Modeling Innovation Sustainability and Technologies

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Modelling Innovation Sustainability and Technologies

MODELLING INNOVATION SUSTAINABILITY AND TECHNOLOGIES

CONFERENCE ABSTRACT PROCEEDINGS

Oeiras / Carcavelos – Portugal
October 22-23, 2015

Light MIST Assotiation for Regional Development

MIST 2015
Modelling Innovation Sustainability and Technologies

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CONFERENCE ABSTRACT PROCEEDINGS

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Oeiras / Carcavelos – Portugal

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Preface

Dear all,

It is my great pleasure to welcome you to the 1st International Conference of the MIST2015 for Modelling Innovation Sustainability and Technologies, this year held in Oeiras - Cascais region.
Academia, scholars, business and industrial actors, government as well as non-governmental organisations (NGOs), and civil participants from over 20 countries have expressed their interest in participating at the MIST Conference.
The scientific programme was carefully designed and many distinguished presenters have submitted their contributions to present to discuss interesting achievements and effective recommendations for modelling innovation and sustainability policies through modern technologies.

Highly competent scientists from four different European countries will provide a state-of-art and overview of fundamental and applied aspects of spatial economics, innovation ecosystems, regional development, and technologies.

The Conference is open to educators, students, industry and business actors, NGO's, policy-makers and civil participants, to get informed by experts in about a series of innovative measures for regional development.

Many of us will tackle issues that relate to five different areas (Innovation Economics and Policy Perspectives, Environmental, Energetic and Economic Sustainability, Innovation Management & Entrepreneurship, Advanced Tourism Economics and Management Information Systems).

I would like to express my sincere thanks to Mário Abreu, Paulo Varão and Carlos Rangel, and to all members of the organizing committee and reviewers who helped to organise this great event.

This Organising Committee is sure that all presentations, discussions and interventions will generate innovative ideas to tackle "Strategies and Policies for Modelling Innovation" more efficiently and effectively.

I hope all of you will enjoy this event!

Albertina Melo Dias
Member of OISPG, Professor at Universidade Atlântica
President of the MIST2015 Organizing Committee

Table of contents

FOREWORD BY THE EUROPEAN COMMISSION 5
FOREWORD BY THE HOSTING INSTITUTION 7
SCIENTIFIC COMMITTEE 8
ORGANISING COMMITTEE 11
INTRODUCTION 12
PROGRAMME 14

1. INNOVATION ECONOMICS AND POLICY PERSPECTIVES 15

Session Chair Prof. Manfred M. Fischer 15
1.1. Living labs and open innovation in European context 16
1.2. Research on the innovation culture in companies that affect managers' decision making 17
1.3. German law covering the public participation in planning and building infrastructure projects 18
1.4. Management of local innovation through creative entrepreneurship: case study of Sunrise Pashmina 19
1.5. Diversification of funding options, a key for long term economic success - the Portuguese case, a good example 20
1.6. Sustainability and green economy: a new trend for product innovation 22
1.7. The regional innovation policy - the situation of Slovakia 23
1.8. Global innovation ecosystems and changing occupational profiles: toward education ecosystems? 24
1.9. Determinants of innovation activities: public financing and cooperation - case study of Czech Republic and Hungary 26
1.10. Absorptive capacity and space 27
1.11. Establishing corporate treasury centres in selected European countries 28
1.12. The perceived value of public services as a prerequisite for a comprehensive analysis of the effectiveness of public sector organizations using Czech Library as an example 29
1.13. The consequences of tax base rules on enterprise innovation in the European Union 31
1.14. How to measure inter-municipal cooperation in conditions of the Czech Republic 32

2. ENVIRONMENTAL, ENERGETIC AND ECONOMIC SUSTAINABILITY 33

Session Chair: Prof. Peter Nijkamp 33
Challenge: Environmental delay, caused by air, soil and water pollution, waste management, and climatological change 33
2.1. Matching the preferences of households with the opinions of institutional and business stakeholders 34
2.2. Cosmetic products obtaining based on the recovery of food waste 35
2.3. Public infrastructure and regional growth: evidence from the Turkish regions 36
2.4. Wastewater reuse – case study: Abrunheira IWTP 37
2.5. Novel click-method of cycloaddition reaction applied to aromatic compounds 37
2.6. The potential for electricity generation in anaerobic digestion of MSW- the case of TRATOLIXO 38
2.7. Unique development potential of little light polluted areas in Slovakia 39
2.8. The use of geological background reference values for evaluation and remediation of soil. Trajouce eco-park case study 40
2.9. Biofuel-Food-Fuel interaction: exploring the price link in the European and Brazilian Context 41
2.10. Soil contamination and human health risk assessment at a former industrial site in a densely populated urban area. The Cometna case study (Odivelas, Portugal) 42
2.12. Soil contamination – case study: environmental rehabilitation on Trajouce's ecopark 43

2.13. Environmental sustainability strategy - The economic incentives and waste sector contingencies under PERSU 2020 45

3. INNOVATION MANAGEMENT AND ENTREPRENEURSHIP 46

Session Chair: Dr. Anna Sadowska 46
Challenge: Smart Specialization 46
3.1. A framework for a hospital human resources management system 47
3.2. The state of organizational happiness in Portuguese public institutions. Identifying the factors that most contribute for having happy employees. An exploratory research. 47
3.3. Diabetes, work and knowledge 48
3.4. Time donation and commitment. Exploratory study on the determiners of the commitment of the volunteers in the Moroccan associations 49
3.5. Quality of life evaluation in people with mental disabilities 51
3.6. A - Digital information asset evaluation: a case study in manufacturing 52
3.7. B - Digital business innovation: strategy attitudes and challenges for future enterprises 52
3.8. Innovations, ICT, and ICT-driven labour productivity in Poland – a firm level approach 53
3.9. Challenges in innovation in biotech SMEs: the case of advanced therapies 54
3.10. Crowdsourcing based business models – what drives users engagement? 55
3.11. Open Innovation in Czech manufacturing firms: market and industry effects 56
3.12. Biosimilars medicines in Portugal 57
3.13. The critical view on innovation activity in SME´s sector in Slovakia 59

4. ADVANCED TOURISM ECONOMICS 60

Session Chair: Dr. Kamila Borsekova 60
Challenge: Advances in tourism fostering development 60
4.1. The tourism-led growth hypothesis and the role of foreign direct investment and financial development in the European Union 61
4.2. Regional multilevel analysis of willingness-to-pay in Asian cruise markets 62
4.3. Estimating the future value of Japanese cruise tourists: a structural equation modelling and market segmentation approach 63
4.4. Partnership and networking in tourism fostering spatial development in Slovakia 63
4.5. Innovation in building competitive advantage in tourism – the way for smart spatial development? (Empirical study from Slovakia) 64
4.6. A Panel Data Analysis of Urban Livability and Tourism Development in China 66
4.7. Is migration innovation? Clandestino's in the diaspora world 68
4.8. Modelling Innovation Sustainability and Technologies: The necessity for a local level of gastronomic tourism standardization 69

5. MANAGEMENT INFORMATION SYSTEMS 71

Session Chair: Prof. Miguel Sales Dias 71

Challenge: Information and Communication Technologies for Corporations, Businesses and Consumers of all ages 71
5.1. Equipment Lifecycle Management Framework 73
5.2. IT audit in the Spanish business sector: longitudinal analysis (2001-2011) 74
5.3. A new technological impact on the delivery of social and health care at home 75
5.4. Internet Of The Things: changing and economic impact in the next future 76
5.5 The development of logistics infrastructure and the pressures on environmental protection 77
5.6 ICT as Enabler for Communication in Business Decision Making 77

Foreword by the European Commission

MIST stands for Modelling Innovation Sustainability and Technologies which is of growing importance. Innovation landscape has fundamentally changed from the rather well defined, even predictable "old" economical behaviour to the new, connected and networked world where the interdependencies together with the dynamics brings to the modelling a real challenge.

What I see as the challenge for the conference too is to keep the strong focus on modelling itself, being based on modern innovation understanding. We are not anymore in linear, predictable innovation processes, as much of the innovation is parallel, networked, and cross-and multidisciplinary.

For policy making the innovation modelling can bring valuable hints on which kinds of processes foster the success and speed of innovation best; how to build the enabling technological but increasingly more relational infrastructures for success. According to the work by Lin and Edvinsson the structural intellectual capital is the key factor for successful innovation policy. I.e. how the various elements in the whole innovation system interact! It is not about creating innovation or knowledge islands but to create the interactions, reflections and processes.

Noteworthy is to discover that in Western world knowledge is seen very much as an object one can possess, but in Eastern cultures the knowledge is seen as interaction, as a reflective process between the individuals.

Innovation is to make things happen, and innovation ecosystems as their best catalyse collisions igniting new ideas and bringing them into innovations. Infrastructures i.e. open innovation environments including all stakeholders in the Open Innovation 2.0 perspective makes rapid prototyping and experimentation in real world settings possible, creating early indications on the successful paths to go forward, and of course those to be killed too.

Modelling this complexity and interdependencies can help policy makers to discover the successful paths for building connected innovation ecosystems. I hope that this first MIST conference will develop to a strong driver for innovation modelling for policy development in Europe. We have for sure interesting elements and emerging infrastructures in Europe, but having a holistic vision on the needed actions for impact is very much what is now needed.

Bror Salmelin
Advisor for Innovation Systems, Directorate General for Communications Networks, Content and Technology (DGCONNECT), European Commission


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Foreword by the hosting institution

Welcome to the "Universidade Atlântica" of Portugal. It is with great pleasure that I welcome you to this university, with a long history, but with a whole new management model of University/Company, with a special focus in validating and structuring the value of expertise and capabilities to perform.
Obviously this traditional University is intertwine with the academic education and research. This University shall continue to invest in a clear and precise manner so their students can be train with the greatest possible academic excellence, being also worth to mention that it is with this new university model, we humbly intend to make our goals a success. The new company management, the new administrative team and the new academic staff, constitute a breakthrough to achieve a different product. It's a different University who seeks integration.
As told, the enhance of technological development is crucial, focusing on the core value that is applied research, developing practical and teaching models that lead us to increasing employability, higher performance and greater proximity of citizenship and the community needs.
It is necessary to bet in the differentiating elements of this University and with all the humility, great effort and capacity of the new management team, which I have the honour to address as Rector (Dean) of this University, we intend to raise, like we said, the excellence of the direct application of its practical and operational values, both regarding the students and professionals from different areas of knowledge.
Therefore, it is vital nowadays the commitment in the belief and development of the organizational process, in order to achieve the adequate performance, being also needed high expectations to build and achieve, to know where we are and where we go.
To achieve this goal is essential to improve the concept of organizational quality, connected in being able to identify the commitment and involvement with the results, it is so necessary to identify the actions and the clear and precise behaviour that are outlined in professional decisions, which translates into performance designed for wisdom and aptitude, this wisdom is the knowledge, the aptitude is know-how and skills, the knowledge and the know-how are a central tenet of our New Atlantic institution, as is the management skills, meta-concepts of transversal nature, which are pillars of our human resources management model.
Being competitive is a resulting strategy of team spirit combined with an organizational capacity for continuous learning, as such it is important to evaluate the rational individualism, for the cohesion of the team, compliance with standards and procedures, without forgetting the generation and maintenance of organizational capacity and the value of professional satisfaction we nowadays call "psychological well-being".
Innovating through ambition, knowledge and transforming the knowledge in acquired value. To think that we are great and capable, for reality will be responsible in limiting ourselves clearly, without forgetting the transparency and professional ethics that generate determining values to our University.

Cordial greetings,

Carlos Guillén
Rector of the University New Atlantic
Board Member Carbures Europa

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INTRODUCTION

About MIST

MIST (Modelling Innovation Sustainability and Technologies) is a non-profit think-tank organization aiming at enabling the production of high-level research actions in the domains of economics, information, knowledge and environment. The think-tank organised the first MIST 2015 Conference which will take place in Oeiras-Cascais (Lisbon metropolitan area), Portugal on 22-23 October. The event is planned to organisations and experts and enable them to collect valuable information, knowledge and wisdom.

> *Resistance to change can be easily disguised with well-founded arguments, such as: "We should let others make the mistakes first". In Finland, this clichéd saying has its basis in the careful undertone of Finnish culture. In reality, the result of this negative attitude is that a person does not have to use his/her own brain or do anything. Resistance to change is mainly based on an individual's desire for comfort (Lappalainen, 2009).*

Portugal: building bridges between people and regions

Situated between the Mediterranean and the Atlantic Ocean, Portugal always had and may continue to have, an important role when it comes to building bridges between people and regions.

When the global crisis disrupted the markets and the world economy, Portugal experienced an economic and financial scenario delay, leading to a strong increase of the employment rate. Similarly, not only this European country faces such scenario and, but most likely all European and OECD countries as well.

The rise of the middle class in China, Brazil and India among other countries, the challenges on the employment and the future of work in the context of automation, poverty reduction, water and climate change represent just a shortlist of very good reasons to investigate and to discover innovative solutions to answer the world global questions, and to design from the scratch new business models that address environmental impacts.

> *Modern innovation spaces span beyond clusters mainly in two dimensions: firstly, the traditional triple helix innovation model with enterprises, research and public sector players (being often topdown) is replaced by the co-creative quadruple helix innovation model where users have an active role too, in all phases of the innovation, from the early ideation to the co-creation of solutions. Secondly, the ecosystem drives for multi-disciplinarity rather than clusters, which tend to be quite monolithic (Bror Salmelin, 2015).*

High-tech industry, entrepreneurs, civil participants, and academia (quadruple helix) should not only discuss the facts and concepts, but also collaborate together under common platforms of R&D&I for advancing new innovation in applied economics, policy experimental modelling and technologies.

> *In open and participative innovation processes, ecosystem participants experience multiple gains—business can develop the scalable product and service solutions that users want, the public sector can provide effective and affordable solutions to regional challenges, citizens share ownership of the specific, often highly personalized solutions they need, and universities can actively contribute knowledge and reap new knowledge and insights in return (Markku Markkula & Hank Kune, 2015).*

What to expect from MIST 2015 and what shall be the follow-up actions?

