PA181 – Service Systems, Modeling and Execution

Introduction

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servisních
systémů
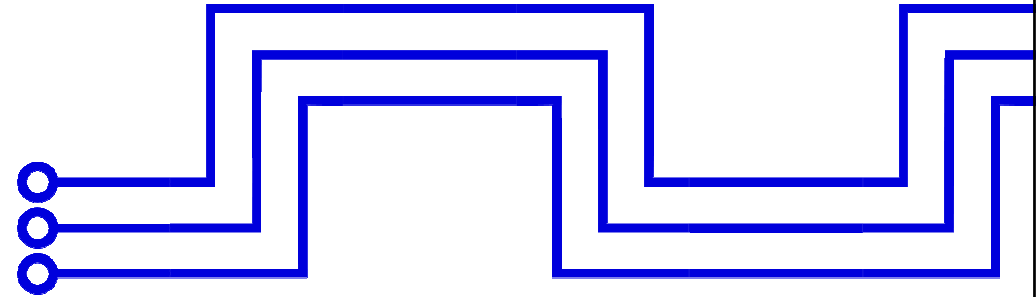
New teachers

Leonard Walletzký

- Lectures
- IBM cooperation

Josef Spurný

- Lectures

Zuzana Schwarzová

- Administration
- Organization of the projests

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Content of the course

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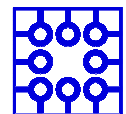servisních
systémů
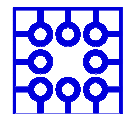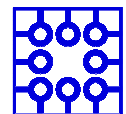
Final project

Group project of 2 – 3 students

Assigment will be specified in the middle of semmester

- After introduction to theory and IBM cloud

The presentation of the project during examination period

The best 5 projects will be awarded by IBM

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What is service?

services are processes, performances, or experiences that one person or organization does for the benefit of another

In all cases, service involves deployment of knowledge, skills, and competences that one person or organization has for the benefit of another, often done as a single, customized job

- Lusch & Vargo

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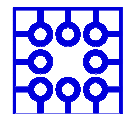
What is the complexity?

– **Complexity** characterizes the behavior of

a system or model whose components

interact in multiple ways and follow local rules,

meaning there is no reasonable higher

instruction to define the various possible

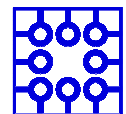interactions
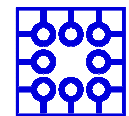
What are complex services?

Services acting in complex environment

There is not clear way how to define the process of service provision

The final value depends on

- Response of customer
- The resources currently used
- Interaction with other entities in the environment

All services became more complex
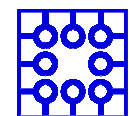
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Example: Hairdresser and knowledge

1960

How to use scissors and other cutting staff
he basic trends in haircutting
Know the basic of marketing (how to impress
the new customers and keep the present one
Know the basic of taxation and bookkeeping

Teaching in the environment of Complex services

|	
New curriculum	• How to turn proposal into application • Less theory, more practice
Focus to other skills	• Multidisciplinarity • To understand marketing, management etc.
Social skills	• To present and communicate • To understand people from other domains

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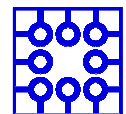
Social skills as key factor

To understand people from other domains is the main factor of success in multidisciplinary teams

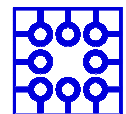One word or phrase can have more, mostly different meaning

| IT	Law	Doctor
• Set of data • File stored in cloud • Size, type	• Legal manuscript • Legal consequences • Laws, paragraphs	• Medical content • Treatment, medicine, pills

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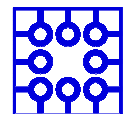
What if the context understanding fails?

