

D.C.5.2 LOCAL FOCUS GROUP YEAR 2

D.C.5.2: 10th International Conference on
Operations Research and Enterprise Systems
(ICORES)

02.2021

Vorarlberg University of Applied Science
(PP4)





1. Name of the event, implementing date and place

International Conference on Operations Research and Enterprise Systems (ICORES)

4th - 6th Feb 2020

Virtual / Vienna (Austria; co-organized by the Technical University Vienna)

2. Number and types of participants/target groups

The purpose of the International Conference on Operations Research and Enterprise Systems (ICORES) is to bring together researchers, engineers, faculty, and practitioners interested in both theoretical advances and practical applications in the field of operations research.

The ICOCRES conference was organized in conjunction with the ICAART conference (International Conference on Agents and Artificial Intelligence, 13th edition). The purpose of the International Conference on Agents and Artificial Intelligence is to bring together researchers, engineers and practitioners interested in the theory and applications in the areas of Agents and Artificial Intelligence.

The participants of these conferences were able to digitally switch between the conferences and participate within the heterogenous tracks and sessions.

3. Topics tackled and links to deliverables, outputs

The ICORES conference tackled a broad variety of topics, such as Optimization in Routing Applications, Decision Analysis and Simulation, Dynamic Programming and Network Optimization, Optimization in Energy and Telecommunications, OR in National Defence, OR in Transportation, Logistics and Queuing Theory, Decision Support Systems, Optimization Theory, Project Management, Optimization Health Care and three Key Notes within the field of OR and Enterprise Systems.

FHV's participation, Florian Maurer, was accompanied by the chairing of the tailored session entitled Decision Analysis and Simulation. Mr. Maurer guided five presenters through this



session and were able to coordinate questions with and among presenters and session participants.

Furthermore, Mr. Maurer presented its scholarly article entitled “Business Intelligence and Innovation: an European Digital Innovation Hub to increase System Interaction and Value Co-creation within and among Service Systems”. This article summarizes FHV’s activities within work package 1 & 2 and concludes with TAP local implementation. Besides the elaboration of the scholarly paper (summer & autumn 2020), a poster and a video (Jan 2021) have been elaborated as presentation media. The poster and video will be available on the FHV’s Digital Innovation Hub’s homepage and the 4Steps project homepage.

Additionally, Florian Maurer served interested scholars, managers, decision makers, etc. with information about the project and the pilot “Business Intelligence & Innovation” at a digital 4Steps booth.

4. Expected effects and follow up

The participation within the ICORES conference will produce positive long-time effects for FHV’s Hub Business Intelligence & Innovation. For example, the scholarly article is published in SciTePress.org and will provide guidance for scholars, managers, decision makers, entrepreneurs, etc. to get in contact with the FHV’s Digital Innovation Hub.

The poster presentation is online on Youtube and motivates scholars, managers, decision makers, entrepreneurs, etc. to get in contact with the FHV’s Digital Innovation Hub. The article and video disseminates FHV’s activities and endeavours in design, development and implementation of a (European) Digital Innovation Hub.

All the efforts and activities foster the Hub’s transparency within the academic community on Digital Innovation Hubs and the European and national community on Digital Innovation Hubs.

The scholarly paper, poster and poster presentation video is forwarded to the National Contact Point for further discussion with the Ministry to list FHV’s Digital Innovation Hub as national hub. The scholarly paper, poster and poster presentation will be forwarded to DIH.net - the Network for European Digital Innovation Hubs.



5. Annexes: e.g. agenda of the event, pictures, media coverage web-links etc

5.1. Agenda:

Schedule as pdf attached.

5.2. Video prepared:

Florian Maurer's talk on "Business Intelligence and Innovation: an European Digital Innovation Hub to increase System Interaction and Value Co-creation within and among Service Systems".

<https://www.youtube.com/watch?v=l87eieUUTfE>

5.3. Award:

Florian Maurer received the ICORES best poster award.

<http://www.icores.org/PreviousAwards.aspx>

Certificate as pdf attached.