- New ideas;
- Cross-disciplinary interaction;
- Insight to new research and innovation approaches;
- Seed from new collaborative projects across boundaries.

This first MIST conference is focused on several key dimensions of sustainable economics, tourism, innovation and technologies. The discussion will be arranged around the following points:

1. Innovation Economics and Policy Modelling;
2. Environmental, Energetic and Economic Sustainability;
3. Innovation Management & Entrepreneurship;
4. Advanced Tourism Economics;
5. Management Information Systems.

MIST 2015 will create the time and space for interaction and creativity and will mainly focus on future actions. And even-though the event will also follow the traditional academic conference approach, it will also aim at developing an environment for "open science" prioritizing the cross-cutting of modern research and innovation methods, and highlighting impactful research and evidence-base policy-making.

Albertina Melo Dias
Member of OISPG, Professor at Universidade Atlântica
President of the MIST2015 Organizing Committee

PROGRAMME

Thursday, 22 October 2015

16:30-17:00 | Reception at Universidade Atlântica

17:00-18:00 | Opening Session:
Presentation of MIST2015 and working agenda
Professor Albertina Dias
Welcome by the Rector Universidade Atlântica
Professor Carlos Guillén
Keynote speak on Open Innovation: Launching Challenges for MIST2015 and breaking the ice for future research and policy
Bror Salmelin, Advisor for Innovation Systems, European Commission

18:00-18:30 | Plenary Session 1:
Perspective on next day dynamics of MIST2015 structure and vision of the opportunities to achieve effective and executable results
Professor Peter Nijkamp, Free University of Amsterdam

18:30 | Networking Cocktail

Friday, 23 October 2015

08:00-08:40 | Reception and distribution of printed materials at Riviera Hotel, Carcavelos

09:00-09:30 | Keynote Speak on Innovation in Portugal
Dr. Francisco Murteira Nabo (former Minister of Portuguese several Governments and Co-founder of COTEC Portugal, SaeR)

09:30-11:00 | Innovation Economics and Policy Perspectives
Session Chair: Prof. Manfred Fischer (Vienna University)

11:00-12:30 | Environmental, Energetic and Economic Sustainability
Session Chair: Prof. Peter Nijkamp (Free University of Amsterdam)

12:30-14:00 | Innovation Management & Entrepreneurship
Session Chair: Dr. Anna Sadowska (EIIR)

14:00-15h30 | Lunch

15:00-16:30 | Advanced Tourism Economics
Session Chair: Prof. Kamila Borsekova

16:30-18:00 | Management Information Systems
Session Chair: Prof. Miguel Sales Dias and Dr. Karima Kourtit

18:00-19:00 | Plenary Session 2: Closing Session
Presentation of MIST2015 results and future follow-up actions for 2016
Professor Nijkamp,Free University of Amsterdam
Bror Salmelin, Advisor for Innovation Systems, European Commission
Professor Albertina Dias

1. Innovation Economics and Policy Perspectives

Session Chair Prof. Manfred M. Fischer
Department of SocioEconomics, Institute for Economic Geography and GIScience
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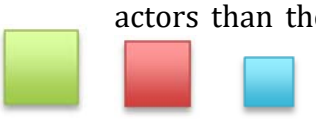
In essence, innovation is the ability to generate and manage knowledge creatively in response to market-articulated demands and other social needs. Enterprises are the main source of innovation. Their performance depends on incentives provided by the economic and regulatory environment, their access to critical inputs (via factor markets or through interactions in networks and clusters of knowledge-based organizations) and their internal capacity to seize market and technological opportunities.

Several trends combine to change the conditions for successful innovation: innovation increasingly relies on effective interaction between the science base and the business sector; more competitive markets and the accelerating pace of scientific and technological change force firms to innovate more rapidly; networking and collaboration among firms are now more important than in the past and increasingly involve knowledge-intensive services; small and medium-sized enterprises, especially new technology-based firms, have a more important role in the development and diffusions of new technologies; the globalization of economies is making countries' innovation systems more important. In sum, innovation performance depends not only on how specific actors (e. g. enterprises, research institutions, universities) perform, but on how they interact with one another as elements of an innovation system, at local, regional, national and international levels.
In recent years, the systemic dimension of the generation and distribution of technological knowledge and innovation at large is placed at the centre of the economics of innovation. Conceptual and empirical research underlines that interactions and learning efforts are needed in order to strengthen the generation and accumulation of knowledge, the emergence of innovation systems, and also the growth performances of firms and economies. In particular, the conditions of knowledge interactions emerge as a central feature characterizing the systemic dynamics of innovation and knowledge.

Knowledge interactions emerged as a central part in the research agenda of the economics of innovation and as a most important governance mechanism for the coordination of the division of knowledge and innovative labour in recent years. Innovation systems originate and develop upon the complex network of knowledge interactions, complemented by knowledge transactions between complementary actors.

This session attempts to emphasize the idea that a systemic approach to knowledge and innovation valorises much more the quality of the interactions among economic actors than their mere geographical proximity. Contributions on different dimensions of



knowledge and innovation generation and distribution activities, and knowledge interactions are particularly welcome.

1.1. Living labs and open innovation in European context

Nature of paper: Conceptual/Theoretical

Dias[1], Albertina and Salmelin[2], Bror

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Abstract: The article elaborates the background thinking and path for the Open Innovation 2.0 conceptual innovation model. It is based on virtual holonic enterprises and fractal enterprises theory, combined with MIT Living Lab concept developed by Bill Mitchell (Mitchell, 2003). Combining this with the internet/connectivity revolution the need to have faster pace and more successful innovation rates led to the thinking of the quadruple helix, including the citizens as active agents in the innovation process, not only as verificators as in the previous triple helix thinking.

Based on the work of New Club of Paris (Lin and Edvinsson, 2011) the structural intellectual capital (IC) is a key for national prosperity. Open innovation integrating the crowd into the innovation process seamlessly seems to increase the structural IC. Hence, integrating all these components: quadruple helix, non-linear innovation, fractal and dynamic organisations into innovation processes in real world with real market creation with the users who become co-creators seem to be the key for future success.
The new open innovation 2.0 paradigm seems to be serving the innovation needs very well in time – if we dare to take it on board.

Key words: Innovation Ecosystems, Open Innovation, Living labs, Innovation Models, Quadruple Helix, Complex Systems

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ENoLL - European Network of Living Labs (2015). http://www.openlivinglabs.eu/ (Accessed Aug 26, 2015)

1.2. Research on the innovation culture in companies that affect managers' decision making

Nature of paper: Conceptual/Theoretical

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Abstract: In the era of innovation, more and more companies' CEO's are aware that innovation stays the top priority for their development and increasing the competitiveness. In the 2014 ranking of the 50 most innovative companies, all of the five top spots, seven of the top 10, and twenty one of the top 50, are occupied by technology and telecommunications companies. Consumer industries, capturing ten of the top 50 spots, represent the second-largest share. This is important to spot that ICT and digital industries are fastest-growing connected with innovation. This is correlated with Digital Agenda for Europe targets in creating the digital society.

Consumer industries have strong organizational culture oriented towards innovation, thus represent a significant part of the market that has strong tendency for fast-growing. It is indicative that only nine auto companies are in the near top 50 of most innovative in 2014. This is the direct result of the 26% of decline in innovation priorities. There is a strong correlation of companies' commitment to innovation culture with the growth and achievement competitiveness and top-rank at global market. In order to achieve big success, breakthrough innovation is needed.

It is very demanding to achieve big success immediately by adapting breakthrough innovation. Only very few companies dare to use breakthrough innovation in their everyday business processes.
It is a big challenge for managers to create suitable organizational culture that promotes innovation as top business priority. The Open Innovation 2.0 paradigm plays an important role in the changing of traditional linear innovation policies towards modern and more effective approach with multiple benefits to different stakeholders. Innovation culture is strongly linked to the Industry 4.0 concept. Characteristics for industrial production in an Industry 4.0 environment are the strong customization of products under the conditions of high flexible (mass-) production. The required automation technology is improved by the introduction of methods of self-optimization, self-configuration, self-diagnosis, cognition and intelligent support of workers in their increasingly complex work. The research will show the interdependence of Open Innovation 2.0 and Industry 4.0 concepts.

Key words: open innovation, sustainability, decision-making.

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The Open Innovation 2.0 Yearbook 2014, DG CONNECT, European Commission, 2014.

1.3. German law covering the public participation in planning and building infrastructure projects

Nature of paper: Conceptual/Theoretical

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Large size infrastructure projects, such as airport, rail and road extensions, are particularly likely to encounter frequent citizens´ protests. The experience with the enhancements of the Stuttgart train station is an especially relevant example, since it has motivated the economic stakeholders, as well as the German federal and regional legislators and administrations, to rethink the project. In this case, which has become known as "Stuttgart 21", massive resistance only materialized after the planning approval procedure. As a consequence, the "Law for broadening the public participation and for the standardization of the procedures for determining sectorial plans" was introduced in the German legislature in 2012. Among other elements in this law, public participation is now required prior to the formal opening of the procedure for planning and approval of sectorial plans, as described in Article 25, paragraph 3, of the Administrative Procedure Code.
In 2013, the Association of German Engineers developed standards governing the communication and public participation in planning and building infrastructure projects. These standards are directed at project sponsors, general and specialist design contractors, project managers, executing companies and their officials. In the same year, regional governments produced binding administrative provisions to intensify public participation in the planning and licensing procedures of large infrastructure projects. These standards and administrative provisions establish several mandatory steps and procedures within the regional planning and approval processes: these mandatory steps include scoping the previous and present participation of the public and their interaction, both at formal and informal levels, conducting an official investigation to show just cause for the project, establishing internet access to the project allowing for on-line search of the detailed plans by the public, a requirement to request and enable public participation periodically as the planning process develops, and a need to re-evaluate these new rules as appropriate.
Similar rules have been introduced since the 1980's by the European Union to advance and implement environmental protection.
The main objective of these mandatory steps is a more efficient harmonization of the different interests involved in spatial planning. In order to establish a more solid foundation for a critical analysis of several of the elements in these rules, this paper discusses the essential factors impacting these types of plans, the skills required in their preparation, the strategies leading to acceptance of those plans, and the possible dynamics affecting their implementation. Nevertheless, these legal, administrative and private rules have come under some criticism, as listed below:

- several basic aspects of these rules are not sufficiently focused on the associated extra-legal problems that they raise;
- some elements are voluntary rather than mandatory, while others are not precisely defined so as not to scare away potential investors;

- while aiming at achieving more efficiency, several new obligations limit, qualitatively as well as quantitatively, the holding of successive stages of public participation, partly due to a clause that excludes the discussion of public rights which have not been presented during prior public participation;
- concerning environmental protection interests, the obligations of evaluation and participation focus only on the processes themselves, but do not aim at avoiding any resulting environmental harm.

Key words: public participation, spatial planning, licensing procedure of infrastructure projects.

References:

Article 2, paragraph 2, of the Spatial Planning Federal Law, the followings are the eight areas of possible Federal Spatial Plans: 1. Sustainability, 2. Urbanization structures, 3. Infra-structure and traffic, 4. Economy, 5. Cultural landscape, 6. Environment and climate protection, 7. Defence and civil protection, 8. European Cooperation.
Article 1, paragraphs 1 and 3, of the Spatial Planning Federal Law. http://www.mlit.go.jp/kokudokeikaku/international/spw/general/germany/index_e.html
Articles 83 and 87 to 90 of the German Constitution.
Article 3, paragraph 1, and article 7, of the Spatial Planning Federal Law.
Article 5 of the Spatial Planning Federal Law.
Article 6 of the Spatial Planning Federal Law.
Federal Administrative Court decision of 18th of September of 2003, Proc. 4 CN 20.02 (BVerwGE 119, 54); in the reasoning of the chances in the Federal Spatial Law the legislator affirms the only declarative effect of the new article 6, paragraph 2: Journal of the Federal Parliament (BT-Drs.) 16/10292, p. 23.
KMENT, Martin/ GRÜNER, Johannes – Ausnahmen von Zielen der Raumordnung – zur Neufassung des Raumordnungsgesetzes, Exceptions of the goals of spatial planning – about the new concept of the Spatial Planning Federal Law, in UPR (Magazine for the Environmental and Planning Law), 2009, pages 93, 98.

1.4. Management of local innovation through creative entrepreneurship: case study of Sunrise Pashmina[1]

Nature of paper: Case Study Research

[1] Sunrise Pashmina is a marketing company established by creative entrepreneurs in Kathmandu, Nepal. It has specialized in marketing of organic cashmere in international market by expanding organic business and innovation networks.

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Abstract: This study analyzes the dynamics of innovation management through creative entrepreneurship. We have studied the recent innovations of small industries of Cashmere in the mountain region of Nepal. Cashmere (from the Himalayas) is one of the most popular mountain handicrafts in the world.
Most of the tourists visiting Nepal want to buy cashmere products as a special souvenir. This study has investigates the potential of developing organic cashmere with special focus on the management of local innovations in handicrafts production. Most of the cashmere industries in Nepal are operated at small-scale in the mountain villages of Nepal. They are operated by traditional hand-loom technology (THLT). Hand-loom technology is an innovation of traditional farmers and artisans in the Himalayas.
The case study of Sunrise Pashmina (organic cashmere from the Himalayas) depicts that local innovation of traditional hand-loom technology (THLT) can be highly effective to produce organic cashmere products. Of course, local innovations in the organic cashmere are found to be highly appreciated by the customers in international markets. Sunrise Pashmina has specialized in distribution of organic cashmere in international market by developing business collaboration with local innovators and international organic networks. This is a creative entrepreneurship of selling the products by managing local innovations and building a story on specialties.
The study concludes that management of local innovations and development of special products through a creative entrepreneurship can enhance local economy and conserve social, ecological and cultural values as well.