- E-Prescription has very clear value

- But if it is not described properly to all stakeholders, it is refused

- Physicians took e-prescription as example of the state dictate

- They have more important duties than learn new technology with no relation to medicine
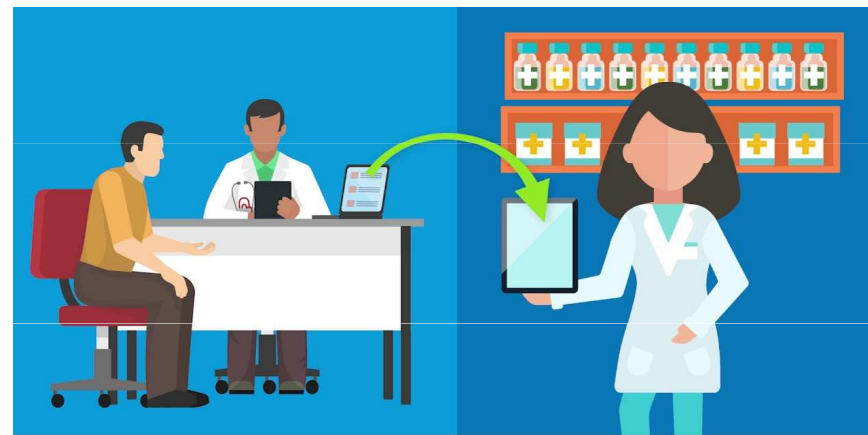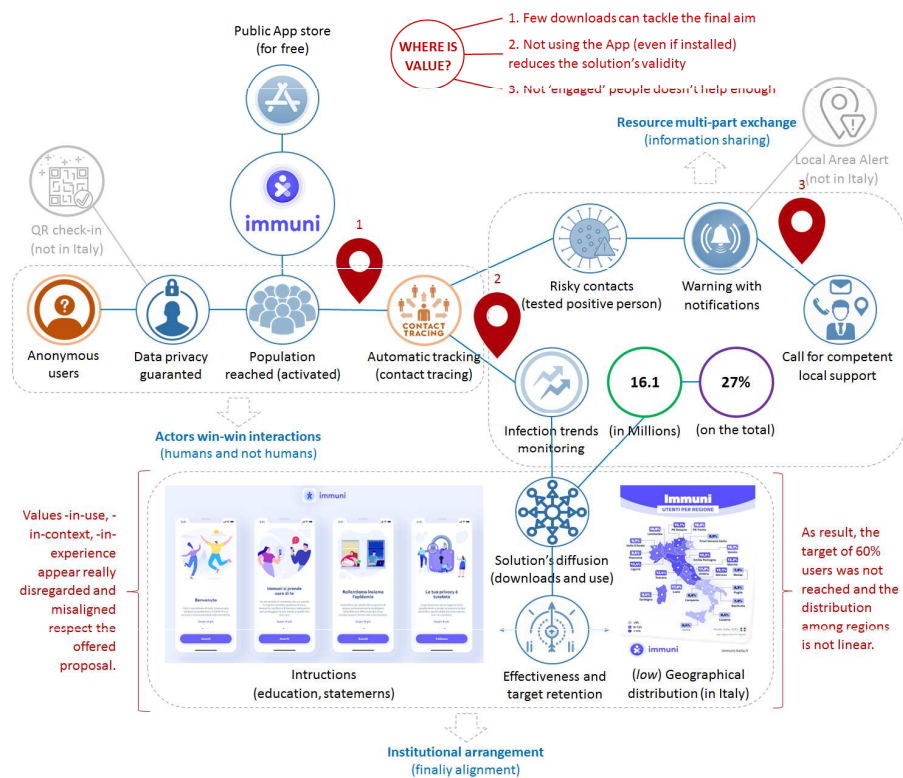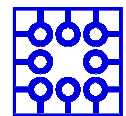
Immuni: the contact tracking in Italy
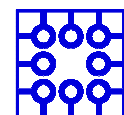
Smart City – example of service complexity

Correct definition of Smart City

Role of ICT in Smart City Structure

Role and design of Services within the Smart City

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Definition of Smart City

Why do we need „correct" definition of Smart City?

