presented under the heading of long-term intangible assets in their balance sheet. Similar researches regarding measurement of intangible assets, impact on business performance, and monitoring of set goals and strategy through internal and external reports has already been carried out in many countries. The results of those studies will be compared with the results of this research.

The research is expected to result in constructive insight into perceptions of selected firms regarding the importance of financial and non-financial reporting. It is expected that the smaller firms would not be interested in additional reporting compared with the bigger ones since it causes some additional time and employees, and costs in general. In addition, since costs are usually the cause of the reluctance of additional reporting, newly established firms are trying to minimize them. A firm should have to invest in reporting, either external or internal, as long as benefits from such reporting exceed the costs. It is considered that the major problem of insufficient reporting is lack of awareness that the transparent internal and external reporting that implies systematic monitoring of the achievement of set goals and strategy is of great importance for success and sustainability of a firm. The research results should be of great importance for scientific and

professional community, for further researches and for standard setters and policy makers. It should be a foundation for further improvements in internal and external reporting as well as in awareness of the importance of applying professional judgment when it comes to accounting policies and estimates applied.

## **2.78. The Roles of Market Knowledge Management System and Market Knowledge Sharing on SMEs' Organizational Performance**

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### **Abstract:**

Introduction - The small and medium enterprises (SMEs) sector have an important role to play in developing economies not only in economic development, but also in poverty alleviation and job creation. Also, SMEs have been recognized as an important strategic sector in Thailand for generating high economic growth, reducing unemployment, inequality and poverty. SMEs stimulate private ownership and entrepreneurial skills. SMEs organizational performance is a focal phenomenon in business studies. However, it is also a complex and multidimensional phenomenon. Performance can be characterized as the firm's ability to create acceptable outcomes and actions. For many organizations achieving improved performance is not only dependent on the successful deployment of tangible assets and natural resources but also on the effective management of knowledge. Knowledge has become a key asset and competitive advantage for many organizations operating in increasingly complex and competitive environments. Knowledge is the crucial factor behind sustainable advantage and success for organizations. Very often, the sole survival and success of an organization depends on its ability to harness and use knowledge. Therefore, knowledge, as a key asset, is fundamental to building an organization's competitive advantage.

The knowledge-based economy has brought about significant shifts in the way organizations respond to rapidly changing customer preferences and constantly shifting competition. Market knowledge becomes an important factor in creating competitive advantage to an organization. According to the Knowledge Based View (KBV) theory, market knowledge becomes an external factor which is vital and can affect an organizational performance. Market knowledge consists of customer knowledge, competitor knowledge and supplier knowledge. Those knowledges should be managed and analysed by Market Knowledge Management System (MKMS) in order to create an advantage to an organization. The new discovered market knowledge should be shared within an organization so that an organization can identify a new pattern, a new trend and

a new preference in a market. However, majority of SMEs in Thailand misunderstood about deploying an information technology. They perceive information technology as a success factor of an organizational performance.

Purpose - The purposes of this study are to investigate the impact of customer knowledge, competitor knowledge and supplier knowledge on market knowledge management system. Second is to examine the effect of market knowledge management system on market knowledge sharing. The study also aims to examine the influence of market knowledge sharing on organizational performance. The last objective is to study the mediating effect of market knowledge management system and market knowledge sharing.

Theoretical foundations – The study is based on Knowledge Based View (KBV) Theory. This theory assumes that market knowledge is very important and becomes a source of competitive advantage for an organization. External integration is a strategic approach of the firm aimed at key boundary-spanning initiatives for fostering high-level coordination and communication within a firm. External integration is related to the ability to gain further information and knowledge by involving market knowledge. A firm can enforce and increase the external integration of its process by collecting the information and knowledge needed from a market to achieve substantial reductions in uncertainty during development from well-informed external entities.

The resource-based view theory (RBV) of the firm provides a promising explanation of how a firm attains and maintains a competitive advantage. A competitive advantage is the ability to realize abnormal profits based on novel value-creating strategies. Knowledge sharing is an activity through which knowledge, experiences, information, skills, or expertise, is exchanged, shared, and transferred among organizational members. Knowledge sharing is not a simple process of sharing knowledge; rather, organizational members adjust their beliefs and actions through intense social interactions. In addition, knowledge sharing activities are supported by market knowledge management systems, not just completed at the individual level. Market knowledge is recognized as a valuable organizational resource for creating and sustaining competitive advantages. Such an interaction itself may be called the sharing of knowledge. Knowledge sharing is critical and a necessary requirement for creating a valuable resource namely innovative knowledge.

Design /methodology/ approach – The study was conducted among 464 Thai SMEs that registered under National Agency of Thailand (NIA). Those companies were classified into three categories; eco-industry, design & solution and bio-business. Five Likert Scale questionnaires were used in the study. 464 questionnaires were distributed and 182 were returned. Only 180 questionnaires were valid for data analysis. Structural Equation Modeling (SEM) was deployed for data analysis. The data was validated through convergent validity and discriminant validity. The hypotheses were tested using structural model by looking at t-value as well as interval confidence level.

Findings - The study found that customer knowledge, competitor knowledge and supplier knowledge have significantly affected Market Knowledge Management System (MKMS). Market knowledge sharing has been positively influenced by MKMS. Market knowledge sharing also has positively impacted organizational performance. However, customer knowledge, competitor knowledge and supplier did not have indirect effect on organizational performance. The above findings showed that MKMS and market knowledge sharing did not become mediators between market knowledge and organizational performance.

Practical Implication - The relationships between market knowledge management system, market knowledge sharing and organizational performance may provide a clue regarding how SMEs create their competitive advantages which contribute to organizational performance. Focusing on market knowledge sharing which becomes a vital element in developing a learning organization. The market knowledge sharing extracted from the knowledge management system can boost an organizational performance.

Originality – This study explores the under-researched subject of market knowledge with regard to market knowledge management system and knowledge sharing as well as their roles in contributing to organizational performance within SMEs context. The study identifies a mechanism to manage market knowledge by deploying information system. That knowledge can become intangible valuable organizational resource. The valuable knowledge should be disseminated or shared among members within an organization to create competitive advantage. Consequently, a learning organization can be developed which will positively affect organizational performance.