Key words: Innovation management, creative entrepreneurship, hand-loom technology, organic cashmere, the Himalayas, Nepal

1.5. Diversification of funding options, a key for long term economic success - the Portuguese case, a good example

Nature of paper: Conceptual/Theoretical

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Abstract: The recent financial crisis caught Portugal with a very high level of debt, both public and private, exposing and emphasizing the major weaknesses of the Portuguese economy. At the corporate level two major financial weaknesses were highlighted: sub-capitalization; and dependency of bank financing. Even more relevant, in a context of extreme difficulties for Portuguese banks, many Portuguese companies, well capitalized and competitive but with their external funding too concentrated in a few banks and in short term maturities, were also denied access to funding, inheriting its banks financial problems and exacerbating the economic crisis. This article will, based on ARC Ratings' experience, focus its discussion on the need and the options to achieve a diversified funding structure.

The need: bank financing, as an European dependency

The dependency of European companies on bank financing has been a characteristic of European corporate landscape in opposition to the US more market based financing structure. The recent financial crisis clearly highlighted the dangers of this dependency and for the future, besides the obvious concentration risk, companies will also be subject to the increase of financial costs as a consequence of the implementation of Basel III and Solvency II that induce higher financing costs for the banks which will be ultimately beared by the companies. Funding diversification is consequently an urgent medium and long term strategic decision for European companies.

The options to diversify funding

The most relevant form of diversifying debt funding away from banks is to issue bonds, either in the form of a private placement or in the form of a public bond issuance. For smaller issuers there are "aggregator" solutions that have already been tried with good results. Another way to diversify is to use intermediation with other entities than banks such as insurance companies. Diversifying the shareholder structure of a company through an equity issuance is also an option and, for many companies, a need, given their level of sub-capitalization, to unleash their growth potential. Again, a number of types of investors with different characteristics are available. Innovation and non-conventional finance are also taking a role here, with new ways of financing, such as crowdfunding, taking advantage of the IT development to help entrepreneurs / companies and investors to meet each other.

Disclosure and communication with investors: essential for diversification

Besides selling its products and / or services, companies must sell itself, as a company, to investors if they want to achieve long term success. To do this, companies must implement a strategy of information / communication with its present and potential investors. Credit rating can have a pivotal role in this strategy because of its very relevant role in minimizing information asymmetries between issuers and investors (and, as a corollary, minimize the issuer financial costs) while at the same time respecting the confidentiality of the information provided by the issuer.

Key words: bank financing, diversification, credit, rating.

1.6. Sustainability and green economy: a new trend for product innovation

Nature of paper: Conceptual/Theoretical

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Abstract: In order to reach a sustainable development path, organizations and citizens should be able to consume today a certain amount of natural resources that do not jeopardize the ability of the future generations to meet their own

needs. In a world of growing population and with a large ecological footprint, it becomes clear that the usage of natural resources must change in order to guarantee that in ten or twenty years time, companies will still have the row materials to produce their products and citizens are still able to satisfy their basic needs. This implies a new approach to economy and to public policies. The economic system is no longer an isolated system where it was assumed that natural resources would always be available, and where the waste created by production and consumption was not considered as relevant. Instead, the economic system is becoming interlinked with the ecological limits of the planet, and, as argued by Herman Daly, the rules of thermodynamics are also applicable to economics.

Since 1987, when the Bruntland Report was published and identified the changes that needed to be done internationally so that the planet could be in a sustainable development pattern, that several global, regional and national initiatives have been implemented by several countries. Since 2009, and with the United Nations Environment Programme publication (UNEP) "Towards a Green Economy", there has been a growing focus on the need to develop a green economy, which will contribute towards a more equitable and competitive economy. Green economy is defined by UNEP as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In order to produce goods that allow for such balance, innovation is needed in several areas: materials used; fabrication process; logistics; design of the product; waste management and end life product. Under this context, European commission started in 2008 to develop the European Sustainable Consumption and Production Action Plan, which has originated several directives on Eco-Design; Eco-Labelling; Waste Management; row materials usage, etc. It has also lead to what is today know as the Circular Economy, which has been gaining a growing relevance across organizations such as the World Economic Forum since it is perceived as a source of business competitiveness for the future, and a catalyser for innovation.

This paper aims to provide with two different contributions. The first contribution is to provide with a set of conceptual arguments that demonstrate that green economy and sustainability issues are new trends that should be incorporated in the innovation process. The second contribution presents a simple roadmap for companies on how to incorporate green economy into their business model and innovation process. In both cases it is argued that public policies have a fundamental role to play in the creation of the framework that can induce and catalyse a green market economy.

1.7. The regional innovation policy - the situation of Slovakia

Nature of paper: Conceptual/Theoretical

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Abstract: Main bearers of innovation in the economy are undoubtedly businesses. Entrepreneurs are expected to be inventive, initiative in discovering new products, methods, markets and willing to take risk, which is also a prerequisite for successful business. Our research, despite the fact that the crucial role of enterprises in innovation is accepted, focuses on the role of regional authorities, which through innovation policies can greatly influence the development of innovation potential in the region. In our research, we rely primarily on existing studies of regional policy in general and we highlight the reasons for which the regional policy started to address the innovation potential.
Next, we have analysed the situation in Slovak Republic compared with the innovative potential of EU 28 countries and changes that occurred in the years 2004 to 2013. In order to evaluate the innovation performance we have used six selected indicators that are part of a composite indicator – the Summary Innovation Index (Hollanders, Es-Sadki, Kanerva, 2015).
Finally, our research paper shows the importance and role of regional territorial authority in creating the innovative potential of the region, focusing on the Košice region. We present a specific case of cross-border innovation regional policy, common to the Kosice region in Slovakia and Northern Hungary region, and we summarize the results that this policy has made.
Key words: Innovation Policy, Regional Authority, Innovation Performance, Regional Innovation Strategy

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1.8. Global innovation ecosystems and changing occupational profiles: toward education ecosystems?

Nature of paper: Conceptual/Theoretical

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Abstract: This paper explores the dynamic interdependencies across processes of technological innovation and production organization, education and skills formation, and economic performance. Its core argument is that economically and socially sustainable growth will depend on the evolution of the Knowledge Economy and the absorption and application of technological innovations, and a parallel transformation of the labor force hat will provide the knowledge and skills that are necessary to apply new technologies and develop new business models that lead to growth and employment. Technological innovation can lead to disruptions in the organization of production systems that can result in high degrees of polarization, inequality and exclusion. A technology-related wage-premium for education can concentrate benefits at the upper end of the educational spectrum, while technological obsolescence and automation, coupled to outsourcing and offshoring, may lead to significant reductions of wages and employment at the lower end. The preparation of the labor force for the emerging technological and economic environment has thus become a key priority across the industrialized high-income countries.

The organizing concept of the paper is that the dynamic interdependencies across technology, production and education are by definition dialectical and their analysis requires the adoption of an interdisciplinary systemic perspective. Adopting a 'systemic innovation' perspective, the paper examines these interdependencies in a comparative international context.

The paper is structured around three sections. The first explores changes in the production matrix of the global economy with reference to the evolving interdependencies of two vectors: the technological intensification of the production process (through the deepening of the penetration of information and communication technologies and the process of automation), and globalization (through the decomposition and re-composition of production through a process of spatial re-localization and the formation of global value chains). These processes have several important consequences for the reorganization of production on a global scale. The paper explores the following: the increasing integration of products and services ('bundling'); the formation of 'value domains' that might or might not coincide with spatial or geographical concentrations of economic activity; the increasing importance of global value chains; and production and innovation ecosystems.

The second section explores changes in the social structures of production, skills and employment that present historic options for states and educational institutions. More specifically, the paper explores: the role of the state in the organization of production and technological development; the policy quandaries regarding production, skills development and sustainability; the differentiated effects on, and degrees of vulnerability of, different occupations and skills replacement through commoditization and automation; at regional level this is encountered in efforts toward 'smart specialization'; and the re-composition of skills.

The third section explores the implications of the above changes for education and research systems. These manifest themselves along two dimensions: the content

of research education and it organization. In this section the paper concentrates on the following aspects: the current state of educational systems and their coordination with changes in technology and production systems; emerging educational requirements; leading practices of coordination between employers and skills providers, tendencies toward 'education ecosystems'; and new scientific approaches and directions in the area of analysis of social systems: computational social sciences, and their potential implications for aligning dynamics of innovation, education and skills development, and occupational profiles.

The paper concludes by reflecting on the broader context of institutional change and coherence required for the transition to a sustainable Knowledge Economy geared to prosperity, equitability and social inclusion.

Key words: skills development, Knowledge Economy, prosperity, equitability, social inclusion.

1.9. Determinants of innovation activities: public financing and cooperation - case study of Czech Republic and Hungary

Nature of paper: Case study research

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Abstract: Innovation represents one of the key factors in achieving competitive advantage of companies, hence the whole economies. Therefore, managers aim to acquire knowledge. Likewise public policy makers understand an importance of creating innovations and thus promote the generation and spread of positive effects through knowledge diffusion. In the context of modern innovation, the science-industry collaboration comes into its importance (Dutta, 2012).
Many foreign studies pointing to the fact, that this cooperation cannot be successful in each sector and that not every kind of innovation depends on the same knowledge flows (Tödtling, Lehner & Kaufmann, 2009; Howells, Ramlogan & Cheng, 2012). Therefore, we can notice inefficient attempts to cooperate in a number of cases, which are frequently accompanied by excessive use of national and European funds.
The article aims to compare situation of companies in manufacturing industry in the Czech Republic and Hungary to analyze how is their growth of total turnover affected by (i) implementation of innovation (product and process); (ii) university-industry and government-industry collaboration; (iii) provision of public subsidies (national and European). We show, by using the multiple linear regression models, that cooperation with universities and with other enterprises within enterprise groups positively influences innovation activities.
The results also show that public funds are more effectively provided in Hungary, more specifically the European funds. We provide comparison between Czech and Hungarian manufacturing industries and proposals how to improve the efficiency of national funds provision, which is not sufficient in these countries.

Key words: cooperation, knowledge acquisition, modern innovation, public funding

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1.10. Absorptive capacity and space

Nature of paper: Conceptual/Theoretical

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Abstract: In this paper, we assume that the absorptive capacity of firms located in a given region is positively influenced by territorial-dependent aspects, and analyze the effects of the spatial elements that explain the differences between territories to access and absorb external knowledge on the innovative performance of regions and the possibility of arising local increasing returns. Our model shows that cognitive considerations associated with the spatial organization and culture of territory when combined with cognitive elements related to the organization of R&D and culture of firms contribute to justify and explain the productivity paradox observed in regions with a considerable level of innovative effort.

Key words: Absorptive capacity, knowledge spillovers, complementarities, proximity, innovation, R&D.

1.11. Establishing corporate treasury centres in selected European countries

Nature of paper: Conceptual/Theoretical

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Abstract: The paper develops a set of criteria for evaluation of treasury centres efficiency in different countries. The valuation model is then applied on group of selected European countries.
he paper is focused on factors and criteria considered in location decisions for treasury centres of multinational corporations (MNCs) as organizational structures of corporate treasury management, and on the ability of a selected group of European countries to become an appropriate location for these treasury centres. Such location criteria include not only tax, but also a variety of non-tax factors. Based on these criteria, the main purpose of this paper is to examine and compare the suitability of selected European countries for establishing corporate treasury centres.

1.12. The perceived value of public services as a prerequisite for a comprehensive analysis of the effectiveness of public sector organizations using Czech Library as an example

Nature of paper: Case study research

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Abstract: At present, the efficiency of allocating funds from public budgets is an issue that is being increasingly debated in the public sector. Mainly, this is due to increasing debt but also to changes in the way public services are provided. Good decisions regarding allocations, however, are prevented by the inability to measure output volume and the benefits for consumers provided by various services. Outcomes of public libraries are benefits a system or service produces to its users (Vakkari and Serola, 2012). Their value is more complex in the public sector than in the private sector and can therefore be harder to measure (Bloch and Bugge, 2013).

This paper provides evidence that it is possible to analyze the effectiveness in the public sector – which provides library services – of both providers (libraries) and individual components of the services. This can be done through the application of a methodology that allows the consumers themselves to determine the perceived value of the services being used. The result of the analysis of these selected services' effectiveness at the biggest Czech library is a determination of its degree of effectiveness, which fluctuates around a value of one. The next step is to further divide individual standardized services into groups by whether they are effective or ineffective. A completely unique representative survey carried out in the Czech Republic in 2012 has been used throughout the analysis.

Key words: Efficiency, Cost-Benefit Analysis, Public Services, Library, Perceived Value

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1.13. The consequences of tax base rules on enterprise innovation in the European Union

Nature of paper: Conceptual/Theoretical

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Abstract: Traditionally, there exists a theoretical assumption about the role that external conditions such as establishment of tax rules play in fostering of innovation process in companies. When considering innovation union in the European Union context, we need to take into consideration the fact that companies meet twenty-eight different tax systems. Among others, these systems differ considerably at the level of tax base rules for company income tax. In this field, one specific aspect concerning the current position of cross-country differences in R&D tax relief/tax credit for SMEs in different EU Member States is described in our paper. Moreover, our empirical study put under the question the existence of the link between national tax regulation and a country´s innovation performance (concerning both R&D expenditure and non-R&D innovation expenditures in the business sector). Our results find an evidence that countries proposing more generous possibilities in R&D tax relief/tax credit for companies doesn´t necessarily notice more suitable innovation business activity, which is in contrast to traditional theoretical approach.

Another important aspect of our study concerns the initiative of European Commission towards a common and consolidated tax base (CCCTB) principle in the European Union. Following Ortmann et Sureth (2015), we argue that the original proposal (2011) enabling the cross-country loss-offset is more advantegous to increasing loss/profit streams (e.g. from start-ups or R&D projects) of the individual group entities projects, and thus more favourable for enterprise innovation process. In this context, the forthcoming new CCCTB Directive Proposal (announced for the early 2016) in which the „consolidation" element will not be included, can have an ambiguous impact on innovation process in european companies. Based on comparision of statutory and effective tax rates for of EU Member States, we argue that companies income tax base in the majority of european economies will increase when establishing the common tax base rules. These results indicate a negative signal for the future of business innovation process in the EU. On the other hand, the increased transparency in the tax rules within the EU, proposed by the new CCCTB Directive Proposal (2016), can generate the shift of tax innovation schemes to other forms of innovation schemes of companies. Thus, our paper tries to contribute to rebirth of the debate concerning the consequences of CCCTB from the perspective of business innovation activities. To summarize our results, we propose several suggestions to new CCCTB proposal in order to increase the ability of innovation process in European companies.