Many cities claim to be smart

Obviously, the implementation of ICT plays key role in city „smartness"

Smart City Council definition:

- A smart city is one that has digital technology embedded across all city functions

But just usage of ICT does not mean the city is smart

The usage of ICT should have been used in a way to improve city efficiency, usability and sustainability

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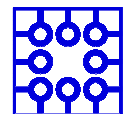
Possible definitions

The use of smart computing technologies to make the critical infrastructure components and services of a city – which includes city administration, education, healthcare, public safety, real estate, transportation and utilities – more intelligent, interconnected and efficient

- Where Smart Computing means:
  A new generation of integrated hardware, software, and network technologies that provide IT systems with real-time awareness of the real world and advanced analytics to help people make more intelligent decisions about alternatives and actions that will optimize business processes and business balance sheet results
- WASHBURN, Doug; SINDHU, Usman; BALAOURAS, Stephanie; DINES, Rachel A; HAYES, Nicholas M; NELSON, Lauren E. Helping CIOs Understand "Smart City" Initiatives. 2010.

Smart City is the set of services, using ICT in non-trivial way that enables city management and whole society to meet the challenges of city development with the aim to improve its efficiency, habitation and sustainability, to bring its citizens the highest value possible, formulated in understandable value proposition.

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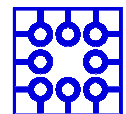
Main research questions

Do the Smart City Services have any structure?

How to design and realize Smart City services in the most efficient and complex way?

What competencies and knowledge are necessary to understand complexity of services?

What are necessary inputs, implementation processes, limits, forms of financing and other constrains to create valuable structure of services within Smart City?

How to formulate the rules to create effective, flexible and complex Smart City, fulfilling the requests of administration, citizens and other related stakeholders?

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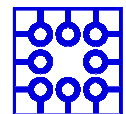
Smart City Services

There are many different services, used in Smart City, with different role and customers
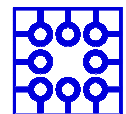
- Traffic control
- Route optimization
- Waste services

We can find there many IT services, but in the basic level, we can recognize two main elements

- Software
- Hardware

How they are related or connected? What tasks do they really fulfill?

Is there any methodology we can use?

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Service Science inspiration

The key element of all services is:

- Value – usefulness or utility for the receiver of the service
- Value proposition – description of the value in the language of receiver

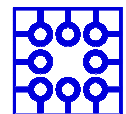Based on this we divided the Smart City services to the layers depending on their value proposition.

- Do they serve for final user (citizen, administration) or are they just „inputs" for other services?
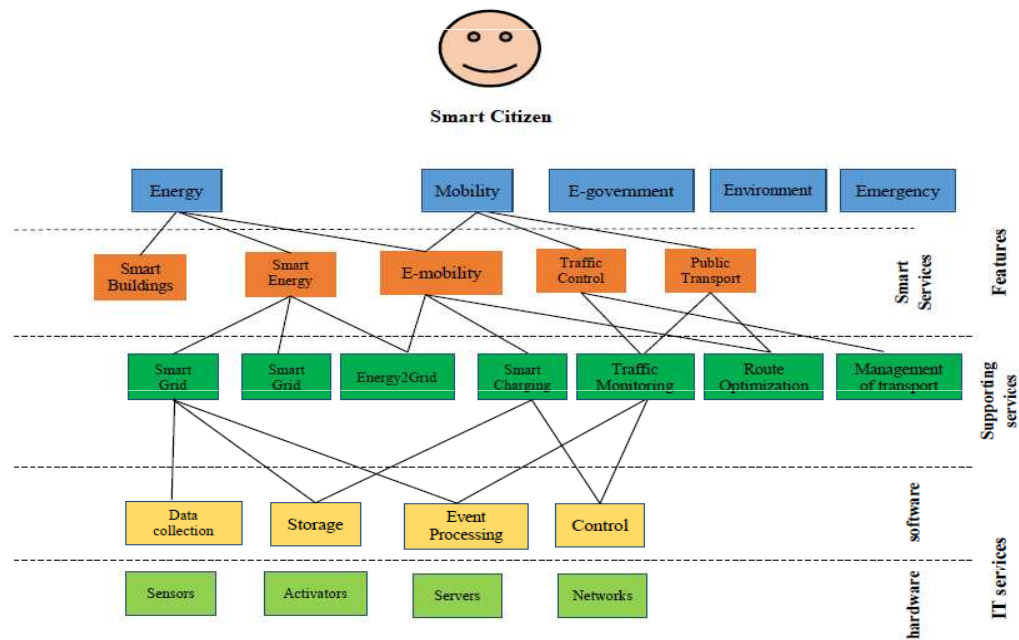
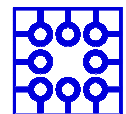| IT services |
| Supporting services |
| Smart services |
| Smart features |