## **2.79. The use and application of (digital) information and communication technologies and sources in the Austrian Crafts and Trade Sector (Gewerbe und Handwerk)**

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### **Abstract:**

Background and aim of the paper

The way business-related information and knowledge is obtained, created, processed, exchanged and communicated by businesses is currently undergoing fundamental changes in the context of constantly increasing digitalisation. Different business sectors are seen to be affected to different degrees, i.e. exposure to, uptake, applications and implications of technologies – and therefore extent of business transformation - may significantly differ. The proposed paper aims at investigating the use, application and implications of (digital) information and communication technologies/sources in a sector which is often regarded as typically ‘traditional’ and dominated by highly skilled manual work: the skilled crafts and trades sector. Using the example of Austria, where an institutionally and statistically founded definition of that sector exists (the ‘Gewerbe and Handwerk’), we will compare the sectors use of modern information and communication tools and sources with the situation in other sectors, and also look at the different determinants/drivers, implications, and business-related transformations occurring. In addition, the paper will look at and focus in more detail on the case of small construction firms, which constitute an important part of the Austrian crafts sector. This will be used as a case to illustrate more concretely the application of digital information technologies by and the implications of digitalisation for small craft businesses.

### Research questions

More specifically, the prospective paper will address the following research questions:

- \* To what extent are different (digital) information technologies used by crafts businesses?
- \* For what purposes are they used? (e.g. communication with customers, management of the business, production processes, data analysis etc.)
- \* To what extent is the application of new information technologies/sources associated

with fundamental innovative transformations of businesses, either as a driver or as consequences? This may include aspects such as growth, strategic focus, performance of the business, change of business model, resources, innovation strategy etc.

\* What is the role of business characteristics such as age of the business, size of the business, characteristics of the owner etc.?

\* How do the above features compare to the situation in other sectors (e.g. retail, transport, tourism, business services and so forth)?

\* What are specific examples of how digitalisation affects small skilled crafts businesses: e.g. what does the smart building/housing trend mean for small construction firms? What are the implications for new skills requirements in that area?

#### Approach and methodology

We will use two major methodological pillars in this paper:

First, we will utilise a large survey among Austrian enterprises conducted in 2017. The survey covered all major sectors and industries in Austria. The attained sample size was approx. 2,800 businesses, thereof approx. 400 craft businesses. Through the survey, we obtained information on (i) the concrete application of various ICT tools and knowledge sources in businesses, (ii) on structural business characteristics, and (iii) on various transformative processes taking place in businesses – in relation to growth & performance, strategy, change of business models, and change and dynamics in the business' environment. Based on hypotheses related to the research questions (see above), quantitative statistical analyses will be performed to investigate the situation of craft businesses in comparison to other sectors and to determine drivers/obstacles for and/or implications of digital information technologies. Importantly, the statistical analysis will analyse the association between information technologies and wider business transformation processes.

The second methodological pillar is of a more qualitative nature. This shall illustrate the results of the first approach in more practical and tangible terms. We will utilise extensive literature reviews conducted in the context of two ongoing studies to demonstrate the use and impact of digital technologies in (small) construction companies. This may refer to the application of tools such as Building Information Modelling or sensor technologies and analysing its opportunities, obstacles and requirements for small craft companies, including also possible new skills requirements for craftsmen.

## Conclusions

Based on the research results conclusions will be drawn on the specific challenges, risks and opportunities various digital information technologies have for crafts businesses, and how crafts businesses may be transformed by these technologies. We also highlight conclusions with respect to suitable adaptation strategies of crafts enterprises and how they can be supported to successfully transform.

## 2.80. The World is Broken, We need to fix it: Path to Strategic Harmony

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### **Abstract:**

Introduction: Most people see the world as it is and get frustrated. We need people who see the world as it could be and get ready to change it! This well-known brainy quote is the reason why, for the last year or so, Ira Kaufman (<http://www.entwinedigital.com/about/ira-kaufman/>) and I have written a book to be published in early 2019 with the title of this article. We seem to be very ambitious – our goal is like in the famous English nursery rhyme, to put Humpty Dumpty together again! In this article I plan to present the major ideas, conclusions and findings from that book.

The purpose: We want to help transform our broken world to what it can become instead of accepting the present situation as the default. Most people see what's wrong and just criticize it - we want to engage in a radical change. Hence, the book is written as a conversation about the challenging conditions in the world and how we can address them.

Major theoretical foundation: There are many concerns and equally many approaches to the growing global ecological, economic, political and social problems. At the last World Economic Forum 86% of global executives suggested the world is facing a major leadership crisis - with executives having less than 50% confidence and trust in the leadership of business, media, government, education, and religious institutions. Despite all the technological innovation, we are unable to deal with the burning issues of political instability, suspended economic growth, poverty, injustice, international terrorism, global warming, or epidemic depression. It seems that humanity has never faced such deep social and economic problems, and, at the same time, was equipped with such a low level of understanding of the scope and reach of these problems.

What are the solutions? We all recognize the vast potential of collaboration on emerging technologies. Today, almost everything humanity wants to achieve becomes possible. Why are we still pursuing wrong goals, trusting questionable ideas, and following the same deadly routine from the past? The answer lies with the values and beliefs. As Albert Einstein used to point out, we cannot solve our problems with the same thinking we used when we created them.

Remember a story about five monkeys? You hang a bunch of bananas at the cage top and place a ladder nearby. Soon, a monkey climbs the ladder, trying to get some bananas. The moment he touches the ladder, you sprinkle all the animals with ice-cold water and they quickly back off. Soon, another monkey goes for the ladder, just to find out that the ice-cold-water situation is still there. From that moment on, you don't need the sprinkler any more. If a monkey even tries to get close to the ladder, other monkeys are sure to knock him flat.

Now, you remove one monkey from the cage and replace him with a newcomer. Seeing the bananas, he tries to reach for the ladder, only to find his ass kicked by all others. You replace another monkey with a new one. If he tries to reach for the ladder, he is severely beaten by all, including the former newcomer. Repeat the procedure until the initial five are removed from the cage. Regardless of the fact that none of the remaining monkeys has ever been sprinkled with ice-cold water, none of them ever tries to get the bananas because, if he did, he would immediately be stopped by all the others. Why? They have learned the way things are done here. And who are they to question the common practice?

Design, methodology and approach: The world is broken because we are trapped in the monkey cage of the old economic, social and political values. They are based on the truths that we consider self-evident:

1. Successful business means to maximize profits; greed supersedes generosity.
2. For a leader to be successful, he or she must be on the top of a hierarchy and control information and decisions.
3. We are secure only with people we are familiar with in terms of religion, culture, ethnicity, and gender.
4. Quality of food, health care, access to water, and quality of life are determined by wealth and ability to pay for these benefits, they're not a universal right.
5. Gross Domestic Product (GDP) is the best tool to measure success and compare economies and societies
6. Unethical and even criminal behavior is OK as long as you don't get caught.
7. Our resources are growing and being replenished; there's no need to be restrained.
8. We have done things for many years quite successfully, why should we change.
9. Nobody is unbiased and everyone has an agenda, so don't trust anyone.
10. Support a party or movement based on their tradition instead of how they act on their current principles.