5.4. Paper:

Florian Maurer's scholarly paper is published within the ICORES Conference Proceedings

<https://www.scitepress.org/ProceedingsDetails.aspx?ID=kqEm9Ma4xys=&t=1>

5.5. Abstract:

The abstract of the Florian Maurer's paper is downloadable from the ICORES conference homepage (and the FHV's Digital Innovation Hub homepage and the 4Steps homepage)

<http://www.icores.org/Abstracts.aspx>

Due to limited resources (e.g. human, financial, knowledge, etc.), Small- and Medium sized Enterprises run the risk to miss the Digital Transformation of its systems. Especially the manufacturing industry - a strategic industry within the European Union that employs millions of workers and provide tremendous Gross Domestic Product to the partner countries - faces technology changes and increased challenges for implementation. As reaction to the challenges of the manufacturing industry, the European Union launched the Factory of the Future programme and the European Digital Innovation Hub programme. Within this article at hand, the literately and empirically endeavours towards the design and development of the

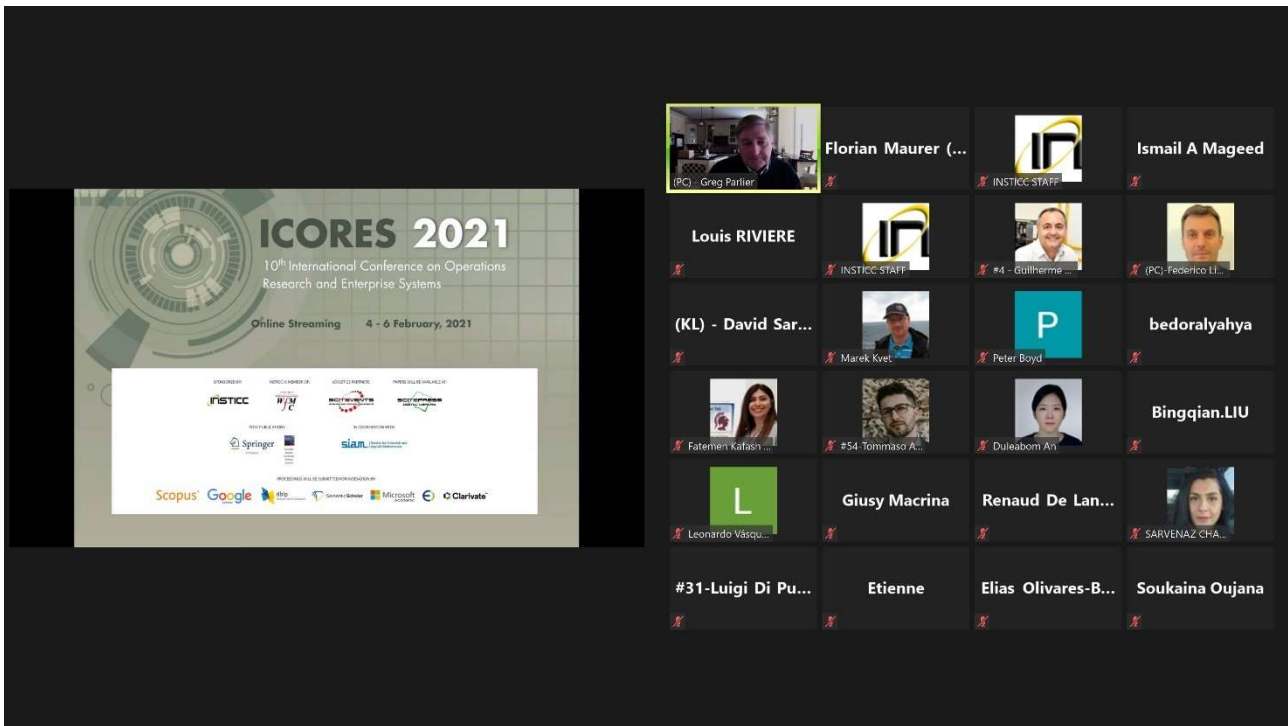


Digital Innovation Hub: Business Intelligence & Innovation within the region of Vorarlberg are presented. In doing so, a narrative literature review about the academic discipline of Service Science - the guiding theory to innovate service systems - and an empirical research about the motivation, status quo, vision and strategy towards the Digital Transformation and Industry 4.0 paradigm of the manufacturing industry within the region of the Federal State of Vorarlberg are presented.