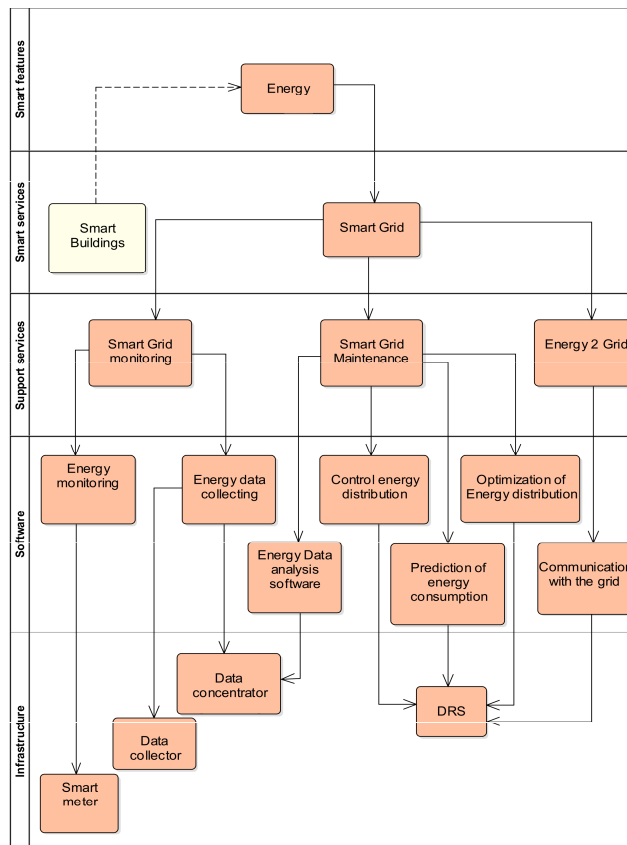Laboratoř servisních systémů

Layer model of Smart City

Walletzky L., Buhnova B., Carrubbo L. (2018) Value-Driven Conceptualization of Services in the Smart City: A Layered Approach. In: Barile S., Pellicano M., Polese F. (eds) Social Dynamics in a Systems Perspective. New Economic Windows. Springer, Cham
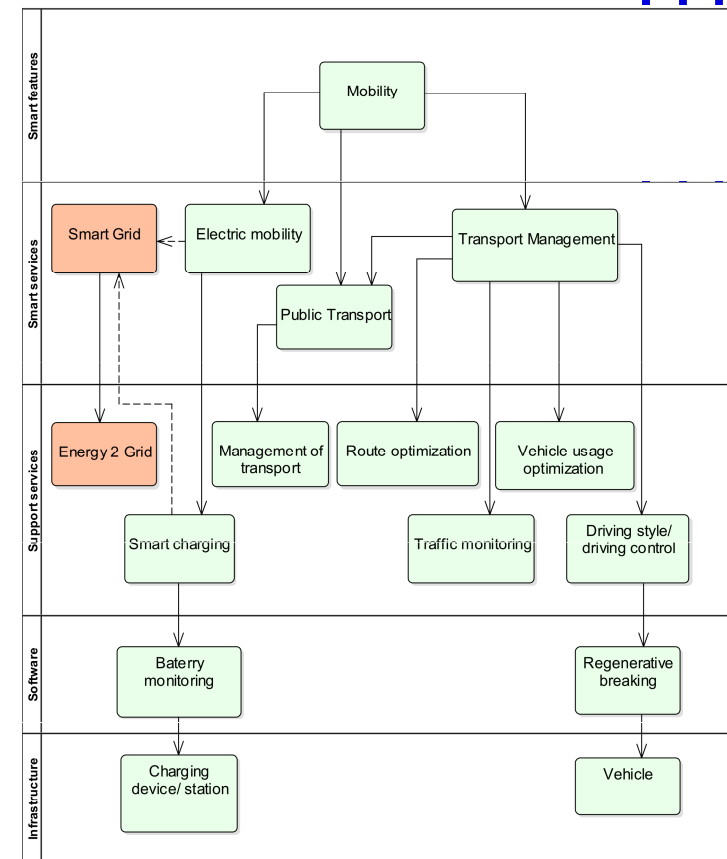
