AIME Event Proposal

HEPTech Conference in Slovakia, 2018

The conference will focus on explaining the concept of Industry 4.0 and the principles of its practical application

Main information/trends related to INDUSTRY 4.0

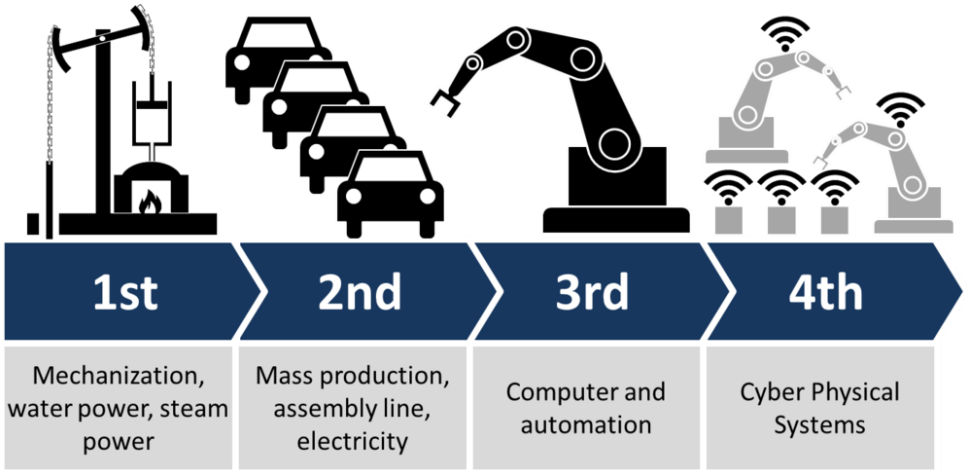
1. Main areas supported by INDUSTRY 4.0
2. Technologies used by INDUSTRY 4.0
3. Design principles for implementing INDUSTRY 4.0
4. Role of big data analytics
5. Impact and meaning of INDUSTRY 4.0

INDUSTRY 4.0 - is there a definition?

high-tech strategy for German government (“Industrie 4.0”)

Hannover Fair, 2011-2013

“fourth industrial revolution”



1. Main application areas of INDUSTRY 4.0

automation of

data exchange in

manufacturing technologies

2. Technologies used by Industry 4.0

1. Cyber-physical systems, Robotics
2. Internet of Things (IoT, IIoT, IoE, IoP)
3. Big data, Cloud computing

digital factory – computer-aided manufacturing, modeling, simulation, automation, smart products/services, embedded systems, data digitisation, machine-to-machine communication...

3. Design principles for implementing INDUSTRY 4.0

1. Interoperability
2. Information transparency
3. Technical assistance
4. Decentralized decisions

4. Role of big data analytics

1. Early detection of defects and production failures
2. Ability for prevention, increase in productivity, quality and agility

6C System

1. *Connectivity* – interconnection on sensory/network level
2. *Cloud* –computing and data on demand
3. *Cyber*– integration and interpretation of information stored in memory
4. *Content/context* – interpretation of meaning and correlation at the conceptual/ process level
5. *Community* – data sharing and collaboration of participating groups
6. *Customization* – personalization of applications according to specific requirements

5. Impact and meaning of INDUSTRY 4.0

1. Services and business models
2. Reliability and continuous productivity
3. IT security
4. Machine safety
5. Product lifecycle
6. Industry value chain
7. Workers' education/skills
8. Socio-economic factors

Aim/scope of conference (introductory event in a series)

- to familiarize the participants with the concept of Industry 4.0 (different ideas behind the term)

- to describe the practical application of the concept using:
  - knowledge technologies,
  - cyber-physical systems,
  - big data acquisition, archival, analysis and interpretation, visualization, real time processing (cloud computing)

  with specific focus on Slovak/Central European industry/academia

INDUSTRY 4.0 in Slovakia

Smart Industry Strategy - Slovakia going digital (Ministry of Economy: “a multi- layer concept representing digital adaptation of the Slovak industry, complemented with support for business, legal, and social capabilities for long-term sustainability)

Research and Innovation Strategy for Smart Specialisation of the Slovak Republic - RIS3 (“defines the direction for supporting research and development activities in Slovakia”)

UCITT - University Centre for Innovation, Technology transfer and Intellectual Property Protection at the Technical University of Kosice (+ USP Technicom)

CMCT&II - Center of Modern Control Techniques and Industrial Informatics - a research and teaching center at the TU of Kosice interconnecting the academia and industry in accordance with the Industry 4.0 concept (http://kyb.fei.tuke.sk)

Suggested participants

1. Representatives and members of **HepTech**
2. Representatives of **CERN** (scientists/technicians responsible for development and maintenance of selected experiments at the LHC)
3. Representatives of Slovak **universities and research institutes**: TU of Kosice, Safarik University Košice, Slovak Academy of Sciences, etc.
4. Representatives of important **technological companies** - suppliers of technologies for the individual aspects of Industry 4.0 (Siemens, IBM, National Instruments etc.)
5. Representatives of Slovak **organizations/clusters** which develop/use information and control systems in accordance with the Industry 4.0 concept (AT+R Cluster, Spinea Prešov, etc.)

Suggested conference sessions (themes)

1. **Cyber-physical systems + Robotics** (can be divided into 2 sessions if necessary)

1. **Internet of Things**

1. **Big data + Cloud computing**

Further structure (more specific **topics**) : open for discussion (suggested: automation/control systems, information systems)

Suggested number of participants?

Suggested conference location

Hotel Sorea Trigan - Strbske Pleso (High Tatras)

3 congress rooms (200/80/30)

Thank you for your attention

TU Kosice as a HEPTech member (*introductory presentation, includes info on CMCT&II*)

University Science Park Technicom for innovation applications supported by knowledge technologies (*introduction & conference proceedings*)

Smart Industry (*long-term strategy of Slovak Ministry of Economy*)