11. Democracy is the best method to deal with public issues.
12. Majority is always right, just follow the masses.
13. Lying is okay; as everyone does it.
14. Strive to win; always be right and in control, compromise is a sign of weakness.
15. Sharing of ideas, collaboration isn't successful; it's better exploiting ideas by yourself.
16. Admitting your wrong or made a mistake or don't have complete knowledge is a sign of weakness and needs to be covered up.
17. Asking forgiveness is a weakness, emphatic people are wimps.
18. Taking a risk and failing is stupid behavior, not a learning experience.
19. You are what you do and what you "possess"; money opens all doors.
20. Sustainability is just focused on our environment.

Behind each of these "truths" there is a belief and a value that underpins a resulting action. As an outcome, we are witnessing the shattered world, democracy, market economy, morality and ethics, culture, health, education, and ecology. Our book and this article is aimed at providing executives and managers in government, business and nonprofits with a breakthrough in thinking about the false "truths" "we accept and live by and provide a road map for change.

All the broken things need to be fixed. In order to do it, we must assess the sources of illness, and come up with a remedy. That's why this article will be organized in two parts. The first tries to provide a good diagnosis. The second discusses the adequate cure.

Findings and conclusions: the book (and the article) present a model, a roadmap describing the stages and components of Strategic Harmony as the solution to burning global issues. Strategic Harmony is the required MINDSET for change. It is based on a new approach to Power, the use of Transformative Love and the application of TEST values (Trust, Empathy, Sustainability and Transparency) in leadership practices when building successful organizational culture.

It seems that in the present business and political environment, the needs, concerns and values of citizens, customers, clients, students, members, and voters are not being met. They are expecting change, and a growing number want to become agents of change.

Originality: the model is original and global, based on many years of research and consulting experience of the authors. The article will present key ideas and concepts from the book that targets leaders of businesses and institutions providing tools to realize

sustainable impact on the path to change and organizational harmony. The model is of great practical value as it presents a set of tools and discusses a great number of cases.

Practical and research implications: the book (and the article) offer an elaborated model of the Path to Strategic Harmony in organizations providing the following takeaways: (1) Strategic transformation begins with a leader's focused purpose and targeted values; (2) Transformation is accelerated by reducing resistance rather than pushing a message; (3) People want to engage, self-employ, and put their professional and private lives under control; (4) Strategic Harmony is achieved by augmenting Love and Power as transformative forces; and (5) Seeing change through the "eye of a network" scales all efforts.

Recent books:

1. Srića V., *In Search of Harmony in a Disharmonious World*, Algora Publishing, New York, 2014.
2. Srića V., *Creativity and Innovation Management*, Kindle Store, Amazon, 2016.
2. Kaufman I., Srića V., *The World is Broken, We Need to Fix it: Path to Strategic Harmony*, Simon and Shuster, 2019.

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## 2.81. Trends in audit market concentration for listed companies in Croatia

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### **Abstract:**

External audit of financial statements as a statutory measure for certain companies has an important role in the corporate governance system and protecting the public interest. Therefore, the stability of the audit market is a priority of all involved stakeholders. One of the potential developments that may jeopardize the required stability of the audit market is a reduced market competition caused by excessive market concentration. This kind of trend is especially visible in the case of the most important segments of the audit market, referring to audits of public interest entities or listed companies. Different events in the audit market, such as consolidations and corporate scandals, have led to the current state where the majority of large global companies use one of the Big Four audit firms for auditing their financial statements. According to the report of the European Commission, Big Four audit firms account for almost 70% of the statutory audits of public interest entities in the European Union, while this percentage is even higher when observing United States listed companies. The main concerns with such high market concentrations are related to the potential implications of the exit of one of the Big Four audit firms from the market. Since it is considered that the default of another large audit firm would put at risk the stability of the entire financial system, there are also concerns that the Big Four audit firms may take advantage of their “too big to fail” status. In addition to negative consequences of large audit firms' failure, prior studies have shown that high audit market concentration limits the choice of auditor for large companies and sets a high barrier of entry for mid-tier audit firms, while the effect on audit quality and audit fees is still unclear.

This paper provides an overview of the proposed and implemented measures constructed by regulators in order to dilute the Big Four's dominance and improve competition in the audit market. The main emphasis is on the audit market in Croatia, which introduced certain measures for reducing market concentration with the new Audit Act becoming effective from the beginning of 2018. Although the direct effect of these new measures is not yet visible or measurable, the main characteristics of the audit market for listed companies in Croatia are investigated in order to assess the overall trends on audit market.

This research supplements the previous research on this topic, which compared the values of concentration measures for 2008 and 2013 in order to identify the overall trend on the audit market for listed companies in Croatia. The previous research has shown that the audit market for listed companies is moderately to highly concentrated, with a decrease in the five-year period (2013 compared to 2008). The aim is to calculate the same concentration measures for listed companies in 2017 in order to conclude if such positive trend continues.

## 2.82. Typological characteristics of individual unlearning

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### **Abstract:**

Organizations have sought solutions to produce consistent, competent practices while updating organizational processes. Learning performance strategies used traditional methods, identified gaps in knowledge, then taught lacking information to close the gap. Knowledge base change has created difficulties for individuals who must unlearn, store, and use new knowledge processes to update the old. Knowledge change, or unlearning, speculated to involve a replacement of prior knowledge, may result in faulty learning completion processes, and yield decreased work product quality, and productivity, or increased product costs. Inconsistencies regarding conceptualizing the unlearning process persist in anecdotally based research. This qualitative study aims to further clarify factors and initiation processes when replacing knowledge: 1) How does individual unlearning initiate? and, 2) What added factors contribute to the unlearning process? Three weekly-spaced interviews with 31 participants categorized unlearning using the Rushmer and Davies (2004) typological unlearning process model. Predominately two knowledge change typologies were demonstrated and a new unlearning model developed.

## 2.83. Traditional Craftsmanship as Intangible Cultural Heritage and an Economic Factor in Austria

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### **Abstract:**

a) purpose

The UNESCO Convention for Safeguarding of the Intangible Cultural Heritage from 2003 aims at safeguarding intangible cultural heritage through raising the awareness and promoting its standing in society.

Traditional craftsmanship is one area of the intangible cultural heritage of the Austrian Commission. If it is to survive, it is in need of a new self-understanding and increased public awareness of its value to society. Entire occupational fields are threatened with extinction along with their associated bodies of knowledge and skills, and it is high time that these negative tendencies be countered—not only as a sustainable answer to global mass-market production and excessive consumption, but also in the interest of providing future generations with training and career opportunities that are both sensible and promising.