1.14. How to measure inter-municipal cooperation in conditions of the Czech Republic

Nature of paper: Conceptual/Theoretical

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Abstract: This contribution deals with an analysis of change of inter-municipal cooperation in the South Bohemian Region in the Czech Republic. The main objective of the contribution is to assess the importance of inter-municipal cooperation and to assess the ways to measure intensity of inter-municipal cooperation using an originally created database of towns and municipalities in the South Bohemian Region after the year 2001.

In the current concept of regional politics as an activity, the main purpose of which is to reduce disparities in development of individual regions and to ensure their harmonious development, emphasis is also laid on cooperation of towns and municipalities in development of a given area. Local initiative thus gains more and more on significance and under certain circumstances becomes the most important factor in regional development. This contribution analyses the ways to measure intensity of inter-municipal cooperation in individual regions of South Bohemia Region and it also attempts to describe all relevant relations between these variables in order to better understand the significance of processes and elements of cooperation using an originally created database of towns and municipalities in the South Bohemian Region after the year 2001.

2. Environmental, Energetic and Economic Sustainability

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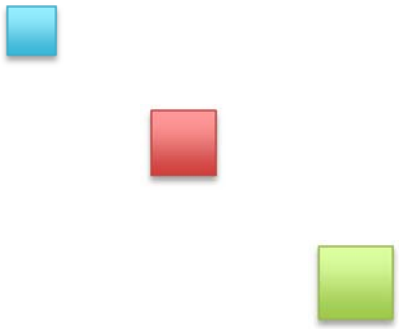
Challenge: Environmental delay, caused by air, soil and water pollution, waste management, and climatological change

Several megatrends in our current century form a threat to a sustainable development of our planet: depletion of resources, climate change, mass migration, urbanization, socio-ethnic tensions, spatial imbalances and disparities. One of the most pressing issues nowadays is made up by environmental delay, caused by air, soil and water pollution, waste, and climatological change. Several countries and regions – in both the developed and in the developing world- regard environmental issues as one of the most challenging policy questions. In so doing, environmental problems are often seen as detrimental cost factors, but less of challenging opportunity factors. To turn the 'bad' into the 'good' calls for innovative action strategies. Nowadays, we observe a broad variety of policy, business and civic resources so as to cope with the various dilemma's involved with the environmental challenge. It is, therefore, important to understand at mechanisms at hand and to seek for good practice guidelines. This MIST session aims to offer new insights and operational lessons on the issues at stake.



2.1. Matching the preferences of households with the opinions of institutional and business stakeholders

Nature of paper: Empirical

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Abstract: This paper is concerned with appreciation of living in Cairngorms National Park (CNP) in Scotland. In an earlier study, we have developed four distinct scenarios (Competitiveness; Continuity; Capacity; Coherence) to express the opinions of institutional and business stakeholders in terms of future sustainable development. In this paper we link these four scenarios to preferences of households living in the Park. In order to do so, we use survey results focusing on households' appreciation of park characteristics – advantage of job inside the park, advantage of jobs outside the park, having a house inside the park, having family, recreation, and landscape – related to their decision to move to the CNP. Our results conclude that the most preferred sustainable future by local firms and institutions is the Coherence scenario, in which a balanced combination of ecological and physical systems have more importance , while from the household perspectives the ecological scenario seems to be more promising. A logit model reveals how the younger the head of household the more likely he/she prefers the landscape, family, and jobs outside the park. Furthermore, our variable for the years of residence in the park indicates that newly- forming households appreciate more the landscape and recreation in the park.

Key words: sustainable development, households, stakeholders.

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2.2. Cosmetic products obtaining based on the recovery of food waste

Nature of paper: Conceptual/Theoretical

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Abstract: The highly increase of waste production, after the Industrial Revolution, is responsible for one of the largest ambient dysfunctions.
Economic and human population growths, as well as changes in lifestyle and in consumption patterns, have been the main drivers to a progressive increase in the generation of waste (Herva et al., 2014). Waste can cause several impacts in the environment, as the pollution of air, soil, surface and ground water and one solution found for organic waste treatment is composting. However, although composting has a low economic cost and help waste reduction in landfills, some products may not be used on (e.g. oils) or can inhibit this biological process (e.g. citrus essential oils) (Trotta, 2011; Ruiz & Flotats, 2014).
In Portugal, thousands of tons of waste are generated every year from used cooking oil. The collection, regeneration, recycling and energy recovery of these oils are essential practices for environmental protection. The generation of walnut shells residues is growing every year, as the popularity of this highly nutritious food increases, and recycling it is becoming an important issue (Yang et al., 2015). However, it is necessary to diversify reuse mechanisms of these wastes, in order to make them back into raw materials. By complying with this trend, this study aimed the obtaining and optimization of soap, based on the reuse of materials that would otherwise be waste such as almond shells, orange peel and food grade oil itself.
This work was carried out in different stages including: processing and grinding almond shells, treatment of used oil, processing of orange peels and limonene extraction, formulation and production of soap and acceptance study of the final product. The results validated the possibility of including these wastes in a line of cosmetic products.

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Yang, W. et al. (2015). Journal of Chem. Technol. Biotechnol. 90: 44-49.

2.3. Public infrastructure and regional growth: evidence from the Turkish regions

Nature of paper: Applied Statistical / Econometric

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Abstract: The aim of this study is to examine the effects of public transportation infrastructure investments on regional economic growth in Turkish NUTS 2 regions between 2004 and 2011. We use an augmented production function model for measuring the effects of different types of transportation infrastructure on regional output. We start our analysis with the ordinary least squares (OLS) estimation method and compare its results with those of the fixed effects estimation method. Then, in order to capture the causality problem between output and transportation infrastructure, we use the two-stage least squares (2SLS) and Hausman-Taylor IV estimation methods. According to the results, road and motorway infrastructure have strongly significant positive effects on regional output in all estimations. Land infrastructure is found to play an important role in regional economic performance in Turkey, while, surprisingly, air infrastructure has no significant impact on regional GVA which gives us a clear idea about the different impacts of different types of transportation infrastructure in the Turkish regions. Also, the high elasticity of land infrastructure in the Turkish regions indicates that Turkey is still suffering.

2.4. Wastewater reuse – case study: Abrunheira IWTP

Nature of paper: Case Study Research

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Abstract: Increasing pressure on water resources, technological development of water treatment systems, coupled with savings from water reuse, have prompted the urgency of wastewater recycling and reuse.
Based on this premise, TRATOLIXO has built an Industrial Wastewater Treatment Plant in Abrunheira – Mafra, a system that reuses 60% of effluent for industrial purposes.
The finished water has a significant reduction on its pollutants parameters, leading to a reuse in the Anaerobic Digestion Plant.
Since started working the Abrunheira's IWTP has saved more than 25.000 m3 of water that was re-introduced into the industrial process.

Key words: TRATOLIXO, Reuse Industrial Water

2.5. Novel click-method of cycloaddition reaction applied to aromatic compounds

Nature of paper: Case Study Research

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Abstract: The work represents a novel method of cycloaddition reactions applied to inert aromatic compounds using a hypervalent iodin complexA novel click-method of aromatic compounds cycloaddition is reported here. In this method, two units, and in some cases four units, of the aromatic compounds were coupled together through cycloaddition reaction after the introducing of one carbon atom via carbene reaction which originally generated from the solvent. The formed in-between product undergoes cycloaddition reactions. These reactions were carried out using a hypervalent iodine complex namely iodobenzene diacetate PhI(OAc)2. It was noticed that electron deficient aromatic compounds undergo such reaction more readily than electron rich compounds. A little is known about such type of reaction and mechanism. This reaction can be applied to many aromatic compounds as well as heterocyclic aromatic compounds.
Intensive study concerning the mechanism and the substituent effect on the reaction type is currently carrying out.
Key Words: cycloaddition, hypervalent iodine complex, aromatic compounds.

2.6. The potential for electricity generation in anaerobic digestion of MSW- the case of TRATOLIXO

Nature of paper: Case Study Research

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The anaerobic digestion (AD) of Municipal Solid Waste (MSW) is a theme with different approaches across Europe, arising from the various national waste management policies, energy policies and other issues as the typology of the waste. The southern European countries, like Portugal, are amongst those that betted the most on AD for treating MSW from undifferentiated collection, instead of the Biowaste, the selective collection of the organic fraction of MSW, typical in the Northern Europe the countries.

The difficult pre-treatment of this waste, which allows the separation of organic matter from all other fractions to AD, as well as the inert elements, that cause abrasion in the process, make the operation/maintenance costs high. Therefore, the AD of MSW is losing in comparison with the lower operation costs and higher electrical production (most times) of Landfills, infrastructure still dominant in MSW management in Portugal.

Beyond the obvious environmental gains of this technology (reduction of greenhouse gases emissions, organic landfill diversion, renewable electricity production and production of compost), it is critical to realize if it can represent an important contribution for the national electrical grid. What is the real potential of the organic waste in MSW to produce biogas through AD and then generate electricity? Is there an economic added value?

The plants operating in Portugal have been attaining their full capacity in recent years, therefore, it is now possible to present concrete results that will help understand which productions are liable to achieve.

This work intends to present actual data on the AD of MSW, taking as a case study the intermunicipal system of AMTRES (Association of municipalities of Cascais, Oeiras, Mafra and Sintra) and the AD plant, the CDA of Abrunheira, in Mafra, managed by Tratolixo.

Despite the difficulties associated to the operation of these plants, this work demonstrates that it is possible to carry out improvements in AD technologies, adapting them to the reality of waste and the characteristics of geographical areas where they are part of, reaching beyond the projected production.

2.7. Unique development potential of little light polluted areas in Slovakia

Nature of paper: Conceptual

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Abstract: There have already been published many papers on light pollution and its negative consequences on various kinds of human beings and nature, e.g. production of melatonin in human body, life of insects, migration of birds, astronomical observations, etc. To cope with this phenomena there have been introduced many activities, projects and initiatives on global and regional dimension to lower immense light pollution by creating regions with little light polluted areas. The aim of our contribution is to analyse a light pollution in Slovakia with regard to natural aspects and spatial development of Slovakia and to present the innovative trends in the mentioned area. Under the auspices of regional authorities, non-government organisations and scientific communities, there have already been declared several regions in Slovakia as the regions with depressed light pollution (e.g. Dark-Sky Park Poloniny, Dark-Sky Park Veľká Fatra). We present these regions as the places with great development potential of little light polluted areas for scientific and tourism purposes. We consider the map of light pollution in Slovakia and the innovative approaches to the problem solution in the area of light pollution to be our key findings. Some conclusions and recommendations for exploiting development potential of little light polluted areas while exploiting innovative and sustainable trends of spatial development are given, e.g. :

- to improve/innovate the legislative process in order to eliminate a number of billboards illuminated in the night, to reduce the time of the illumination, to reduce the illumination of cultural and historical monuments (churches, castles, towers) in the night etc.
- to create the innovation of new products in the area of tourism (astrobusiness, astrotourism), production (new design of lightning units) or education (summer camps focused on healthy or alternative lifestyle, ornithology, hunters or fishermen, permaculture etc.)
- to create the partnerships at the national or international level in order to keep or maintain the dark-sky areas/parks as the places of our common and universal heritage of mankind.

Key words: Light Pollution, Dark-Sky Park, Innovation of Products, Ecosystems, Development Potential.

2.8. The use of geological background reference values for evaluation and remediation of soil. Trajouce eco-park case study

Nature of paper: Case study research

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Abstract: 2015 was proclaimed as the 'International Year of Soils' (IYS) at the 68th UN General Assembly. While soil is recognized as an essential, finite and non-renewable natural resource, it is increasingly degraded or irreversibly lost due to poor management and urban and infrastructure expansion, both in the EU and at global level.

Soil contamination in particular has, not only negative impacts on human health and ecosystems, but also on economy by the reduction in environmental services as a result of loss of natural soil capital and costs of land rehabilitation. The number of contaminated sites, only in the EU, may exceed half a million. However, only a few EU Member States have specific legislation on soil protection. While the European Commission decided in May 2014 to withdraw the proposal for a Soil Framework Directive, the 7th Environment Action Programme, which entered into force on 17 January 2014, recognizes that soil degradation is a serious challenge and provides that by 2020 land is managed sustainably in the Union, soil is adequately protected and the remediation of contaminated sites is in good progress.

In Portugal draft legislation is being discussed on the prevention of contamination and remediation of soils that seeks to eliminate major gap in the national legislative framework and comply with international commitments. Among several innovations, for the definition of reference values for evaluation and remediation of soil, natural background values can be used instead of those adopted from the Ontario Standards (MOE, 2011) for the most common contaminants , if duly justified and accepted by the Environmental Portuguese Agency.

This paper reports a case study in which the conducted site investigation, sampling and interpretation of results confirmed the existence of a neat relationship between the presence of vanadium and geological background of the region where the Ecoparque de Trajouce (TRATOLIXO) operates, which allowed to classify the soil resulting from the treatment of several areas affected by the inadequate disposal of urban solid waste as suitable for environmental rehabilitation of the site.