5.6. Poster:

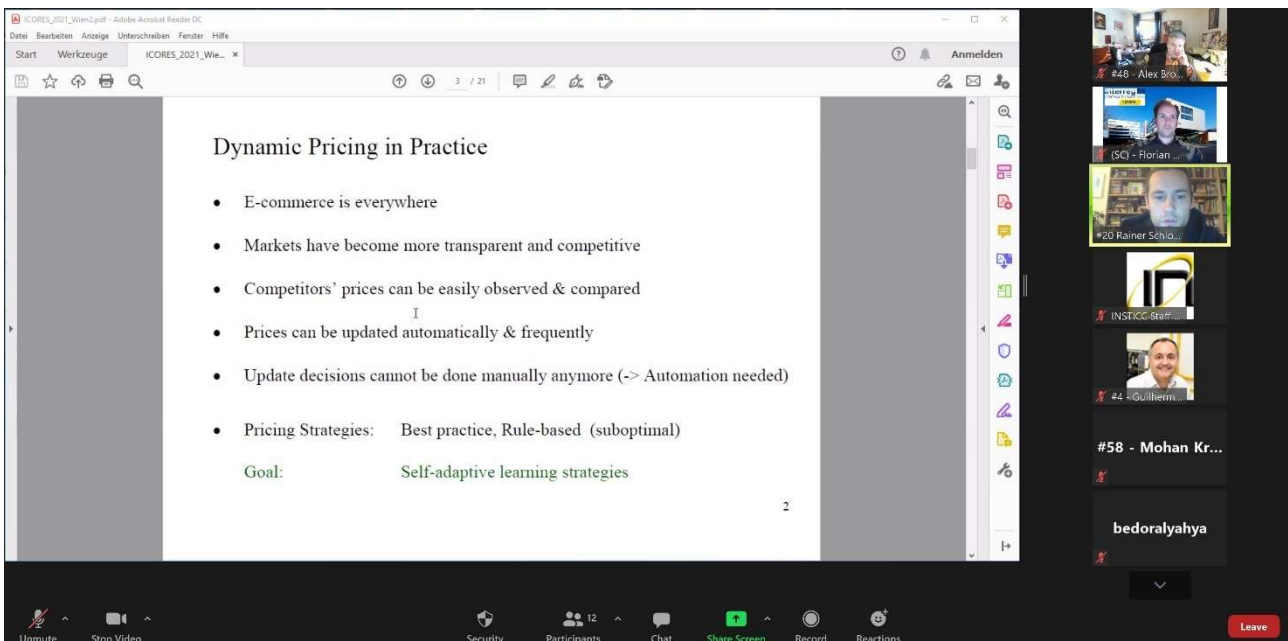
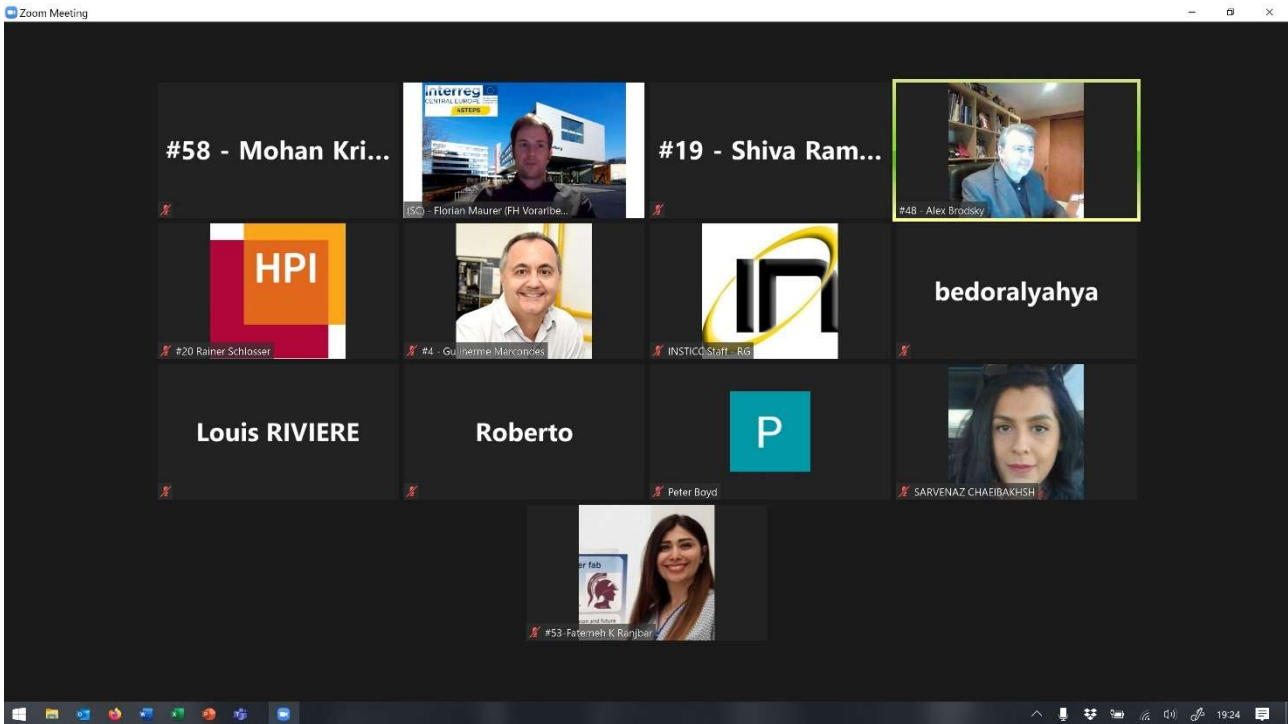
Poster as pdf attached.