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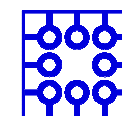
Detailed Layer analysis
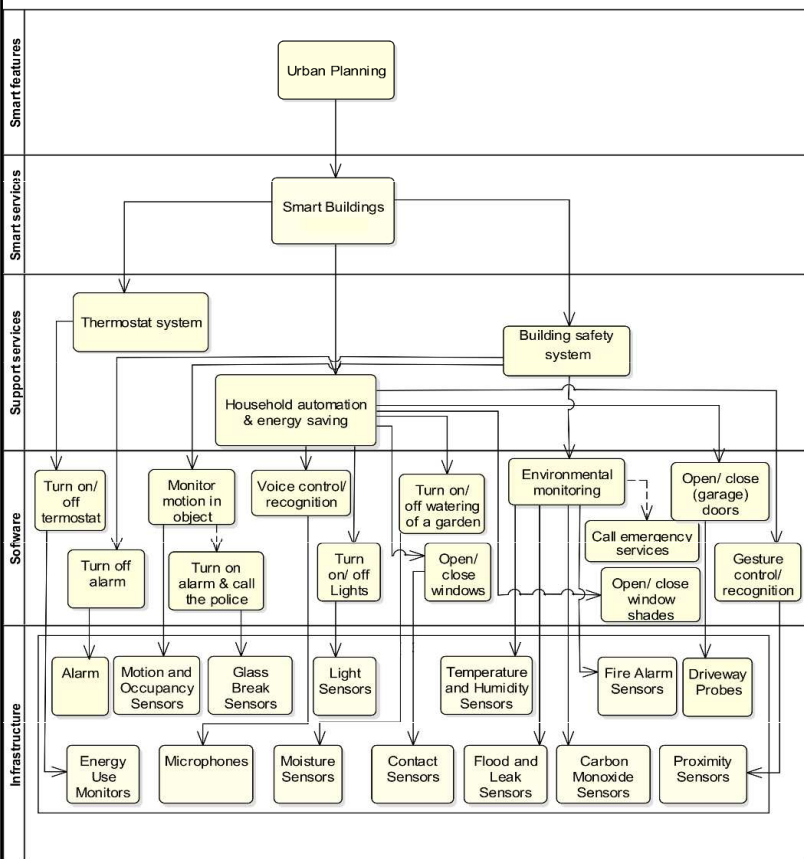
Urban planning

Smart Energy

Mobility

Conclusion

- Service and its role
- Value proposition and its meaning
- Serivice complexity
- Smart City as examle

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