2.9. Biofuel-Food-Fuel interaction: exploring the price link in the European and Brazilian Context

Nature of paper: Case study research

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Abstract: The last decade has seen a rapid increase in the production and consumption of biofuel at global level. The growth of this market has occurred due to a combination of government policies as a means to promote energy security and to reduce the emissions of greenhouse gases. Nowadays, world biofuel markets are dominated by ethanol (79%) and biodiesel (21%). In particular, the European Union (EU) is the leader in biodiesel production and consumption, while Brazil is the world's biggest sugar producer and exporter, as well as the world's largest producer and consumer of sugarcane ethanol as transportation fuel. However, first generation biofuels are increasingly questioned due to the possible link with food prices. This study contributes to this debate, investigating whether or not there is a long-run relationship between the price of biofuels and related fuels (diesel and gasoline) and agricultural commodities in the European and Brazilian context. The problem has been addressed with a cointegration analysis and a Vector Error Corrections Model (VECM), making use of weekly prices of EU biodiesel, diesel and rapeseed oil (from 2007 to 2013) and Brazilian ethanol, sugar and gasoline (from 2008 to 2013). The results show that there are evidences of long-run equilibrium relation among the analyzed price series in both scenarios. In particular, EU biodiesel price is connected with feedstock price; while Brazilian ethanol price is strongly connected to fuel price (lowly correlated with feedstock price).

2.10. Soil contamination and human health risk assessment at a former industrial site in a densely populated urban area. The Cometna case study (Odivelas, Portugal)

Nature of paper: Case study research

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Abstract: Land previously used for industrial purposes may have been contaminated with hazardous substances. Metal industries, for instance, are reported to be a major contributor to local soil contamination. The main contaminant categories are mineral oils and heavy metals such as lead. Contaminated sites commonly exist in certain town's industrial areas, on locations with abandoned factories and are often found in residential neighborhoods.
Many contaminated sites stand abandoned for decades because the clean-up costs are higher than the value of the land after redevelopment. However, as there is less and less land available for urban purposes, the need for rehabilitation of contaminated land is increasingly urgent.
While legal requirements for the general protection of soil have not been established at the European Union level (only exist in some Member States), the EU primary policy objective is to achieve a level of quality of the environment where man-made contaminants present on derelict sites should not give rise to significant impacts or risks to human health and ecosystems. Moreover, legislation not aimed directly at soil protection (e.g. the Water Framework Directive, the Waste Framework Directive and Landfill Directive) provides indirect control on soil contamination and requirements for its management where applicable.
Cancer incidence and mortality, neurological disorders and other diseases from industrial pollution, namely heavy metals, are also health problems that should be assessed in populations leaving near these places.
This paper reports a case study in which the conducted site investigation, sampling and interpretation of analytical results at a preliminary level confirmed the existence of soil contamination at a former industrial site (a metal industry) in a densely populated urban area (Odivelas, Portugal). Preliminary human health risk assessment also indicates potential hazard for child receptor through soil ingestion pathway exposure in a residential occupation scenario.
Recommendations for integrating the municipal urban planning and management aiming sustainability are made in order to promote the rehabilitation of derelict industrial areas and prevent the risk of population exposure to industrial waste contaminants that remain on the soil and goes in the waterlines, increasing the probability of human diseases incidence and mortality from industrial pollution.

Key words: contaminated sites, human health, risk assessment, sustainability.

2.11. Contribution of digital citizenship to sustainability - case-study "My Eco-System2"

Nature of paper: Case study research

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Abstract: Addressing the idea of increasing citizen participation, not only as responsible citizens, but also as promoters of a more sustainable way of living, in the setting of the urban and rural environment in which they live, the digital citizenship intermediated by several web platform and application make their contribution to governance and sustainable development. As well as protecting and conserving the biodiversity of the urban ecological framework, intervention is necessary at various levels to educate citizens of how to use their resources available on public space more efficiently.
Those experiences are boosted by a network of public and private enterprises and institutions in synergic relation and partnership, who benefits in the use of the results to gathering indicators and valuable information on the role of managing public services and public equipment.
Current partners and supporters for 2015

2.12. Soil contamination – case study: environmental rehabilitation on Trajouce's ecopark

Nature of paper: Case study research

Coelho[1], João Dias; Antunes[2], Joana and Dias, Susana

[2] Tratolixo, EIM, S.A., Valorpneu, Valorcar, several public institutes and municipalities and NGO are supporters of this project.

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Abstract: Soil contamination can be defined as the existence of pollutants above certain levels causing the deterioration of its environmental functions. This contamination may be due to industrial chemicals or changes on the environmental soil characteristics.

Between 2003 and 2005 there was an improper waste disposal on Trajouce´s Ecopark. In 2012, TRATOLIXO began the recovery and rehabilitation of those areas through the "Environmental Rehabilitation Plan of Trajouce´s Ecopark".
In 2012, TRATOLIXO started removing and sending the residues, from the "Waste Deposit", to final destination. In June 2013, the Company tested a new solution - sorting the materials and reusing them "in situ" maximizing the reuse principle. This new method allowed a substantial reduction on waste amounts sent to appropriate destination, as well as reduced the previous estimated costs of the Rehabilitation Plan (a reduction estimated on 85% of the initially estimated costs).
2015 was proclaimed as the 'International Year of Soils' (IYS) at the 68th UN General Assembly. While soil is recognized as an essential, finite and non-renewable natural resource, it is increasingly degraded or irreversibly lost due to poor management and urban and infrastructure expansion, both in the EU and at global level.

Soil contamination in particular has, not only negative impacts on human health and ecosystems, but also on economy by the reduction in environmental services as a result of loss of natural soil capital and costs of land rehabilitation. The number of contaminated sites, only in the EU, may exceed half a million. However, only a few EU Member States have specific legislation on soil protection. While the European Commission decided in May 2014 to withdraw the proposal for a Soil Framework Directive, the 7th Environment Action Programme, which entered into force on 17 January 2014, recognizes that soil degradation is a serious challenge and provides that by 2020 land is managed sustainably in the Union, soil is adequately protected and the remediation of contaminated sites is in good progress. In Portugal draft legislation is being discussed on the prevention of contamination and remediation of soils that seeks to eliminate major gap in the national legislative framework and comply with international commitments. Among several innovations, for the definition of reference values for evaluation and remediation of soil, natural background values can be used instead of those adopted from the Ontario Standards (MOE, 2011) for the most common contaminants, if duly justified and accepted by the Environmental Portuguese Agency.

This paper reports a case study in which the conducted site investigation, sampling and interpretation of results confirmed the existence of a neat relationship between the presence of vanadium and geological background of the region where the Ecoparque de Trajouce (TRATOLIXO) operates, which allowed to classify the soil resulting from the treatment of several areas affected by the

inadequate disposal of urban solid waste as suitable for environmental rehabilitation of the site.

2.13. Environmental sustainability strategy - The economic incentives and waste sector contingencies under PERSU 2020

Nature of paper: Case study research

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Abstract: The TRATOLIXO company was established on 26 July, 1989 under municipal initiative - Municipalities of Cascais, Oeiras and Sintra, as part of an inter-municipal association AMTRES, and in partnership with private entities, the KOCH Portugal and HLC SA. This strategic partnership was successful in providing the necessary investment for promoting technological innovation capable of satisfying the needs of sustainable urban waste management as a public service. Before this strategic action the former practices of the urban waste management in Portugal were environmentally unsustainable, e.g. municipal dumps.

The birth of the TRATOLIXO and the AMTRES' System back in 1989 are thus previous to the beginning of the national waste management plans (PERSU). With TRATOLIXO and AMTRES the bins sealing process, the implementation of the compost treatment, and the implementation of selective collection in these three municipalities raised up to 150,000 tonnes of waste treatment - Cascais, Oeiras and Sintra - representing a complete new and remarkable event in Portugal.

The pioneering nature of TRATOLIXO should be noted back in 1997 when the CITRS of the TRATOLIXO was already operating during 6 years. In 1997, date of the implementation of the Strategic Plan for Municipal Solid Waste (PERSU) Portugal had eleven multi-municipal systems and twenty-nine municipal systems, and there were only five compost plants and thirteen landfills for three hundred and forty one bins (target date of 76% of waste produced in the country). Between 1997 and 2002, landfills were closed and sealed, dump's waste treatment systems were implemented, and the incineration plants – Lisbon (VALORSUL) and Porto (LIPOR) have been scheduled. The strategic national plan (PERSU II) has been implemented until 2014 (new strategic national plan starts). The aim of this paper is study, discuss and report the strategic plan of the TRATOLIXO in order to implement the necessary actions to achieve the objectives and targets set for the PERSU 2020. According to the company's strategy in providing a public service of high quality, maintaining high level references as a public entity operating in the waste management, and promoting circular economy (waste as raw material) thus sustainable growth as well. This strategic direction readjusts the Policy Integrated Quality, Environment, Safety and Social Responsibility, in January 2015.

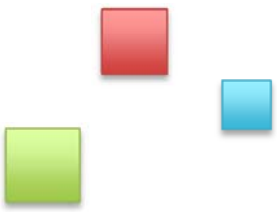
Key words: TRATOLIXO, intermunicipal system, national waste management policy, PERSU, ENRUBA, PERSU 2020, European policy, strategy.

3. Innovation Management and Entrepreneurship

Session Chair: Dr. Anna Sadowska
CEE Director at European Institute of Interdisciplinary Research (France, Poland)

Challenge: Smart Specialization

Growing global competitive pressures, coupled to the unfolding world economic crisis have brought about a change in the approach to regional policies across the EU and internationally. This change involves a rethinking of regional development policy and the role of clusters in regional economic development. It focuses on the integration of clusters into broader strategies of smart specialization. The underlying rationale behind the 'smart specialization' concept is that by concentrating knowledge resources and linking them to a limited number of priority economic activities, countries and regions can become – and remain – competitive in a world economy defined by global value chains.
Smart specialization is about generating unique assets and capabilities based on a region's distinctive industry structures and knowledge bases. More specifically, smart specialization is about a new generation of research and innovation policy that goes beyond classical investments in research and technology, and general innovation capacity building. This type of specialization allows regions to take advantage of scale, scope and spillovers in knowledge production and use, which are important drivers of productivity. Leading research currents and implementation approaches define smart specialization as a field comprised of the following elements: global perspective/comparative advantage, specialization/competitive advantage, and relatedness/reinventing the economy.



3.1. A framework for a hospital human resources management system

Nature of paper: Conceptual/Theoretical

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Abstract: The Human Resources Services of a Hospital can be compared with a department of a complex company with many processes, interdependences, external incomes from different private and government departments, many recommendations and laws to accomplish, specific and different internal demands according with services requirements and a huge number of employers to manage and provide services.
The research is a case study because it was conducted in a Hospital group but it can be generalized to all the hospital of the Portuguese Public Service.
The research methods were based on interviews conducted with professionals of the human resources services and the coordinators of each department, analysis of secondary data and literature review of all regulations, internal reports, publications in general and analysis of existent software applications.
All processes were modeled according with BPMN (Business Process Model and Notation) and validated with the existent paper records. More than seventy different processes were identified and modeled. Some events and alerts needs were identified. A panel of performance and results indicators were created with different levels of analysis focused on various management layers.
The strategic plan of the human resources must be aligned with the strategic plan of the organization. This system will provide information to the top management to identify the professionals that are aligned with the organization objectives and the requirements of education and training. The expected outcome will be more effectiveness and efficiency of the education and training actions and a decrease of the personal turnover that is always a barrier to the organization development. This paper presents a novel approach to Human Resources Management Systems based on well known BPMN concepts and methods.

3.2. The state of organizational happiness in Portuguese public institutions. Identifying the factors that most contribute for having happy employees. An exploratory research.

Nature of paper: Case study research

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Abstract: In recent years research on organizational happiness has been increasing but instruments to measure happiness at work, considering organizational factors, are scarce. Several researches demonstrate the existence of relations between happy employees and their productivity. This study aims to

measure the organizational happiness in public institutions and validate the factors that most contribute for that. Following a cross validation approach, two methods were conducted. The first, qualitative, by applying content analyses, aimed to identify the factors and variables considered essential to be happy within the organizations. The sample in first method consisted of 969 active professionals from Human Resources Portuguese Association database. Based on the content analyses, a questionnaire was developed and then sent to a second sample of 258 active professionals from public institutions. An exploratory factorial analysis was applied and factors were identified. Next step will be to proceed with confirmatory factorial analysis to validate the model.
Key words: Organizational happiness; Work well-being; Public Institutions; Exploratory Factorial analysis.

3.3. Diabetes, work and knowledge

Nature of paper: Conceptual/Theoretical

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Abstract: Diabetes imposes limitations on activity of those aged more than 50 years old. The aim of this study is to estimate the impact of diabetes on ability to work or going to retirement and the development of new skills in job for seniors aged more than 50 years old in a set of European Countries.
Design. It is explored the four wave of Share-project from 2010/2011 by using categorical models that controls for age, gender, marital status, education level, new skills and country factors. Diabetes decreases the probability of working and increase retirement. It is found disparities of the impact of diabetes on working situation among countries which may be explained through the type of treatments of diabetes and overall to the health systems specificities of each country. Finally, ageing only slightly increase the outcome of being working, not enough to avoid earlier retirement in those European countries.

Key words: Diabetes, Knowledge Management, Skills and work, Aging, Retirement.

3.4. Time donation and commitment. Exploratory study on the determiners of the commitment of the volunteers in the Moroccan associations

Nature of paper: Case Study Research

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Abstract: Time is one of the most important variables of our modern era. Indeed, the man is living a transformation of his vision of time. It is true that the time of clocks did not change, but it is rather the consciousness time that does not stop being transformed, becoming turned to the short-term and trying to develop the culture of "immediate use".

To seize better the concept of time, it is necessary to operate a distinction between two types of time (Klein, on 1996): the physical time of clocks constituted of seconds, minutes and hours called "stopwatches", and the second type which is a subjective time, bound to the consciousness called "tempus". Furthermore, it is this second concept which has a big value in the eyes of the "consumer" and it dominates the various aspects of his life.
In the other hand, time is a precious and rare asset, and everyone aims to optimize its use. Nevertheless, and in spite of this pressing obligation to manage it effectively, we are in front of people who donate it.
It's in this context that the concept of "time donation" takes all its importance. According to Prouteau and Wolff (2004) and Archambault (2002), the term "time donation "is often used to indicate voluntary activities. Besides, the voluntary work is classified among the pro-social behavior, just like money donations (Wymer Jr and Emergency medical service, on 2002), while Bergadaà, Gall-Ely and Urien, (2011) classify it in the category of the donation behavior.