5.7. Conference Kick-Off

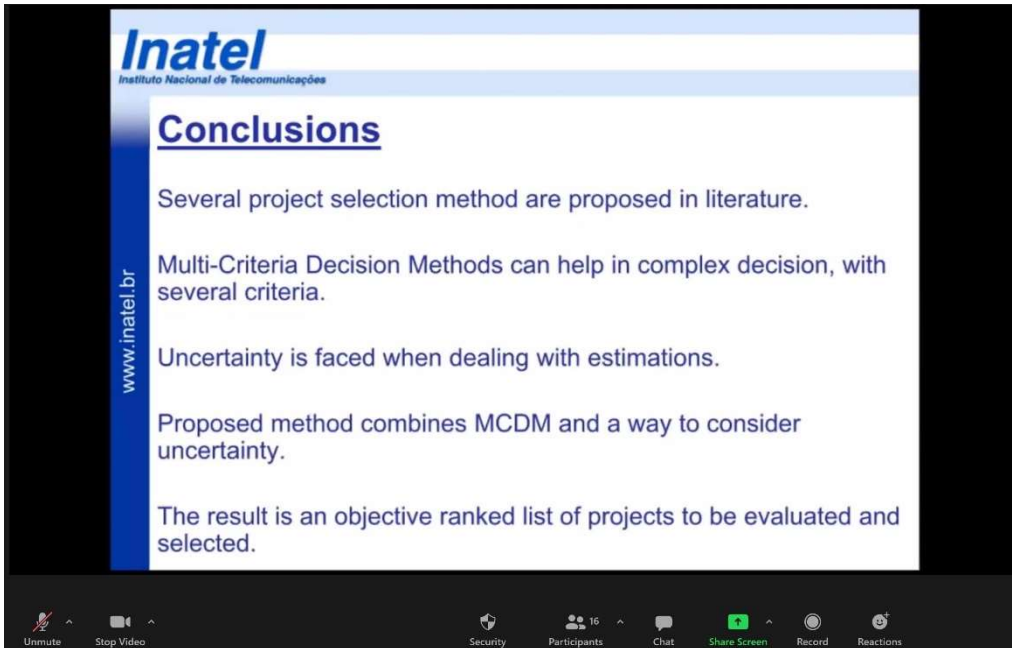




5.8. Session Decision Analysis & Simulation:







Inatel
Instituto Nacional de Telecomunicações

Conclusions

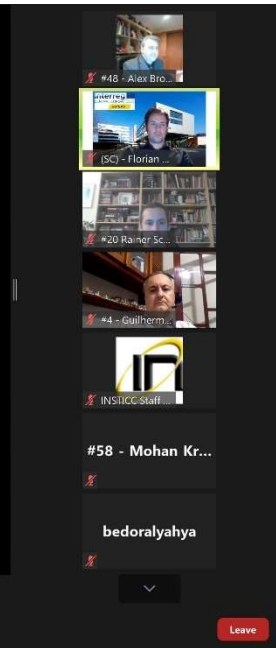
Several project selection methods are proposed in literature.