The following study addresses one of the major reasons for this imminent threat of extinction. That is the public's miss-perception of Traditional Craftsmanship and lack of public awareness of its age-long contribution to society and culture. Traditional Craftsmanship was never limited to merely providing products, but as well has always been a crucial factor in developing and shaping our culture and society over the centuries. Elaborating these economic, societal and cultural contributions of Traditional Craftsmanship in Austria in order to strengthen its position, is the main purpose of this study.

a) major theoretical foundation

The Convention defines five domains of intangible cultural heritage, one of them is

traditional craftsmanship. During the process of the Convention's ratification and while researching the fifth area "traditional craftsmanship", the Austrian Commission for UNESCO became aware of a Swiss study on the topic —and of the fact that comparable basic research had not yet been done in Austria. The Swiss study aimed to examine the present situation of traditional craftsmanship and to develop specific measures and other recommendations for the preservation of traditional trades and crafting skills. Traditional craftsmanship is important for the Austrian economy, yet it lacks fundamental research on traditional craftsmanship.

b) design/methodology/approach

The presented study discussed traditional craftsmanship in Austria in several questions, especially the most important are:

- Just what is "traditional craftsmanship" understood to be, and/or to what concrete parameters must "traditional craftsmanship" conform in order to be viewed as such today?
- What forms of traditional craftsmanship exist in Austria, and how great are the threats to their respective survival?
- What forms of traditional craftsmanship are significant at present and for the future in terms of cultural and social policy and of the economy?

The term "tradition" is used according to the UNESCO-Commission and the Convention on the Conservation of Intangible Cultural Heritage, Article 2, Paragraph 1.

"Tradition" relates to the English term "transmitted culture". It is a living process, and represents a cultural benchmark to transmit and advance knowledge and skills sustainably over generations. Dynamic traditions do not oppose modernity; on the contrary, such traditions always incorporate modernity. "Culture" internalizes the interplay of dynamics and continuity.

The intangible cultural heritage, transmitted from generation to generation, is constantly recreated and provides communities with a sense of identity and continuity

The study understands "traditional craftsmanship services" as the production, installation, maintenance, caretaking and repairment of rather individualized goods in combination with services.

For the study, we used a method mix of qualitative and quantitative methods to acquire data. The design was cyclical through intermerging survey and interpretation, while continuously asserting quality of content and methodology. The qualitative primary data collection had the character of an empirical field study. It included concept, implementation and evaluation based on "the qualitative interview", focus group workshops and in-depth interviews with 67 experts. Followed by the the analysis and evaluation of all audio materials based on verbatim transcription. The quantitative secondary data collection happened through statistics and literature studies, and archive research.

c) e) findings or conclusions/originality/value

Definition of the term "traditional craftsmanship," and the specific criteria, that must "traditional craftsmanship" fulfil in order to qualify as such

This graphic defines the fundamental values and contents of "traditional craftsmanship". It represents the relationships and interplay between them by visualising a foundation plus relevant relational and value(s)-based pillars. The parameters forming the "foundation" are in constant interplay with the elements that make up traditional craftsmanship's relational and value(s)-based pillars. These elements, in turn, are closely interrelated via mechanisms of causes and effects.

In order to ensure traditional craftsmanship's medium- to long-term survival, it is necessary that all four of the parameters comprising the foundation be fulfilled. If even one of these parameters goes missing, it is no longer possible to speak of traditional craftsmanship in the strict sense. The essential defining parameters of traditional craftsmanship included in the foundation therefore represent indispensable core competencies, competencies without which traditional craftsmanship cannot successfully sustain itself and continue to develop.

In contrast to the essential elements listed in the foundation, the degree to which the elements of the relational and value(s)-based pillars are necessary—and/or of the degree to which they are manifested—is flexible. This flexibility is due to the heterogeneous nature of the various fields of traditional craftsmanship, with their differing outputs and/or services. In addition to production, these also encompass installation, maintenance and care of, and repairs to products combined with service-related components, all of which

is frequently rather specialised and/ or customised.

Therefore: not every single element of the relational and value(s)-based pillars need necessarily be present in order to speak of traditional craftsmanship. But on the other hand: the less pronounced the characteristics from the relational and value(s)-based pillars at a business are, the less present practically applied, intangible traditional craftsmanship values are at that business.

#### Traditional Craftsmanship as Intangible Cultural Heritage and an Economic Factor in Austria

In order to qualify as traditional craftsmanship, the four core competencies of the foundation should be joined by at least one essential defining parameter from each of the relational and value(s)-based pillars that is included in the values brought to bear in a business's strategic and operative orientation.

Endangering of traditional craftsmanship in their respective existences  
The major reasons behind traditional craftsmanship's endangerment are that trade professions' decreasing attractiveness and low social status, especially among young people, combined with the constantly decreasing opportunities to earn money and achieve success enjoyed by those who practice traditional craftsmanship on an entrepreneurial basis.

The cultural, socio-political, and economic relevance of traditional craftsmanship of to the present and to the future

On the basis of their role in the economy, businesses practicing traditional trades and skilled crafts perform a multitude of functions that are sustainable, economic, social, and cultural in nature. Businesses practicing traditional trades and skilled crafts make contributions relating to:

- jobs and apprentice positions in their respective regions,
- supplying the local and regional populace with goods and services,
- the availability of products and services that convey a regional and/or national culture and identity,
- social commitment on location and in their surroundings,
- regional anchoring and networking,
- regional value-added chains,
- tax revenues on the municipal, state, and national levels, and

- crisis-resistance and autonomy.

Altogether, Austria is home to 151,558 active trade group members , businesses which represent the traditional craftsmanship occupations in the present study

Each year, these businesses train half of all apprentices. Proportionally, 55.6% of all training business are ones that work in trades and skilled crafts .

Every third Austrian business with employees is an enterprise that provides craftsmanship services as defined in the present study.

Of altogether 2,264,934 employees in businesses represented by the WKO, 537,418 individuals are employed by businesses that can be categorized as involved in traditional trades and skilled crafts .

f) practical and research implications

Based on the research results, further topics for research can be derived:

- Measures to positively influence the image of and esteem for traditional craftsmanship in society, thus enhancing the attractiveness and social status of traditional trades and skilled crafts;
- Measures to improve the competitiveness of businesses practicing traditional trades and skilled crafts, thus contributing to sustainable economic success and higher potential income;
- Measures to improve the specialized qualifications of entrepreneurs and employees via the incentivisation of training and continuing education.