In Morocco, the voluntary work became present with the evolution of the status of the civil society which has a more and more visible role. The development of the associative sector during these last fifteen years is characterized by the dynamism and the reactivity of the civil society. In fact, 60.000 associations are covering all the Moroccan territory according to the last figures presented by the Top-commissionership to the Plan (TCP) in 2014.
Additionally, in the Moroccan context the terms "voluntary work" and "voluntary service" are often confusing because they are not clearly defined. In the Arabic language both terms are expressed by the same word "atatawae", creating a confusion meaning, thus the word "voluntary work" has no precise translation, because "atatawae", also means voluntary service. As well, the "voluntary" term, in its current shape is an imported concept that started being used in Morocco since the sixties with the introduction of the international voluntary service.

The novelty of the concept and the confusion of the terms urge to explore the meaning of the "time donation" in the Moroccan society. An important question arises while analyzing this topic, is "what are the motivations which influence the volunteers to remain faithful to an association in the Moroccan context?"

Thus, We look through this research to set a typology of the Moroccan volunteers with regard based on different variables: age, profession, education,… while trying to emphasize their motivations that explains the commitment's behavior.
To answer our fundamental question, we are going to shape our research on works that put forward the relation and the mutual influence between the personal factors inspired from the social environment and the commitment of a volunteer to an association. (Dorsch; Riemer; Paskevich; Chelladurai, 2002).
Then, we are going to lead an empirical study to validate the theoretical conclusions with the volunteers.

Concerning our methodology of research, we are going to adopt a qualitative approach. This approach aims at understanding this complex social and human phenomena, firstly by defining the motivations and the brakes of the volunteer, then by identifying he's sociodemographic profile. Finally, a typology will be proposed to clear volunteers' profiles which will be qualified from both categories of factors.

Key words: time donation, voluntary work, commitment, confidence, motivation, typology.

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3.5. Quality of life evaluation in people with mental disabilities

Nature of paper: Conceptual/Theoretical

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Abstract: The social intervention models are in a continuous paradigm mutation. The bio-psychosocial model diversification into comprehensiveness and multidisciplinary model guiding from a quality of life with principle.
The focus on all social action now is promoting the quality of life. The evaluation of quality of life is a key element for measuring the impact of social work and the ability to implement continuous improvement strategies based on the results.
The World Health Organization defines quality of life as " ... the individual's perception about their position in life in the context of culture and value system in which it operates and in relation to their goals, expectations, standards and concerns ". In the case of self- perception the concept always involves the active participation of the subjects which strengthens the need for evaluation benchmarks, especially in situations where communicative capacity becomes more difficult, and where some kind of limitation and intellectual impairments could be a barrier.
There are very few studies about the quality of life in people with intellectual disabilities, especially in young people and adults with moderate and severe disabilities and low levels of functionality.
The aim of the study is to identify the determinants of quality of life for people with moderate to profound intellectual disabilities, validating them through a study at European level. Based on a different variables intended to redefining references and specific rating scales that allow the aggregation of results, trend analysis and performance benchmarking.
It will use the inductive method starting from the practical experience of social organizations from different European countries from references and scales currently in use.
Key words: Quality of Life, Intellectual Disability, QoL Evaluation Scale.

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3.6. A - Digital information asset evaluation: a case study in manufacturing

Nature of paper: Case Study Research

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Abstract: The paper discusses a model for information value measurement based on the concepts of information capacity, information utility and information management costs as determinants. Indeed, notwithstanding at the state of the art both researchers and practitioners consider information as a fundamental asset in most business sectors, there is actually no consensus on information value assessment. The model is then applied to a case study to compare two information management projects for the improvement of core business processes of a global manufacturing company based in Italy.

Key words: information capacity, information utility, information management costs.

3.7. B - Digital business innovation: strategy attitudes and challenges for future enterprises

Nature of paper: Case Study Research

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Poster: The talk will discuss the challenges for digital business innovation for entrepreneurs as well as enterprises. Thus, the characteristics of four key types of digital business organisation will be discussed with regard to their strategy orientation towards execution or else differentiation. The talk is based on insights from the FutureEnterprise project, whose focus is on what are the key factors and characteristics of the enterprises of the future, actually driven by constant business model transformation and innovation, acting as multi-sided platforms built on - as well as emerging from - digital innovations at the global as well as local level to produce shared value including that beyond monetization.

Key words: future enterprise.

3.8. Innovations, ICT, and ICT-driven labour productivity in Poland – a firm level approach

Nature of paper: Case Study Research

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Abstract: Poland is a post-communist CEE country, that is usually classified as a developing economy. It has witnessed remarkable transition from the centrally-planned to market economy since the beginning of 1990ties. In spite of quite dynamic economic growth, even during the last world crisis, and convergence processes taking place recently, the productivity levels are still below EU-15 average.

In the paper, we study the interactions between innovation, use of Information and Communication Technology, and labour productivity using micro level data from the Polish companies. The analysis is rooted in the new firm paradigm (new co-innovative productivity sources), and focus on the role of ICT complementarities as for better understanding of ICT diffusion effects. It seems ICT become productive only if is supported by complementary factors – innovations, human capital, change in work organisation, etc. (Brynjolfsson 2003; Brynjolfsson 2005; Niebel 2014). Decisions on investing in ICT and introducing innovative solutions within enterprises are not exogenous. Moreover, it is assumed, that companies which are more innovative and ICT-savvy are more productive. While this area of research has been quite extensive in highly-developed countries, it needs further and thorough examination in developing (or emerging) economies, like Poland.

Thus, the goal of the paper is threefold. Firstly, to examine factors enhancing innovativeness in the Polish enterprises. Secondly – to identify the complementarities to investments in ICT, which are supposed to determine the efficiency of these investments in terms of productivity gains. Thirdly – to examine the impact of innovations (product, process, organisational and marketing) on labour productivity.

We developed a two-step approach. In the first step logit model explaining innovations was estimated, and theoretical values for unobserved variables related to companies' innovativeness were calculated. These values were introduced in the second step, in which we modelled labour productivity. We used data collected within the survey of 1000 companies, conducted in the first half of 2015 within the research project "Impact of Information and Communication Technologies on productivity – macro and micro analysis". The sample was random and consisted of enterprises of different sizes (small, medium and large entities) operating in different branches, located in all the Polish regions.

The study revealed that innovations in Polish companies are determined by the human capital of managers, organisational change related to ICT introduction, existence of R&D department and the size of the enterprise. Moreover, it showed

that innovations influence positively labour productivity. It also appeared, that ICT itself did not translate into higher productivity – ICT impact on labour productivity was positive only if accompanied by complementary factors: highly qualified employees and introduction of flexible time management. The results confirm the mediating role of ICT complementarities and innovativeness as for productivity gains in Polish enterprises, pointing out that the relationship between ICT, innovations and productivity follows similar pattern in developed and developing economies.

Key words: productivity, ICT, technology-based innovation, ICT complementarities

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Solow R. (1987), We'd Better Watch Out, New York Times Book Review, July 12.

3.9. Challenges in innovation in biotech SMEs: the case of advanced therapies

Nature of paper: Case Study Research

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Abstract: Advanced therapy medicinal products (ATMPs) are at the cutting edge of innovation and offer a major hope for a number of diseases for which current therapeutic options are limited or non-existing.
As regulatory authorities strive to create and adapt specific regulations in the field, companies struggle to develop ATMPs that may constitute a real therapeutic option for clear existing medical unmet needs. The other stakeholders have specific demands and thus innovative products are expected not only to be efficacious and not pose major risks to the patient but also cost effective and easy to use and administer.
Downstream of technical and clinical development, the main commercial risks associated with advanced therapies, and generally for any new drug, are related to the payment of the therapy (reimbursement) since the cost of this type of therapies typically reaches values in the order of tens of thousands of euros and to the acceptance of the therapy by the medical community.
A model to approach innovation in this field will be presented based on the strategies followed by ECBio, a Portuguese biotech SME focused on the translation of stem cell technologies into stem cell-based therapies in the areas of cardiovascular and autoimmune diseases.
Key words: innovation management, biotechnology, stem cells

References:
J.P. Martins, et al. (2014) Towards an advanced therapy medicinal product based on mesenchymal stromal cells isolated from the umbilical cord tissue (UCX®): quality and safety data". Stem Cell Research & Therapy 5:9.

3.10. Crowdsourcing based business models – what drives users engagement?

Nature of paper: Case Study Research

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Abstract: The paper analyzes factors driving consumers engagement into crowdsourcing activities and crowdsourcing based business models. The development of ICT caused changing business approaches and models and enabled various new phenomena such as crowdsourcing, gamification, big data, etc. These phenomena are based on the assumption that ICT use is increasing between companies and consumers and as consequence, consumers will be actively using opportunities brought by ICT. However according various empirical research the digital environment is characterized by active content use and low engagement in various activities by consumers. Crowdsourcing opportunities seems attracting to the companies as enable them to delegate various tasks to the crowd. This approach can be very important in implementing innovative business models as well as achieving competitive advantage and we observe companies such as Kickstarter, Uber, Kiva, Threadless, Kluster successfully adopted crowdsourcing approach. As various crowdsourcing platforms appears companies in designing business models are facing two options – to use crowdsourcing platform or to implement crowdsourcing by themselves.

Despite of the choice companies face challenge - how to engage consumers in crowdsourced activities? The present paper provide analysis of three different constructs – motivation, engagement and crowdsourced business model elements. Basing on the analysis internal and external motivation factors are identified, engagement dimensions are defined and crowdsourcing suitable business model elements are determines. These construct are integrated and empirically validated in Lithuania market defining what motives drives different engagement into different crowdsourced business elements.

3.11. Open Innovation in Czech manufacturing firms: market and industry effects

Nature of paper: Case Study Research

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Abstract: The paper deals with the effect of open innovation on innovation activity in Czech manufacturing firms. We analyze the European CIS 2010 data using the methodology of Laursen and Salter (2006), Van de Vrande et al. (2009) and Ebersberger et al. (2012). They analyze the depth (intensity) and breadth (variety) for open innovations. In our paper we focus on measuring the depth and breadth in various manufacturing industries (from low- to high-tech firms) oriented on different markets (from local to non-EU regions). We distinguish two types of innovation, new-to-market and new-to-firm, respectively. To analyze the indirect effect of open innovation (measured via the depth and breadth of knowledge acquisition and innovation cooperation) by using structural models. The results confirm that open innovation mediates the market (mainly for non-EU regions) and industry effects (mainly for medium high-tech and high-tech) on innovation activity. We also show that larger firms (in terms of turnover) and firms oriented on new-to-market innovation report significantly higher breadth of open innovation. We propose several important implications for innovation policy-makers, stressing that the variety (breadth) of open innovation is the critical determinant to promote innovation activity.

Key words: open innovation, cooperation, knowledge acquisition, structural model, Czech manufacturing firms

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Ebersberger, B., Bloch, C., Herstad, S. J., & Van De Velde, E. (2012). Open innovation practices and their effect on innovation performance. *International Journal of Innovation and Technology Management, 9*(06), 1-25.

3.12. Biosimilars medicines in Portugal

Nature of paper: Case Study Research

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Abstract: Biological and biosimilar medicines are booming segments in the pharmaceutical industry and, represent a great source of innovation, providing solutions for diseases until then not found with traditional therapies. These medicines also represent a segment of high profitability and highly beneficial, and many lives have improved significantly or have been saved by these. Due to the high cost implied by therapies that use biological drugs, biosimilars medicines emerged. Biosimilar medicines are similar to an authorized biological medicine, and whose patent has expired. These can't be considered as generic of biological medicines. These medicines have essentially the same biological substance that the reference medicinal product, although there may be slight differences due to their complex nature and methods of production, having a high degree of variability. Approval of these medications requires a fairly complex process, requiring demonstration of similarity compared to the reference product in terms of quality, biological activity, safety and efficacy.

The entire process should follow the guidelines adopted by the European Medicines Agency and the legislation of the respective country. Such drugs involves however some drawbacks in question of their use, as is the case of switching (Biologic / Biossimilar) or the immunogenic potential they hold. Furthermore, they are subject to extensive post-marketing monitoring, according to the European legislation. On the other hand the potential use of these medications may create short-term problems in the financial sustainability of the health system, as they have strong reimbursement from the Portuguese State, which must have mitigations procedures to reduce future impacts.

3.13. The critical view on innovation activity in SME´s sector in Slovakia

Nature of paper: Empirical study

Lesáková, Ľubica
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Abstract: Innovations are the drive of economic development advancing the possibilities of future competitiveness in the form of new knowledge and increasing economy´s efficiency and performance, particularly through small and medium enterprises (SME). To strengthen innovation activities is one of the main tasks of SME nowadays. The aim of the article is to give the critical view on innovation activity in SME´s sector in Slovakia. Because of the need to use a systemic approach the stress will be given to identifying main factors influencing innovation activity of Slovak SME. Presented will be results of own empirical research devoted to identification of main barriers to develop innovation activity identified among SME. Formulated will be presumptions and recommendations for relevant public institutions as well as for SME to overcome the barriers. For the research purposes we will utilize evaluation of relevant secondary data as well as results of own empirical research.

Key words: Innovation activity, Summary Innovation Index, Small and medium enterprises, Barriers, Presumptions, Recommendations, Slovak Republic

References:

Bessant, J. – Tidd, J. (2009). Innovation and entrepreneurship. Chichester: John Wiley&Sons Ltd, West Sussex, England.

Lesáková, Ľ. (2009). Innovations in Small and Medium Enterprises in Slovakia. In: Acta Polytechnica Hungarica : Journal of Applied Sciences. Budapest : Budapest Tech, Vol. 6, Iss. 3 (2009), p. 23-34.

4. Advanced Tourism Economics

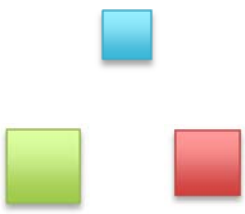
Session Chair: Dr. Kamila Borsekova

Challenge: Advances in tourism fostering development

The multidimensional nature of tourism phenomena leads to discussion about the role of tourism in spatial development. Tourism sector plays an important role in economics and together with other sectors co-creates wellbeing and enhances development of places. According to World Tourism Organisation UNWTO, world tourism currently contributes to 30 % of the world services export, creates 9 % of GDP and creates over 8 % of the jobs. In the most well developed countries, tourism development brings significant economic benefits.