Multi-Criteria Decision Methods can help in complex decision, with several criteria.

Uncertainty is faced when dealing with estimations.

Proposed method combines MCDM and a way to consider uncertainty.

The result is an objective ranked list of projects to be evaluated and selected.



#48 - Alex Bro...

#15 - Florian...

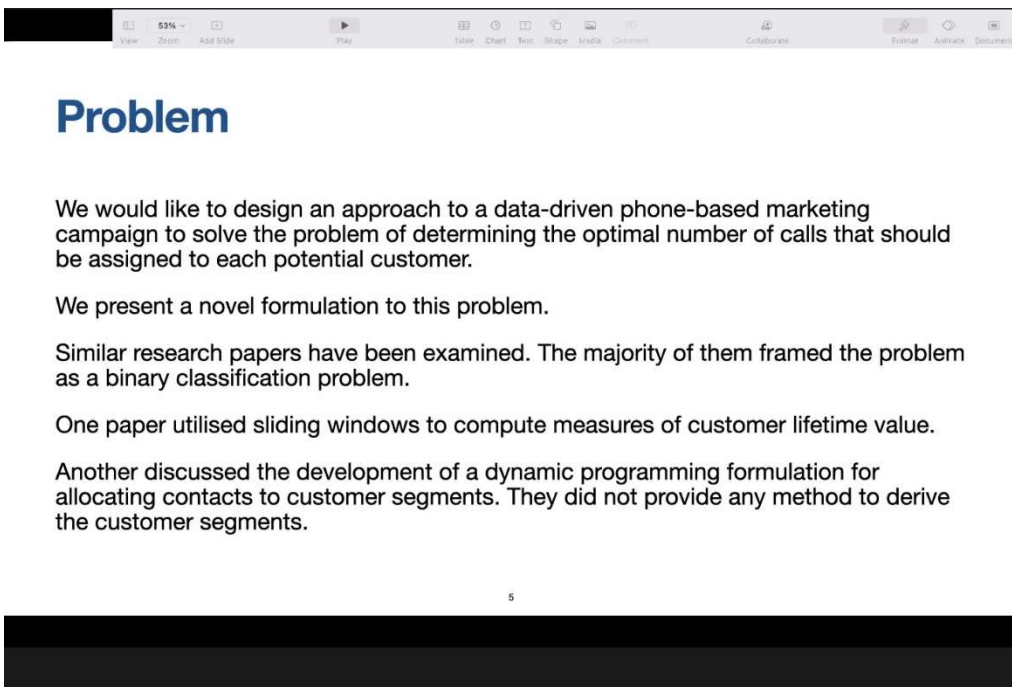
#20 Rainer Sc...

#4 - Guilherm...

INSTICC staff

#58 - Mohan Kr...

bedoralyahya



Problem

We would like to design an approach to a data-driven phone-based marketing campaign to solve the problem of determining the optimal number of calls that should be assigned to each potential customer.


We present a novel formulation to this problem.

Similar research papers have been examined. The majority of them framed the problem as a binary classification problem.

One paper utilised sliding windows to compute measures of customer lifetime value.

Another discussed the development of a dynamic programming formulation for allocating contacts to customer segments. They did not provide any method to derive the customer segments.

5



#48 - Alex Brodsky

#15 - Florian...

HPI

#20 Rainer Sc...

#4 - Guilherm...

INSTICC staff


#58 - Mohan Kr...


Shiva Ramoudith



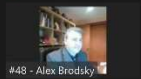
Outline


- Problem: Stochastic optimization of a service network
- Algorithm – SODA
- Experimental study to evaluate SODA
- Conclusions







#19 - Shiva Ram...