## **2.84. Triple Loop Learning: A Rapid Structured Literature Review of its Conceptualizations and Practical Occurrence**

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### **Abstract:**

To keep up with the competition, learning is essential for organizations. Despite the increasing number of literature reviews on the subject of organizational learning and especially the innovative concept of triple loop learning, it remains a problem to describe and define this topic clearly. By using the rapid structured literature review method, this work aims to clarify the conceptual confusion which the field is currently facing. Not only the theoretical approach of the topic triple loop learning is embedded in this work, but it also deals with the practical occurrence of the subject. In this context, necessary conditions and approaches to facilitate or enhance triple loop learning as well as the effects resulting from triple loop learning are analyzed and discussed. This paper constitutes an extensive foundation for further conceptual and empirical research as it presents the status quo of triple loop learning and provides important insights about it in practice.

## **2.85. Understanding the Potential of Design Thinking in the Context of Business Model Innovation: An Experimental Analysis**

**Name:** Sven Laudien.

### **Abstract:**

During the last two decades the business model has emerged as means for commercializing technologies or novel ideas through the utilization of mechanisms that create, deliver and capture value (Chesbrough, 2010; Teece, 2010). Interestingly, research on this topic mainly focused on describing and categorizing business models used by firms, but did for a long time not put a focus on understanding and explaining the emergence of specific business model designs. Furthermore, literature dealing with business models is quite disperse and still lacks core insights shared by the majority of the research community (Schneider & Spieth, 2013).

Recent business model literature very often employs an innovation perspective and analyzes determinants of business model change. In this realm, business model change is approached in quite diverse ways. Business model innovation (BMI) is for instance categorized as a key strategic task or capability for a firm to achieve long-term success (Mezger, 2014; Sosna, Trevinyo-Rodríguez, & Velamuri, 2010), an addition or complementation to product and process innovation (Amit & Zott, 2012), or as an enabler to the achievement of a competitive advantage (Teece, 2010).

Employing a firm perspective, it is for sure important to gain an understanding of BMI, but it is even more important to be informed about ways how to achieve BMI as BMI is considered crucial for firm competitiveness. Teece (2010) states that successfully designing and implementing a business model is a process influenced by many factors. His statement implicates that BMI is very often the result of a trial-and-error process and not the outcome of a planned process. In other words: BMI is a creative process that is non-planable and very difficult to structure. As traditional innovation management tools are based on the assume that innovation is a process that can be planned and carried out in a structured way, these tools may not be applicable for BMI.

In recent years, Design Thinking has emerged as a powerful methodology for innovation (Leifer & Steinert, 2011). This creativity-centered approach integrates technological, business, and human elements in the process of creating innovative outcomes (Meinel & Leifer, 2012). Different from traditional approaches to innovation that focus on analysis,

planning, and prediction, Design Thinking makes use of building, testing, learning, redesigning, and iterating to create innovations (Fixson & Rao, 2014). Design Thinking explores not only solutions to specific, predefined problems, but always starts with an understanding of the problem itself (Leifer & Steinert, 2011). This leaves the result of Design Thinking based innovation processes undefined and puts creativity in the focus.

In this paper, we aim at understanding how Design Thinking can be purposefully employed as means to create BMI. We are well-aware of the somewhat random nature of Design Thinking outcomes, but we believe in the necessity to overcome the narrow, control focused perspective on BMI that is prevalent in literature by bringing Design Thinking as a new flavor into the BMI debate. Assuming that emerging digital technologies make the world recently more and more complex, we are convinced that we cannot handle the complexity of BMI by strict control, but by making use of phases of creativity. Each of these phases focuses on a specific task and ends with freezing results understood as common agreement between the involved partners. In the end, each of these results is unfreezed and openly discussed before being integrated into the final business model design that represents the innovation outcome.

Paying tribute to novelty and complexity of our research topic, we decided for employing an experimental research design. The paper is based on four different experiments that mirror typical BMI scenarios. The test persons taking part in the experiments (10 per experiment) were all not aware of traditional innovation management tools – fact we guaranteed by carefully pre-selecting the test persons. The test persons could therefore only rely on their creativity to develop a solution for the problem scenario. The developed solutions are evaluated by three BMI experts based on a set of factors derived from an intensive literature screening with regard to their probable success.

Our findings show that by making use of Design Thinking it is possible to develop innovative business model designs that have the potential to be superior to business model designs developed in a traditional way with regard to flexibility, future adaptability and especially the possibility to integrate new technologies. Design Thinking based business model designs are characterized by a high degree of modularity and relatively low development costs.

Our paper contributes to BMI literature as we develop a new, Design Thinking-based tool for BMI. Furthermore, we provide insights into factors that determine BMI success and

uncover how firms are set into a position to better deal with digitalization-based challenges by exploiting by now not used creative potential.

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## 2.86. Unlearning 2 (n/a)

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### **Abstract:**

Organizations need to remain competitive in today's marketplace for survival. This focus is important because knowledge change needs to occur quickly, reduce human errors and decrease operating costs. To maintain competitive advantage, organizations must alter knowledge, actions, and behaviors through continual updating of existing computer systems. To acquire knowledge base and allow end-users to use intellectual capital effectively are important resources needed by healthcare organization. This study focuses on demonstration of unlearning involving a change from traditional methods of collecting and using patient data (recorded dictation or written documentation) with EHR interaction in patient care processes. Physician end-users possess specialized assessment skills and ability to complete medical documentation. These end-users are familiar with assessment, diagnosis and pharmaceutical selection to the degree that their patient care operations have become automatic. Perceptions of technological upset, influencers to unlearning of old documentation interaction during updates using EHR interactions are presented in this study.

## 2.87. Using Knowledge Leverage and Enterprise Architecture in Transforming Consulting Business

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### **Abstract:**

Purpose: Consulting is fundamentally a knowledge creation (Nonaka&Takeuchi, 1995) driven business that depends heavily on relationships between institutes and people (Schein, 2016). The challenges that consulting tries to solve are more complex as a business becomes more networked, international, and cyber-physical. Therefore, the transformation of the consulting business should address the social challenges through the consulting value stream. Since TOGAF (2013) framework for enterprise architecture does not directly address the ways to describe the evolutionary nature of consulting business, this paper presents an industrial solution architecture model for assessing the past and future roadmap for consulting unit. The model for consulting business explains how to analyse the environment and five interconnected layers of business architecture, namely layers of business, culture, collaboration, processes and content. In the given context, the model answers questions of:

1. Where the business has evolved to reach the current situation and
2. What opportunities or challenges business faces when developing towards the future?