Innovation processes in tourism are mainly aimed at increasing productivity, profitability and quality, thus improving the overall competitiveness of the tourism economy. Innovation is to be considered as a major driving force for structural changes in the tourism industry and transforming the tourism sector itself as well as tourism business models. Creativity, new ideas and innovation bring smart solutions in the area of tourism, create added value of tourism products and destinations and increase competitiveness of tourist destinations. Conference section is aimed on innovations and modern trends in tourism and impact of the tourism sector and its activities on economics and development. Conference section enriches this attractive research area in following issues:

- The Economic Impact of Tourism
- Economic Sustainability and Tourism
- Innovations, Competitiveness and Modern Trends in Tourism
- Tourism as a Main Pillar of Local/Regional/National Economics
- Environmental Issues in Tourism
- Transport Systems for Tourism
- Tourism Planning, Strategies and Regional Policies
- Tourism Products, Consumer Behavior and Segmentation
- Tourism and Hospitality Management
- Marketing Tourism Places and Spaces
- Role of Creativity, Culture and Events in Tourism
- The Role of Image and Branding in Tourism
- Success Stories of Tourist Destinations



4.1. The tourism-led growth hypothesis and the role of foreign direct investment and financial development in the European Union

Nature of paper: Applied Statistical / Econometric

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Abstract: Tourism is considered as an important source of foreign exchange earnings, and a source of employment and growth. The ability of tourism to promote economic growth has been largely recognised in the empirical literature. Studies show that there is a causal link between tourism and economic growth, and that the weight of tourism on a country's economy is a determinant of the degree to which tourism affects a country's real national income over a period of time. This paper contributes to the empirical literature on the tourism-led growth hypothesis (hereafter, TLG), that is the hypothesis according to which tourism generates economic growth, by incorporating both national and international tourism volumes. This paper uses time-series cointegration techniques and Granger causality analysis to investigate the TLG hypothesis for Portugal to test the TLG by decomposing the tourism indicator into national and international tourism.

Another important contribution of this study is on incorporating the role of structural breaks to test the TLG hypothesis. The econometric analysis accommodates potential structural breaks that could undermine the research findings and lead to spurious regression results.

Key words: TLG hypothesis, foreign direct investment, financial development, panel data cointegration, Portugal

References:

Pablo-Romero, M., & Molina, J. A. (2013). Tourism and economic growth: A review of empirical literature. Tourism Management Perspectives, 8, 28-41.

4.2. Regional multilevel analysis of willingness-to-pay in Asian cruise markets

Nature of paper: Conceptual/Theoretical

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Abstract: This paper claims that the willingness-to-pay of cruise tourists is affected by hierarchical multilevel variables, viz. regional level variables (Mainland China, Hong Kong, Taiwan, Japan, and other global regions), socio-demographic variables (age, income, family structure, and occupation), cruise cognitive variables (cruise experience and cruise line), and cruise preference (basic, entertainment, recreation, children facilities, ports, and Asian feature). Our research aims to measure the influence of the regional level variables and micro-based variables on willingness-to-pay of cruise tourists, in order to trace the driving factors of willingness-to-pay. Under the fixed effects of region-level variables, some variables are recognized to be significantly associated with willingness-to-pay of cruise tourists, including income, family structure, occupation, cruise experience, cruise line, and cruise preference. A subsequent approach of latent cluster analysis is conducted to identify the most valuable market segmentations and different profiles can be applied to improve the marketing performance of cruise companies in the growing Asian markets. The potential target segments are: tourists with a high income, families without under aged children, liberal profession, retired senior group or housewives with a flexible cruise time. Meanwhile, the segments with high willingness-to-pay are characterized by repeat cruise tourists, with most preferred attributes of 6-14 days cruise line, 'basic' and 'recreation' facilities.

Key words: willingness-to-pay, cruise, Asian markets

4.3. Estimating the future value of Japanese cruise tourists: a structural equation modelling and market segmentation approach

Nature of paper: Applied Statistical / Econometric

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Abstract: This research focusses on the Japanese cruise market, a mature market compared with other Asian regions where cruise tourism is still a growing segment. The future value of Japanese cruise tourism is estimated by focussing on willingness-to-pay and the chances of repeat cruising. A structural equation model tests the relationship between future value and various variables, and a subsequent market segmentation identifies different profiles. We find significant positive regression relationships between previous experience, cruise motivations, and future cruise purchase. In order to identify the most valuable clusters in terms of immediate future value and total lifespan, we use a latent cluster analysis to do market segmentation. A further BCG growth matrix approach is conducted to identify categories of cruise passengers: 'question marks', 'stars', 'dogs', and 'cash cows', and use the results of this segmentation to develop more effective marketing strategies for the Japanese cruise market.

Keywords: cruise, future value, market segmentation, structural equation modelling, growth matrix, latent cluster analysis.

4.4. Partnership and networking in tourism fostering spatial development in Slovakia

Nature of paper: Case Study Research

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Abstract: The article is focused on networking and its influence on spatial development. It deals with stakeholders in two mountain destinations in Slovakia. Tourism sector in Slovakia is significantly undersized and potential for tourism is not fully exploited yet. There are a lot of initiatives aimed on development of the tourism sector in Slovakia. One of these initiatives is top-down approach of establishing destination management organizations on local and regional level. Destination management organizations act as a networking point for all relevant stakeholders in the sector of tourism as well as other important key actors in the region. The aim of the paper is to identify and evaluate how partnership and networking in tourism sector contribute do the development of regions that are tourism destinations. The research sample of the article consists of destinations High Tatras and Liptov, which are traditional mountain destinations with international significance. The partnership and existing networks are analysed by the application of method network analysis. The source of data are structured interviews with the key stakeholders as well as annual reports. We confront the top-down approach with the bottom-up initiative and examine who really are the leaders and driving forces of development within the examined destinations. Special attention is being paid to the innovation processes in the examined tourist destinations. Last part of the paper is devoted to the impact of networks and partnerships in tourism on spatial development and recommendations for relevant stakeholders and policy makers.

Key words: partnership and networking, destination management organization, innovation process, tourist destination, spatial development.

4.5. Innovation in building competitive advantage in tourism – the way for smart spatial development? (Empirical study from Slovakia)

Nature of paper: Empirical

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Abstract: Tourism sector plays an important role in regional, national and global economy. It is a dynamic part of economy with a big potential for growth, generating new jobs and enterprises and contribution to spatial development. The emergence of new destinations and investments into tourism sector caused that tourism is a key to development, prosperity and well-being (UNWTO, 2014).
Success of tourism destination is influenced especially by its attractiveness. The attractiveness of tourist destination means a competitive advantage of the place which has potential for tourism and is able to provide conditions for tourism development. In tourist destinations, often instead of using the term competitive advantage, is used the term „unique selling proposition" or „unique selling point" (O'Leary, 2000; Lupberger, 2009; King, 2010).
The key characteristic of USP is attractiveness. It should be expressed in relation to visitors' decision relating to the goal and purpose of their travel and stay (Lehu, 2004, p. 68). The attractiveness of tourism destinations is possible to increase through innovation in improvement of the tourism offer and its presentation in the targeted market.
Slovakia has a huge potential to become an attractive tourist destination but this potential is not fully used and need to be unlocked. By realization of empirical research in all Slovak regions aimed on identification and exploitation of the competitive advantage, we found out that all Slovak regions have identified the competitive advantage/advantages connected with tourism but these competitive advantages are not exploited sufficient and effectively.
The key importance of tourism in national development is declared also by the Ministry of Transport, Construction and Regional Development of the Slovak Republic in the strategic development documents. The strategic aim for tourism development in Slovak Republic until 2020 is defined as increasing the tourism competitiveness by better exploitation of its potential with intent to balance regional disparities and create new jobs. Although this strategical approach and evaluation of Slovakia in 2013 among Top 10 World Tourist Destinations by Lonely Planet, the country is still evaluated by international rankings as less attractive tourist destination in comparison with neighbouring countries.
One of the main objectives of the paper is to propose innovation in building competitive advantage in the tourism that leads to development of tourism sectors in Slovakia, and contribute to smart spatial development through policy

recommendations. Main purpose of the paper is fulfilled through theoretical review and interconnection among innovation, competitive advantage and smart spatial development; empirical research results and their evaluation through apparatus of mathematical and statistical methods; methodological and policy recommendation for urban and spatial development planners and policy makers. Another main objective of the paper is to identify the significance of innovations for building competitive advantage in the tourism on the case of Slovakia, and based on the empirical research results to suggest the policy recommendations for smart spatial development with focus on innovations in tourism sector.

The theoretical part contains the review the approaches to the competitive advantage and its factors including the interconnection among innovations, competitive advantage and smart spatial development.

Furthermore, by apparatus of mathematical and statistical methods in the analytical part, the paper maps the state of utilization of competitive advantage in tourism in Slovak regions with special focus on innovations and smart development concept. In the last part of the paper, the methodological and policy recommendations how to effectively build competitive advantage and use innovations in smart development are proposed for urban and spatial development planners and policy makers.

Key words: innovation, competitive advantage, tourism, spatial development.

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The Ministry of Transport, Construction and Regional Development of the Slovak Republic. (2013). Strategy of tourism development in the Slovak republic for 2020. Bratislava.
UNWTO. 2014. UNWTO Tourism Highlights 2015 Edition.

4.6. A Panel Data Analysis of Urban Livability and Tourism Development in China

Nature of paper: Applied Statistical / Econometric

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Abstract: With the transformation of city function from production to life and the change of the mass tourists' motivation from sightseeing to leisure in China, the coordinated development of urban functions and sustainable growth of tourism economy have become more and more important.
This paper focus on the interaction between urban livability and tourism development. As a momentous source of tourism attraction and the foundation of tourist activity, urban livability will push the tourism development in the destination city. Meanwhile, tourism development has both promoting and inhibitory effect on urban livability.

On one hand, along with the tourism development, there are internal and external driving force which enhance the livability of urban. On the other hand, once the extreme of tourism capability is threatened, some degradation of the production and living environment will appear. Based on the theoretical framework, empirical analysis, including factor analysis, entropy value method and panel regression estimate, are made by the data of 35 large and medium cities of China in 2003-2012.
Exploratory factor analysis is used to estimate the conceptual construction of the urban livability, and the regression on the level of dimension is made based on the result of the EFA. In order to measure the level of tourism development comprehensively, Entropy Evaluation Method, based on the indictors of tourism income and reception, is used.

The results shows that urban livability can be divided into 5 dimensions, which are abundant material and cultural life, convenient public services, healthy and comfortable living environment, good social welfare and security of production and living. On the whole, urban livability has positive influence on tourism development, and the performance of each dimensions vary in eastern, central and western cities. It is worth noting that this relationship is moderated by the international transportation, potential market size and the level of openness. The moderator elements have both direct and indirect impact on city tourism development. Meanwhile, there is a reactive force from tourism development to urban livability. Moderate tourism development benefits the urban livability, while excessive tourism development will threaten the urban livability. In recent China, the negative effect has appeared in the central and western cities. In addition, according to the relative level of tourism development, the cities can be divided into four groups, which are the priority promote group, the promote group, the appropriate control group and the control group. It is to be observed that the tourism development of Beijing, Tianjin, Hangzhou, Guangzhou, Shenzhen, Chongqing and Wuhan have already threatened the livability of them. The impact of tourism development on destination should be considered comprehensively, so as to avoid the blindly chase of tourism income and reception.

Key words: livability; tourism development; entropy method; factor analysis; panel data.

4.7. Is migration innovation? Clandestino's in the diaspora world

Nature of paper: Conceptual/Theoretical

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Abstract: This note offers a short review of the assessment issues inherent in the effects of migrants – and in particular illegal migrants – on host economies. Various research and policy challenges are outlined as well.

Structural or Temporary Migration

Migration – both domestic and international – is not an exclusive phenomenon of the past decades. People all over the world have been moving around in search of better opportunities, sometimes forced by famine, war or religious suppressing, sometimes also driven by better economic conditions elsewhere or by family formation or re-unification. In the context of foreign migration, in the period after WWII various immigration countries have emerged, such as the United States, Canada, South Africa, Australia, New Zealand or Brazil. But in the past decades, the flows of migration have been widened to virtually all countries in the world. This does not only hold for European countries, but also for Asian, African and Latin American countries. In addition to the scope of migration, also the size of international migration has significantly increased. At present, more than three percent of the world population may be classified as migrant, and this share is steadily rising.

From a purely economic perspective, migration may be considered to be an equilibrating mechanism to match supply and demand on national labour markets. It is thus a phenomenon that has welfare–enhancing effect. Notwithstanding this positive interpretation of migration, the reality is often more complicated and harsh. In various cases, migrant sending countries complain about the loss of qualified labour force and about the waste of public expenditures for education of talented people leaving the country, even though remittances may offer a financial compensation for the loss of talent. On the other hand, migrant receiving countries complain about adjustment costs for migrants, tensions on local housing and labour markets, relatively high unemployment figures for migrants, and associated high social welfare transfers to migrants, ethnic segregation and ghetto formation, as well as high crime rates for specific cohorts of some ethnic groups. The economic picture of foreign migration is by no means unambiguously positive.

4.8. Modelling Innovation Sustainability and Technologies: The necessity for a local level of gastronomic tourism standardization

Nature of paper: Empirical study

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Abstract: As a follow up to the 3rd Global Summit on City Tourism organized by the United Nations' World Tourism Organization entitled " New Paradigms in City Tourism Development, the workshop entitled "Integrating City Tourism(s) into the Urban Research Agenda was convened in L' Aquila, Italy (15-16 June, 2015). The outcome of this meeting underscored that urban tourism has attracted ever increasing academic attention. This attention however justified has been often overtly simplistic considering definitional issues rather than a broader multi-scalar context in which tourism development offers potential to create benefits as well as challenges for urban host communities. Despite the evident links between tourism research and urban dynamics only limited progress has been made e.g., with respect to arresting the uncontrolled expansion of cultural commodification and gentrification in the urban context. In turn, these issues have led to growing discontent with tourism in many cities in Europe and beyond. To compete effectively in the global economic arena there is a sense of urgency to find innovative ways to link private- and public sectors and academia to bridge the complex barriers that impede urban growth.