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Major challenges remain

Entrepreneurs' design challenge

Manufacturing sourcing challenge

SME manufacturers face stiff competition



- ✓ Lack of CAD modeling skills, even when starting from a similar design
- ✓ Lack understanding of design complexity & intent
- ✓ Need to rely on professional CAD designers

- ✓ CAD design fixed => not optimized for manufacturability & supply chain
- ✓ Yet, small modifications of CAD design may result in significantly simpler & cheaper process

- ✓ Sell low-margin capacity
- ✓ No access to high-margins innovative product ideas

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5.9. Poster presentation:



https://www.insticc.org/node/TechnicalProgram/ICORES/2021/session/P17105

Schedule times are on GMT timezone.
Current Time: Friday, February 5, 2021 8:13

Poster Presentations 1
Friday, February 5th, 2021
11:00 - 12:00

Posters ICORES Zoom Online Session Password: sbVX#U4m

PRESENTATIONS:

- Adding Relations between the Top and Members of Lower Level in a Complete Binary Linking Pin Organization Structure**
Speaker: Kiyoshi Sawada Methodologies and Technologies
- Enterprise Architecture Model Transformation Engine**
Speaker: Erik Heiland Methodologies and Technologies
- A Methodology for Deriving Evaluation Criteria for Software Solutions**
Speaker: Harald Papp Methodologies and Technologies
- Multi-trip Pickup and Delivery Problem, with Split Loads, Profits and Multiple Time Windows to Model a Real Case Problem in the Construction Industry**
Speaker: Atef Jaballah Methodologies and Technologies
- Business Intelligence and Innovation: An European Digital Innovation Hub to Increase System Interaction and Value Co-creation within and among Service Systems**
Speaker: Florian Maurer Methodologies and Technologies
- Soft Directional Substitutable based Decompositions for MOVCS**
Speaker: Mahor Halaoui Methodologies and Technologies
- Multi-product, Multi-supplier Order Assignment and Routing for an e-Commerce Application in the Retail Sector**

Thursday, February 4, 2021

09:00

09:30

10:00

10:30

11:00

11:30

12:00

12:30

13:00

13:30

14:00

Saturday, February 6, 2021


(09:30 - 11:00)
ICORES21-6A
Optimization Theory

(11:00 - 12:00)
Poster Presentations 2

(12:00 - 13:15)
ICORES21-7A
Project Management

(13:15 - 14:30)
Time Break

Zoom Meeting

Interreg 
 CENTRAL EUROPE European Union
European Regional
Development Fund
4STEPS

TAKING COOPERATION FORWARD

10th International Conference on Operations Research and Enterprise Systems (ICORES)
 Business Intelligence and Innovation: an European Digital Innovation Hub to increase System Interaction and Value Co-creation within and among Service Systems
 Florian Maurer, Vorarlberg University of Applied Sciences, Department Business Informatics

Maher Helaoui

Florian Maurer (...)

Ana Rita Pacienci...

#31-Luigi Di Pu...

Gustavo Ospina

Soukaina Oujana

Chat

From Ana Rita Pacienci... to Everyone: 12:00 PM

Hello everyone, welcome to the poster session 1 of ICORES 2021. For this presentation, I will be streaming a video with the compilation of all the posters and presentations sent by the authors of this session and available to download in the technical program. The video will be around 10 minutes long, so I will stream it now, and again at 11:30, in case you want to check them again. Feel free to initiate a discussion with the authors of posters you are interested in through the appropriate channels. Thank you.

To: Everyone File

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Zoom Meeting

INTRODUCTION


Industrial Challenge, Research Motivation & Question

- ! Small- and Medium sized Enterprises run the risk to miss the Digital Transformation
- ! Many organizations act as organizational silos
- ! Resource short-cuts (human resources, knowledge, budget ...)


★ Design & development of a Digital Innovation Hub for the long-term sustainability, survivability and success of the manufacturing industry within the region of Vorarlberg

? How can a Digital Innovation Hub for the manufacturing industry within the region of Vorarlberg for Business Intelligence & Innovation look like?

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 florian.maurer@fhv.at; Skype: flo.maurer



Florian Maurer (...)



Ana Rita Paciência

#31-Luigi Di Pu...

Gustavo Ospina

Soukaina Oujana

Chat

From Ana Rita Paciência (INSTICC ... to Everyone:

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Zoom Meeting

THEORETICAL UNDERPINNING

Service Science & Work System Theory

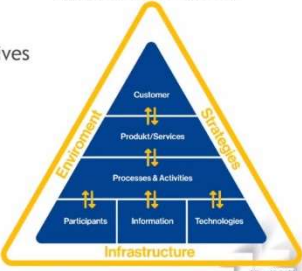
Service Science*

-  Transformation of resources
-  Multiple stakeholder perspectives
-  Value propositions
-  Service interaction & communication


Centre of investigation:
Service systems

* Spohrer et al. (2012); Maglio & Spohrer (2013)
 **Alter (2013)


Work System Theory**



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 florian.maurer@fhv.at; Skype: flo.maurer



Florian Maurer (...)