The model addresses especially the knowledge creation and social aspects of an architecture, which are substantial in the consulting industry. This research aims to extend TOGAF, providing business architects with a dynamic architecture model suitable to analyse a consultancy business and design its transformation.

Theoretical foundation: The model for the business environment and relationships use Porter's (1985) primary and supportive activities, apply them in the simple value chain, and introduce Porter's (1980) competitive powers affecting the relationships between stakeholders in the market. Gattorna's (2010) model for competition and certainty of the market helps to analyse the nature of relationships. The Osterwalder and Pigneur (2010) business canvas extended with Gattorna's (2010) block of value chain relationship describes and analyses the core business model. Sniuka's (2015) findings for five

approaches in consulting is used to tailor generic model fitting better to consulting business. The sociological features of the business system are modelled with Logan et al. (2008) culture model and Synapticity (2010) analyses tool for enterprise collaboration. A combination of the ThinkingProcess (2009) and CMMI for services (2011) models help to analyse the maturity of business functions and processes. Finally, Cameron's (2013) model for enterprise content management assists in analysing the information and content management, which, besides the culture of cooperation, is one of the foundational layers for the Nonaka and Takeuchi (1995) process for knowledge creation. The five interconnected layers, each armed with landmarked roads of evolution or maturity, provide a dynamic architecture model for consulting business.

**Methodology:** The research method approaches the challenge from pragmatic view since the aim was to help the consulting unit in their business transformation using business architecture tools. However, the TOGAF and other EA frameworks do not include models to understand the evolution of sociological structures in a business context. Therefore, researchers needed to deduct a better fitting model in the beginning. The components for the model were collected from literature research and merged in a layered, interconnected model during a few architecture workshops.

Furthermore, the transformation of the studied consulting unit took two years, so longitudinal horizon enabled either action research or case study. The case study won because it is less intruding and lighter of the two research strategies. The case study was executed between 2013 and 2015 while advising and architecting the transformation of a consulting unit. Mostly qualitative data was collected from available records and utilised a survey which engaged top and middle-level managers. The results were analysed against two points of reference: 1. primary usage of the model in implementing strategy and 2. secondary business benefits after the transformation.

**Findings:** The advising architects were using the hypothetical architecture model to analyse where the consulting unit had come to, i.e., its current status, and what opportunities and challenges it faced on its roadmap towards the future. Since the time of strategy implementation, and therefore observation, extended over two years, it was possible to assess both the usage of the model and its business benefits. The architecture model met sufficiently the Whittle and Myrick (2005) criteria for architecture model benefits: strategic alignment, customer-centric focus, strategy to results connectivity, speed to market, team synergy, less rework and waste, and continuous improvement and

feedback. Furthermore, usage of the model, at least partially, produced the business benefits promised by the TOGAF (2013) framework: efficient business operation, efficient IT operations, return on existing investments, reduced risks for future investments, faster and cheaper procurement. Therefore, the proposed dynamic architecture model for consulting business fulfilled all expectations set for a business architecture model in a single case study.

Value: The dynamic architecture model for consulting business provides business architects with a simple interconnected layered structure that helps to assess business processes particularly from knowledge creation and cultural viewpoints. The TOGAF framework may consider the model as an industry solution with a socio-technical system approach. The model illustrates a landmarked roadmap for each layer as per their maturity, approach or ability. The landmarked roadmap allows the architects to position their organisation on their strategic paths of development based on previous achievements and possible future challenges. Consequently, the model may be categorised to a class of dynamic enterprise architecture (Lapalme et al. 2016) approaches.

Practical and research implications: The architecture model for consulting business is still in use within the case study unit. Therefore, there is a possibility to have extended data of its business benefits or further proof of its feasibility in continuous improvement. However, no plans are existing to apply the tool in any other consulting company. Other researchers may find opportunities to extend the usage of the model. Currently, the architecture model for consulting business does not address the technical layers or their dynamic roadmaps. Therefore, more modelling and research are needed to fulfil these caps. There were many other models available for example culture, process maturity, cooperation, and value stream modelling. For simplicity and focus, these options had to be closed out from the research. Moreover, the model does not reflect sufficiently the systems thinking approach, which may reveal new views and models.

## **2.88. Wealth Creation in the Context of Knowledge-Based Economy: Theoretical Foundation**

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### **Abstract:**

#### A) Purpose

The purpose of this paper is to examine, from a theoretical point of view, the principles of wealth creation in the knowledge economy. Wealth and wealth creation are at the heart of economy and are critical to understanding the dynamics of economic systems and to furthering economic science. Wealth creation in a society is the accumulation of solutions to human problems. Adopting a strategic focus, we explore the theoretical foundations that support the wealth creation principles in our economy. Our study brings insights on these particular questions and open discussion on the fundamental principles that guide the wealth creation in the context of the knowledge economy.

#### B) Major Theoretical Foundations

There is a general acceptance that the nature of the economy and drivers of wealth in business are shifting from the industrial to the knowledge era. The emergence and growth of a knowledge-based economy spurred growing interest from academia, business and government to identify new methodologies that help to understanding the features of wealth and value creation at the macro and micro levels respectively. main observation is that no single macro or micro economic theory can fully explain the dynamics of wealth creation. Rather, each of the theories offers an important insight into a particular aspect of who and how is wealth created. In the context of the knowledge economy, the composition of wealth shifts away from natural capital toward increasingly, intangibles or intellectual capital (IC). Intangibles/IC dominate the wealth accounts of all countries.

#### C) Design/Methodology

The methodology relies on a thorough and comprehensive review of scientific literature on the wealth creation dimensions with the aim of exploring the principles that support a practical framework that could make it possible an in depth analysis of a nation wealth creation foundations in a knowledge-based economy.

#### D) Originality

The paper takes up into some fundamental questions: i) how is wealth created? ii) who creates value in a specific country? iii) how to determine the wealth creation potential of a specific nation? and iv) does knowledge economy context fundamentally change rules of wealth creation? - Wealth creation dynamics are anchored in theoretical foundations at both the micro and macro levels. At the micro level, wealth foundations are in the strategic management discipline and more specifically in the following well known perspectives: the resource based view, the dynamic capabilities based view, the knowledge based view and open innovation. These theoretical foundations at the micro level have to be complemented at the macro level with recent developments on strategic management of intangibles in cities, regions and nations. These recent developments are based on a complex body of principles and theories, such as institutional and evolutionary economics, cultural and social economics, systems theory, systems and innovation, triple/quadruple/quintuple helix, regional science and more recently knowledge based development. Mastering and balancing economic, innovative and ecological issues and challenges, this work has a potential of understanding the way we perceive and organize sustainable development and coevolution of knowledge economy. By integrating various fields of the literature that relate to strategic management (both micro and macro), the paper opens avenues that deserve future research consideration.

#### E) Research Implications

The paper offers unique insights to students and researchers of management on the most important theories that support wealth creation in an economy driven by knowledge.

## 2.89. What the West can Learn from Central & Eastern Europe: Soft Skills Spillovers and Reverse Knowledge Transfer

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### **Abstract:**

#### Introduction

With the final fall of the former Soviet Union on Christmas day in 1991, new economies opened throughout the world, but most particularly for countries in Central and Eastern Europe (CEE). Upon the opening of these countries, many multi-national corporations (MNCs) saw opportunities in these new economies and very quickly moved or prepared to move new operations there. However, the move from a planned economy to a market-based economy for many of these countries, as well as the MNCs operating there had not always been easy – 40-70 years of Soviet dominance, both economically and culturally did not break down easily. The transition economies from the former Soviet sphere required the transfer of knowledge from free market economies in the developing countries in the West. As former state-owned enterprises became privatized and learned about the practices of a market economy, they communicated this vision and those practices to the larger community. In time, many of these former Soviet countries or satellite countries not only learned the practices of Western economies, but also the opportunities that aligning with the West could bring them. This has been particularly the case with the Visegrád Four (V4), a cultural and political alliance of the Czech Republic, Hungary, Poland, and the Slovak Republic. Though they are members of the EU, and many MNCs have moved their plants and operations to these nations, the knowledge base of these countries is generally considered less than the advanced economies of Western Europe and the U.S. However, in knowledge management, practitioners and others know that knowledge does not go in one direction but flows in multiple directions. The paper is twofold: One, the paper will present case reports on a Western based MNC that has a strong presence in the V4 nations. In the case report, the authors will show the various forms of knowledge transfer does not flow solely from the parent organization to their subsidiaries, but also the reverse, with knowledge from the subsidiaries flowing back to the parent organization. Second, the paper will illustrate how reverse knowledge

transfer can increase soft skills among the workforce.

Since the paper is presented as an 'extended abstract' the paper will forego a literature review of the concepts of knowledge transfer, reverse knowledge transfer, and soft skills, and rather focus on providing a short overview of the case report demonstrating how reverse knowledge can be transferred from MNCs subsidiaries in V4 nations in the East to other entities and the parent organization in the West.

#### Premise of the Study

Knowledge transfer is the sharing or distribution of knowledge from one part of the organization to another, with the hope that this transfer of knowledge will provide the desired results and that the new knowledge becomes embedded within the organization's fabric. Historically, the academic literature has focused on knowledge transfers from parent companies to subsidiaries, and generally very little on reverse knowledge transfer from the subsidiaries to the parent organization. In our highly competitive global market, competitive advantage depends on the transfer of knowledge at all levels, and in all directions, in the organization. In addition, it is imperative that this knowledge has the potential spill-over effect of increasing the soft skills of the companies' workforce, which subsequently will increase the competitive advantage of the company in their internationalization efforts.

#### Case Reports – Reverse Transfer of Marketing Knowledge

Tesco, Ltd., a British multinational groceries and general merchandise retailer, has subsidiaries in 11 nations, and is the third-largest retailer in the world measured by gross revenues. Since the mid 1990s, Tesco has had a presence in the V4, with approximately 240 stores in the Czech Republic, 200 stores in Hungary, 400 stores in Poland, and 180 stores in the Slovak Republic. The case studies centers around Tesco SK (Tesco Slovakia) and the marketing department for Tesco's which is based in Prague for Central Europe and the V4. The marketing director primary responsibilities are: communication; research and pricing; innovations; and the deployment of digital media. Each country is led by their respective marketing manager, who reports back to Prague, who coordinates strategy for the 4 nations.

#### Case 1: Local Suppliers

Recently, Tesco SK has initiated a program that brings products from local manufacturers onto its shelves. The commercial team initially established a pilot program with local producers of fruit and vegetable, meat and provision, fish, diary and bakery. This program

allowed local suppliers to deliver their products directly to Tesco stores in their region. A public relation campaign (media and leaflets) supported the sale of local products from Slovakia,

The regional producers welcomed the opportunity to deliver their products to Tesco stores. The project not only supported a positive Tesco image, but increased the awareness of social responsibility of the chain and its relationship to the local communities. Additionally, this project of using local suppliers was largely supported by government bodies from the Ministry of Agriculture.

Following the initial success of the pilot project, it was shared with the market director in the Czech Republic. As the result of the Slovak project, other Visegard 4 nations started to introduce local projects in their stores:

#### Case 2: Point of Sales Promo Pricing

In early 2017, the marketing Director in Prague decided to consolidate all Point of Sales (POS) materials used in Tesco stores in all 4 countries. The key objective was to create a similar look and feel with material across all the stores. The project was led by the Tesco Czech team.

In pursuit of this, the Czech team developed a general design for all POS material which covered varied areas in the stores: aisle by an entrance, action alley, aisles for regular product placements, counters bistro, bakery, products, etc.. Although the POS materials were eye catching and easy accessible for customers, Tesco SK identified an issue a few weeks after the launch. Some of the images in the POS materials were communicating solely the promotion mechanics; e.g., promo or clearance, while the particular prices were written on the small size shelf labels. Since the price is a key decision factor for customers the pricing material needed to be changed. The Slovak marketing team initiated a local adaptation of regional POS materials to inform the customers about the prices of the products. In addition, each POS format was adjusted so that the stores could print the prices directly on POS or on additional piece of paper that is placed next to the respective POS. Therefore, customers could see the old price, promo price, discount in %, unit price. This modification from Tesco SK was approved by headquarters and all three countries within the Region applied the original Slovak templates of the POS materials only with slight adjustments according to their local specifics.

#### Case 3: Customer Feedback

Tesco evaluates customer satisfaction at its stores via face-to-face interviews. Briefly, the interviewers visited each store three times a month and interviewed customers after they

have paid for their goods and asked a series of questions about their shopping experience. The process based on the manpower was seen as old and expensive, and according to the stores, there was a risk of bias due to manner in which the interviewers asked questions. As a result of dissatisfaction with the current method, an alternate system of assessing customer feedback was developed in Tesco SK stores. Briefly, the Slovak team and a contracted research agency developed an online questionnaire that was accessible from the Tesco website. The questionnaire accessed the same topics as the interviewers, but also allowed customers to send individual messages or videos to Tesco. In addition, customers could earn extra Clubcard points and have a chance to win 150€ for their participation. Although the participation rate of 50 respondents per store with the online survey was slightly below the rate achieved by personal interviews, it was felt that it was sufficient to assess store performance. It also was more flexible and forwarded the feedback to the respective stores faster. This online method was shared with the other countries in the Region and which implemented similar assessment methods to assess customer feedback.

In closing, the reverse transfer cases show how unique marketing activities in Slovakia subsidiary could be developed across the region. These practices, also through their communication and marketing platforms promote the use of soft skills transfer from one location to the other. The insight into these cases connects to one precondition of knowledge management which is identification and assessment of capabilities and resources, a concept of the organizational behavior literature. Integrating the local supplier base, reconstructing promo mechanisms and including the customers in evaluating store performance are activities that rely on the social, the structural and the technical infrastructures of interrelation – while they differ from location to location, their basics are transferable upwards and downwards in the organization.

## 2.90. Why Knowledge Cafes can be Valuable to Organisations?

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### **Abstract:**

In answering the question as to ‘whether knowledge cafes are useful, and if so, how?’ David Gurteen who had run many knowledge cafes across the world, said: “There are so many things and it depends what the purpose of your knowledge café is. But personally I find that the open conversation provides people with insights and changed ways of thinking that are helpful, challenging and stimulating. Also, different people take away different things. There are often surprising benefits unrelated to the initial purpose. This is especially true when people come to a knowledge café with an open mind and are prepared to listen.” (Gurteen, 2010)

This response, along with several others from people who had chaired or participated in knowledge cafes before, led to research about knowledge cafes that this paper describes and discusses. For the purposes of this paper a knowledge café is defined as “a frank exchange of ideas or views on a specific issue in an effort to attain mutual understanding” (Gurteen 2013, p.2) and the assumption is that this is normally conducted face to face in the same building. However, with modern technology (e.g. Zoom technology) there are arguably different versions of knowledge café concept which no longer require participants to be in the same room / geographical space.

Each of the personnel interviewed in Autumn 2010 at the European Conference on Knowledge Management valued knowledge cafes for a variety of reasons. These reasons are identified below

### Reasons to Value Knowledge Cafes – Research Phase 1

#### Person Job / Role / Responsibility Reasons to Value Knowledge Cafes

1 Business consultant, UK

- Insights / changed ways of thinking / challenging /stimulating
- Surprising benefits

## 2 Senior Lecturer, UK university

- Synthesis of ideas
- Creation of new ideas
- Useful aide memoire

## 3 Principal Lecturer, Australian University

- Sophisticated form of brainstorming that helps build a bigger picture

## 4 Professor, UK university

- Opportunity for a wide variety of inputs all at once from different people

This initial phase of research led to a second phase of research conducted with 14 participants of a knowledge café in a large law firm in London in December 2010, which had the aim of exploring whether participants in another knowledge café setting agreed with the value placed on knowledge cafés in the first phase of the research. The second phase of research was also designed to explore whether knowledge cafes conducted face to face were preferable for discussing problems/issues to using other forms of communication involving Information Technology. Broadly, the results of the second phase of the research were that virtually all the participants of the knowledge cafe valued the experience. Again, the reasons for this varied considerably will be explained in more depth in the full version of this paper. However, in short the reasons included inter alia valuable problem-solving and getting to know people that participants would not normally talk to. Most participants preferred face to face knowledge café experience to use of other forms of IT communication but these participants had not experienced other forms of knowledge café using technology like Zoom.

The final phase of the research was conducted in July 2018 with participants of a knowledge café focused on a theme relating to environmental issues that related to chemical industries in the UK. The focus of the research relating to knowledge cafes, was to see if participants valued their experience of knowledge café and, if so, for what reasons. This could provide a basis for comparison with previous phases of the research. Also, participants were asked whether they could suggest any improvements to the process or whether they had any other comments. There were 60 participants at the knowledge café and 31 gave feedback. Again, the feedback from participants was very positive about the knowledge café experience and the reasons for this and suggestions for

improvement varied. Again, these will be explained, analysed and discussed in more depth in the full version of this paper.

Also, this paper will draw together themes relating to the value of knowledge cafes for organisations and individuals in different sectors of the economy in the UK. This paper will explore, in more depth, the reasons why knowledge cafes are valued by participants and it will relate this research to implications for both theory and practice. Areas of application to theory and practice will include:

- Why knowledge cafes are valued by participants and organisations;
- How the themes and patterns from the primary research relate to concepts of knowledge (e.g. Sharp 2008; Sharp 2003; Wiig 1993)
- How this knowledge can be used by participants/organisations in the future to introduce knowledge cafes (if appropriate) to work situations in light of other theory and practice in the area (e.g. Sharp 2015);
- The implications of this research for individuals in terms of theory and practice of motivation and personal development (e.g. Sharp and Schinzel, 2015);

All these areas of discussion relating to this research will involve recommendations and development of ideas for the future which may combine ideas from the past. It will also discuss the potential for new developments in the implementation of the knowledge cafes using technology (e.g. Zoom technology) and further implications and areas for research in the future in this field.

There are a number of reasons why this research is valuable for the TAKE conference 2019. It will be valuable for any person seeking to develop knowledge in their organisation or sphere of influence using knowledge café techniques. It will be an interesting and helpful insight into concepts and issues relating to knowledge and learning that will stimulate thinking in the area of the definition and concept of knowledge. It will also provide recommendations for use of both of these for use in organisations and further research in the future. New ideas will be presented that will synthesise thinking from the past in the field of knowledge management, with research relating to knowledge cafes implemented more recently. Therefore it will be useful for thinkers and practitioners of the use of knowledge in a wide variety of contexts relevant to this conference.

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## **2.91. Will robots have the capacity to replace Mankind?**

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### **Abstract:**

This work aims to study the application of skills and integration of Artificial Intelligence in Human Resource Management and acceptance that this change may have among Men / employees looking to know how it will process this adaptation to this technological change and how can come to influence the development of enterprises and the whole surrounding society. It was necessary to use a questionnaire, composed of 30 questions, on the topic under study, which could be answered with 5 levels. In developing this work collected - is a lot of information, with the collection of studies on the development of artificial intelligence, all of which have for granted, that today, the artificial intelligence is part of our daily lives, finding robots in multiple industries, which help in the development of new scientific knowledge of opportunity in areas such as health, construction of automobiles and no doubt, on human resources, which will benefit from the introduction of this new technology. There are many issues of ethics and moral order which have to be respected, you must create boundaries to this technological development, which is the AI and which today is no longer great resistance from broad sectors of society, and some believe the introduction of artificial intelligence in companies and other organizations of society will be a factor of development that will create more job opportunities than those that will inevitably destroy, allowing to bring new knowledge to man.