Paradoxically, sustainable differential advantages in a worldwide economy are often embedded in local assets, including knowledge, creativity, innovation and corporate-community collaborative initiatives for promoting sustainable growth. Another paradox is the emerging conviction that sustainable economic growth depends increasingly on the Social Progress Imperative for creating a shared language, gender equality and common goals. Thus, the imperative of partnerships incorporating a dynamic private sector, a more creative sector for government through modelling technologies and innovation policies and newer relationships between the former and latter with academia create opportunities to maximize social progress and minimize discontent.

This paper extends earlier studies by focusing on challenges that that businesses, urban authorities and academia are facing if they want to participate in practices of managing the integration of technological, market and organizational change to promote efficient knowledge sharing and inclusive decision making in response to the following issues: How can corporate , local authorities and academic institutions develop a common agenda around the development of a local standard to invest in the expansion of gastronomic tourism? With this concerns in mind, the intent and purpose of the paper is to create a common ground by

comparing the views of stakeholders in the Torino context and present our own perspective on the findings.

The next section of the paper discusses an empirical study carried out in the city of Torino situated in the province of Piedmont, Italy. The following sections examine first, theories and concepts that are relevant elements of designing a local standard, second, different needs or objectives based on target groups, and third, methodology. The framework section on Torino's Slow Food Approach presents a combination of empirical analysis and the above examinations in a discussion about the results from the empirical study. The paper presents a summary of implications and concludes.

5. Management Information Systems

Session Chair: Prof. Miguel Sales Dias

Challenge: Information and Communication Technologies for Corporations, Businesses and Consumers of all ages

Humans and computers have been in close dialog, from the dawn of the computing era. From the first attempts of natural communication using speech (including automatic speech recognition - ASR and text to speech synthesis - TTS) at the Bell Labs in the thirties, or of natural communication using graphical primitives at MIT during the sixties, we have seen the emergence of WIMP (Windows, Icons, Menus, Pointer) paradigm of interaction in the early eighties, making it possible for all of us to interact today with computer-mediated communication apps and services via simple means. Today, we all adhere to the proliferation of touch-based WIMP interfaces, popular in mobile devices such as smartphones or tablets, whose worldwide penetration is increasing, not only in the consumer space but also in the industry and the businesses in general. In addition to WIMP-type of interaction, other more natural human-computer interaction modalities are gaining interest and adoption, notably speech, and soon we will witness the mainstream emergence of other modalities, like gaze (tracking both eyes positions), human body and hands gesture derived from visual and depth sensors (such as Kinect), and even thoughts evaluated from EEG- Electroencephalography signals, or emotions computed from a plethora of biometric sensory devices (such as EMG- Electromyography, ECG- Electrocardiography, EDA-Electrodermal Activity, visual and depth sensors to capture facial expressions).

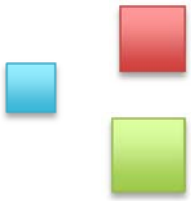
Much in the same way, computer-mediated communication services have evolved from simple text-based platforms, like Bulletin Board Systems, Internet Relay Chat and e-mail, to more complex, multimedia-enabled services such as audio-video conferencing, instant messaging and, more recently, social media services. Such services, facilitate today the social interaction between humans, with the most popular service (Facebook), currently having 968 million daily active users on average (June 2015), were over 844 million are daily active in mobility, and where approximately 83.1% of such daily active users, are based in countries outside the US and Canada. This social media interaction revolution has made it virtually possible for a person to reach anyone, anywhere, anytime, with great ease.

Such fast evolution has led to increased interaction among people of all ages. And ageing is another trend that deserves analysis. Europe, in particular, is ageing fast as life expectancy is increasing and the birthrate is declining dramatically. In 2060, it is estimated that the number of seniors (citizens aged over 65 years) will reach up to 30% in the European Union and about 32% in Portugal. In our country, this means approximately 3.5 million elderly or 30% of the total population that live in Portugal, if the current population figure doesn't decrease. In Portugal, worst-case scenario projections for 2060, show that there might be 348 elderly people for every 100 active adults. The current demographic situation aligns with such projections. In fact, the 2011 census provided the figure of 19% of the population

over 65 years, that live today in the country. Alentejo and central Portugal have the oldest population, where the percentage of people aged 65 or above is approximately 24.3% and 22.5%, respectively. Additionally, in Portugal, 12% of the resident population and 60% of the elderly population live alone (~400 000) or in exclusive company of elderly people (~800 000). This phenomenon has increased 28% over the last decade. Moreover, charities like the Salvador Association point to ~ 1000 000 of citizens with impairments, living today in Portugal (~10% of the population). This trend is naturally reflected also in the increase of chronic diseases such as diabetes or cardiovascular syndromes. Elderly senses like vision, hearing and even speech production become less accurate, also resulting in an increased difficulty of such population, when interacting with traditional WIMP-based human-computer interaction means. In addition, elderly often have difficulties with motor skills due to health problems such as arthritis. These trends amplify the pressure on healthcare and social security systems. Increasing the retirement age will be inevitable.

Nevertheless, one needs to acknowledge that that demographic ageing is one of the most relevant events and conquests in the history of mankind. As an answer to this matter of affairs, quite evident in the European case but also prevalent in Japan, Public R&D institutions from 22 European countries, created the Ambient Assisted Living (AAL) Association, that owns and manages the Active Assisted Living Programme (http://www.aal-europe.eu). This programme funds collaborative R&D projects using innovative ICT, targeted at creating better conditions of life for the older adults and allowing to overcome the difficulties age brings to people, including promoting active aging at work, foresting ageing well in the community and in the society, aiming at reducing the impact of social exclusion observed with the elderly population, and facilitating ageing well at home and in the family. At the same time the AAL programme intents to strengthen the industrial opportunities in Europe. Today, enabling technologies, such as, mobile computing devices (smartphones, tablets), Internet Of Things (IoT), multimodal human-computer interfaces adopting universal design principles (design for all), using natural modalities, such as speech, body and hand gesture, touch, gaze, or even thoughts and emotions, are extensively adopted in AAL projects and solutions.

This session addresses some of these challenges, and highlights the importance of the adoption of ICT technologies by consumers, corporations and business, with a focus on long term adoption. Some of the presented papers, address specifically new solutions applicable in Active Assisted Living and Health scenarios.



5.1. Equipment Lifecycle Management Framework

Nature of paper: Conceptual/Theoretical

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Abstract: With the recent evolution of Information Technology, the widespread usage of applications to assist in multiple tasks in the area of logistics operations, has increased exponentially. This was possible by switching from the older paper based management to dematerialized management. For most companies this is achieved using simple databases and applications that manage daily work. However for some companies this is not enough. Those who deal with a great number of warehouses, most of them with large storage spaces, have a need for a more complex and evolved management applications, specifically in the area of logistic operations. To address this need, applications have been developed to serve this industry and manage equipment and parts in a warehouse, also supported on mobile devices, helping the companies to plan and manage the operations more efficiently and achieving significant cost benefits. These management applications are essential in the modern companies business but, for the most part, are still limited to managing operations in the warehouse, only controlling the incoming, the stock and the outgoing of the equipment.
For other companies that have the requirements for further interventions on the equipment outside the warehouse space, such as managing procurement, maintenance or occurrences, it is vital to be able to follow the full equipment lifecycle and to anticipate and react efficiently to any situation that occurs. To harness this benefit, the companies need an application that can compile all the information needed from the suppliers and directly from the equipment while being used including, for example, characteristics such as life expectancy, the effects of working in different environments and the number of hours of usage, among others. This information, when merged in a defined framework, helps to specify and forecast the equipment needs, allowing for example to plan equipment replacement or the need of preventive maintenance.
In this article we propose a definition of an Equipment Lifecycle Management Framework, thus enabling the design and creation of an application that will be able to deliver all the benefits of the Operational Dematerialized Management, in the logistics operations industry.

Keywords: Equipment Lifecycle, Management Framework, Dematerialized Management, Logistics.

5.2. IT audit in the Spanish business sector: longitudinal analysis (2001-2011)

Nature of paper: Applied Statistical/Econometric

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Abstract: In a society in which Information Systems and Information are considered like important assets for most companies, the realization of IT audits to measure its efficiency and prevent IT support breakdowns, is required. To this aim, this study analyzes the evolution of the IT audit practice in Spanish companies, reporting the percentages of realization and the amount of professionals that execute it, and how it correlates with the importance that these companies give to Internet and the use of e-commerce. Our longitudinal study, encompassing the period 2001-2011, has shown substantial increase in the awareness of Spanish companies towards the realization of these audits: almost doubling the percentage of companies that perform them in this decade. We have also found that the realization of IT audits, usually involve various types of professionals of the same company and finally, we were able to analyze the association between the adoption of Internet and the use of e-commerce in surveyed companies, and the realization of these audits.

Key words: IT audit, Spanish business sector, Spanish companies, IT security, Information systems, ICT.

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5.3. A new technological impact on the delivery of social and health care at home

Nature of paper: Conceptual/Theoretical

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Abstract: We have witnessed in the recent years, remarkable progress in terms of innovation and R&D, not only in companies, but also, within organizations that promote innovation, or institutions that promote scientific and technology in Europe and European countries. Despite this good performance, we must continue our efforts towards achieving even more ambitious targets.

Particularly, in the area of ambient assisted living, where ICT is helping the elderly and citizens with disabilities to become more active, healthy and social engaged, while at home, in mobility or in social settings, and researchers and industrialists in Europe, have felt the need to introduce innovative methodologies, associated with new ICT technologies. On one hand, this community thrives to provide for optimal intervention, giving greater effectiveness and efficiency and, on the other, it is active in creating more comprehensive and secure solutions, given the exponential growth of elderly people, particularly in Europe. In fact, ambient assisted living.

This question is currently the subject of several political, social and academic approaches in Europe, namely, in the framework of the European Union R&D H2020 programmes or the Active Assisted Living (AAL) programme.

Nowadays, we have both technological and social market solutions in Europe, providing specific monitoring systems for social intervention or for health, such as, amongst others, telecare (for social and medical scenarios), vital signs and fall detectors, gas and fire detectors, GPS-based localization, detectors of unusual immobility or prolonged passivity, of daily user rhythm, escapes or prolonged absence, which run on smart appliances, with biometric sensors, environmental sensors, using also robots and intelligent computing tools.

The aims of this paper is to describe the development and implementation of intelligent platforms for AAL, that integrate existing specific computing and sensory devices, and optimize the delivery of ALL services, leading to the intervention within the elderly to be faster, more efficient and effective, as well as innovative.

Key words: Ambient Assisted Living, Aging, Elderly, Disability People, Digital inclusion, IT.

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5.4. Internet Of The Things: changing and economic impact in the next future

Nature of paper: Conceptual/Theoretical

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Abstract: The Internet of Things (IoT) has received enormous attention nowadays because business believe that IoT can create real economic value. However, for capturing the maximum benefits, it is required an understanding of where real value can be created and to successfully address a set of systems issues. Rather than just analyzing the Internet of the Things adoption in vertical industries, it´s important to look at settings, such as cities and worksites. This shows how various Internet of the Things systems can maximize value, particularly when they interact. Particularly, it's possible to estimate its ten years potential economic impact considering several applications, like business-to-business (B2B), consumer applications such as fitness monitors and self-driving cars, improved health of chronic disease patients through remote monitoring, improvements at makers of industrial machinery, security and privacy areas, energy and environment changing, etc.

The Internet of Things is changing how goods are made and distributed, how products are serviced and refined, and how doctors and patients manage health and wellness. By examining the proliferating uses of the Internet of Things in specific settings, it is possible, as mentioned, to estimate the magnitude of its potential economic impact over the next decade. Capturing such potential will, of course, require not only innovation in Internet of the Things technologies and business models, but also interoperability of solutions and investment in new capabilities and talent.

Key words: Internet of the things, Big data, Business models, Business-to-business (B2B).

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5.5 The development of logistics infrastructure and the pressures on environmental protection

Nature of paper: Conceptual/Theoretical

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Abstract: The article addresses the issue of the negative impact of logistics infrastructure on the environment. In the literature, this problem is poorly publicized. Much more attention is focused issue of the negative impact of transport on the environment. Assuming for granted the idea that environmental requirements are not able to inhibit the development of logistics infrastructure, should seek to answer the question of how to shape its development in order to be consistent with the objectives of sustainable development. Considerations lead to the conclusion that a large part in reducing the negative impact of logistics infrastructure on the environment plays European Union policy with a set of appropriate instruments. The paper adopted the method of cross-sectional analysis of the problem and the debatable approach.
Keywords: Logistics; Software Engineering; Software Development.

5.6 ICT as Enabler for Communication in Business Decision Making

Nature of paper: Conceptual/Theoretical

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Abstract: Innovation is driving force for future growth. Economies of many countries are mostly based on old, traditional linear models of "closed" innovation, that include none or minimal external stakeholder engagement in creating market value. However, in order to achieve the well-being of the whole society, all relevant external stakeholders should be involved in creating open innovation environments and platforms that foster collaboration and co-creation of new business solutions. In today's knowledge society ICT enables availability of different and various pieces of information in global terms. One of the most brilliant scientists Einstein long time ago said that "Imagination is more important than knowledge". The core of every successful business or project is imagination. In order to use information to create new real market value and innovative business approaches, good ideas, imagination and intuition is necessary. Wisdom of innovative open-minded stakeholders creates wisdom society. How can entrepreneurs contribute to the modern economy? What should be changed so that better environment for creative thinking and doing can me make?
Keywords: ICT, communication, decision-making.

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Light MIST Assotiation for Regional Development