Ana Rita Paciência

#31-Luigi Di Pu...

Gustavo Ospina

Soukaina Oujana

Chat

From Ana Rita Paciência (INSTICC ... to Everyone:

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To: Everyone File

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Unmute
Start Video
Participants 15
Chat
Share Screen
Record
Reactions
Leave



Zoom Meeting | You are viewing Ana Rita Paciência (INSTICC St... s screen | View Options

DIGITAL TRANSFORMATION

Industry Needs & Vision

- Status Quo: technological maturity not achieved - underutilization of digital technologies
- High Motivation: internal & external Innovation
- Ambiguous Picture, e.g.: manager's willingness vs. employees needs, trial and error vs. structured innovation processes

Industrial Approaches:

- Innovation Strategy
- Industry 4.0 Strategy
- Service Interaction

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 florian.maurer@fhv.at; Skype: flo.maurer

Participants:

- Maïer Hélaoui
- Florian Maurer (...)**
- Ana Rita Paciência
- #31-Luigi Di Pu...
- Gustavo Ospina
- Soukaina Oujana

Chat

From Ana Rita Paciência (INSTICC ... to Everyone:

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To: Everyone | File


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Zoom Meeting

CONCLUSION

Business Intelligence & Innovation

- Continuous questioning of the internal and external organizational environment
- Think in value chains: systems & services
- Gain competitive advantages out of system & service interaction



Joseph A. Schumpeter

TAKING COOPERATION FORWARD 5
 florian.maurer@fhv.at; Skype: flo.maurer

Participants:

- Maïer Hélaoui
- Florian Maurer (...)**
- Ana Rita Paciência
- #31-Luigi Di Pu...
- Gustavo Ospina
- Soukaina Oujana

Chat

again, in case you want to check them again, or in case someone arrived a bit late to this session. Feel free to initiate a discussion with the authors of posters you are interested in through the appropriate channels. Thank you.

From #53-Fatemeh K Ranj... to Everyone:

is there any voice explanation?

From Ana Rita Paciência (INSTIC... to Everyone:

For some of them there are, if they have sent a video explanation. For the ones that only sent the poster, we have only included the poster

From #53-Fatemeh K Ranj... to Everyone:

ok, thank you

From Ana Rita Paciência (INSTIC... to Everyone:

All the posters can be downloaded in the technical program, if you want to read them with more detail

To: Everyone | File

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5.10. Poster presentation:

Posters ICORES Zoom Online Session Password: sbVX#U4m

ICORES21-RP-30: Poster

Business Intelligence and Innovation: An European Digital Innovation Hub to Increase System Interaction and Value Co-creation within and among Service Systems


Download: Paper Presentation Poster

Paper Forum:

ABSTRACT
 Due to limited resources (e.g. human, financial, knowledge, etc.), Small- and Medium sized Enterprises run the risk to miss the Digital Transformation of its systems. Especially the manufacturing industry – a strategic industry within the European Union that employs millions of workers and provide tremendous Gross Domestic Product to the partner countries – faces technology changes and increased challenges for implementation. As reaction to the challenges of the manufacturing industry, the European Union launched the Factory of the Future programme and the European Digital Innovation Hub programme. Within this article at hand, the iteratively and empirically endeavours towards the design and development of the Digital Innovation Hub: Business Intelligence & Innovation within the region of Vorarlberg are presented. In doing so, a narrative literature review about the academic discipline of Service Science – the guiding theory to innovate service systems – and an empirical research about the motivation, status quo, vision and strategy towards the Digital Transformation and Industry 4.0 paradigm of the manufacturing industry within the region of the Federal State of Vorarlberg are presented.

KEYWORDS
 European Digital Innovation Hub, Business Intelligence & Innovation, Service Science, Service Systems.

TOPICS
 Project Management; Information Systems; Industrial Engineering; Systems of Systems/Teams and Socio-Technical Systems; Engines for Innovation;

AUTHOR
 **Florian Maurer**
 Department Business Informatics, Vorarlberg University of Applied Sciences, Hochschulstraße 1, Dornbirn, Austria

5.11. Virtual background used:



