

Human Factors in Smart City Support Systems

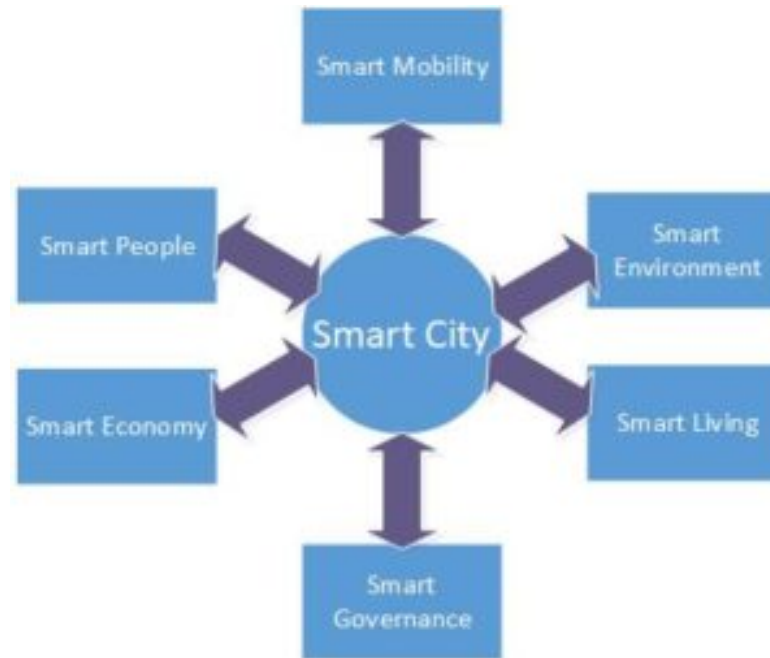
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- Smart City
- Smart City Support Systems – SCSS
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Smart City



SCSS

- Definition of SCSS (Smart City Support Systems) - applications of electronics and IT&C technologies in the field of Smart City in terms of developing the city, reducing negative impact of humans and increasing the efficiency of using resources.
- One of the most important component of a smart city support system is the human who is involved in different stages of the system development: design, installation, operation and maintenance of the system.

Human intervention & roles

- The design stage - at this stage this intervention has two important dimensions: the footprint of the designer as human on the structure and the architecture of the system (innovation, creativity, education, experiences, collection of information etc.) and the role and the position of the human component in the structure of the system (human as part of the system). This design stage is fundamental for next stages of the system in terms of integration and reliability of the system (another aspect is the interoperability of the system and some times this interoperability is done by the human operator - he/she will act as an interfaces between different systems).

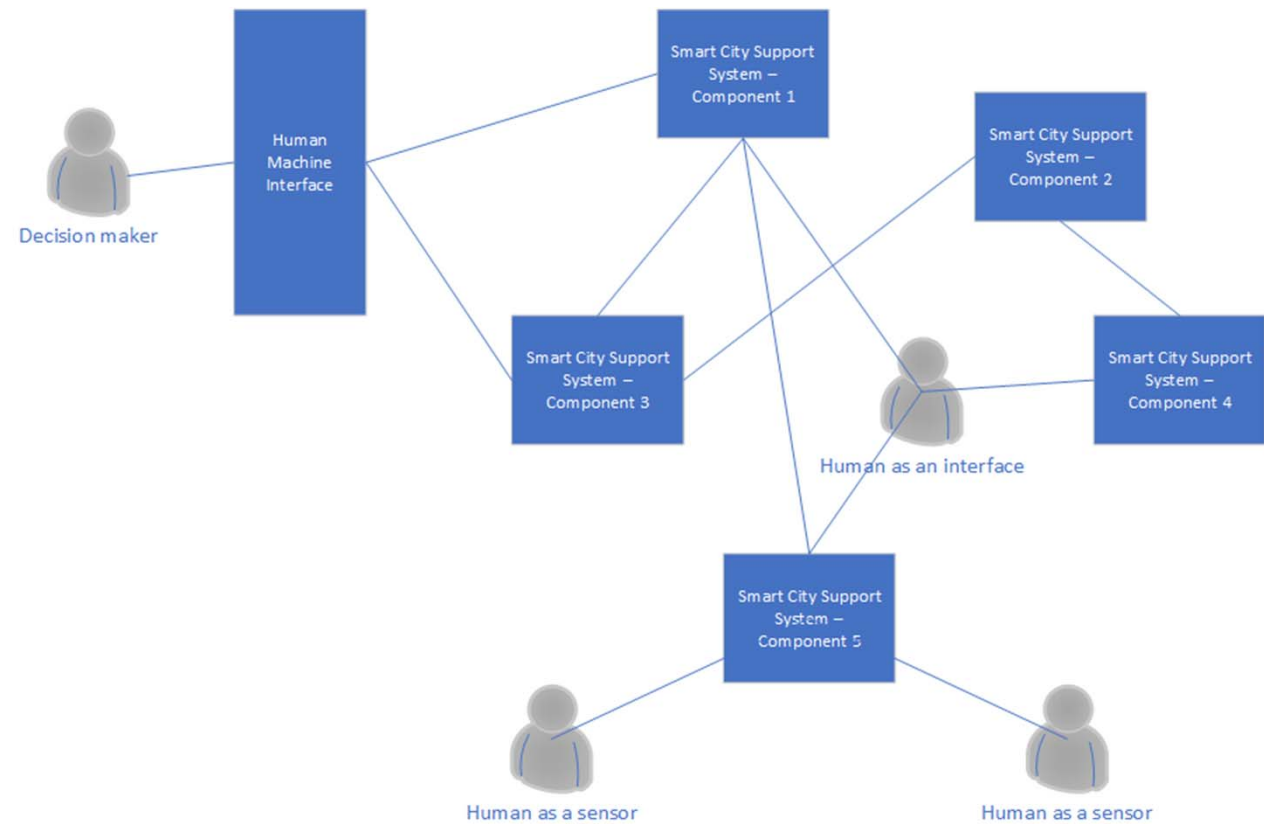
Human intervention & roles

- The installation stage - the role and impact of humans are limited and the design of the system will cover all aspects related to installation.
- The operational stage - the human is an active part of the system and the role is as decision maker as well as a component of the system (sometimes the human is used as interface, sensor - to collect data from processes or other system and so on).
- The maintenance stage - the human has to be part of the diagnosis and control system (a human and a tool or instrument for measurement) and part of the fixing system (human, tools, spare parts and materials);

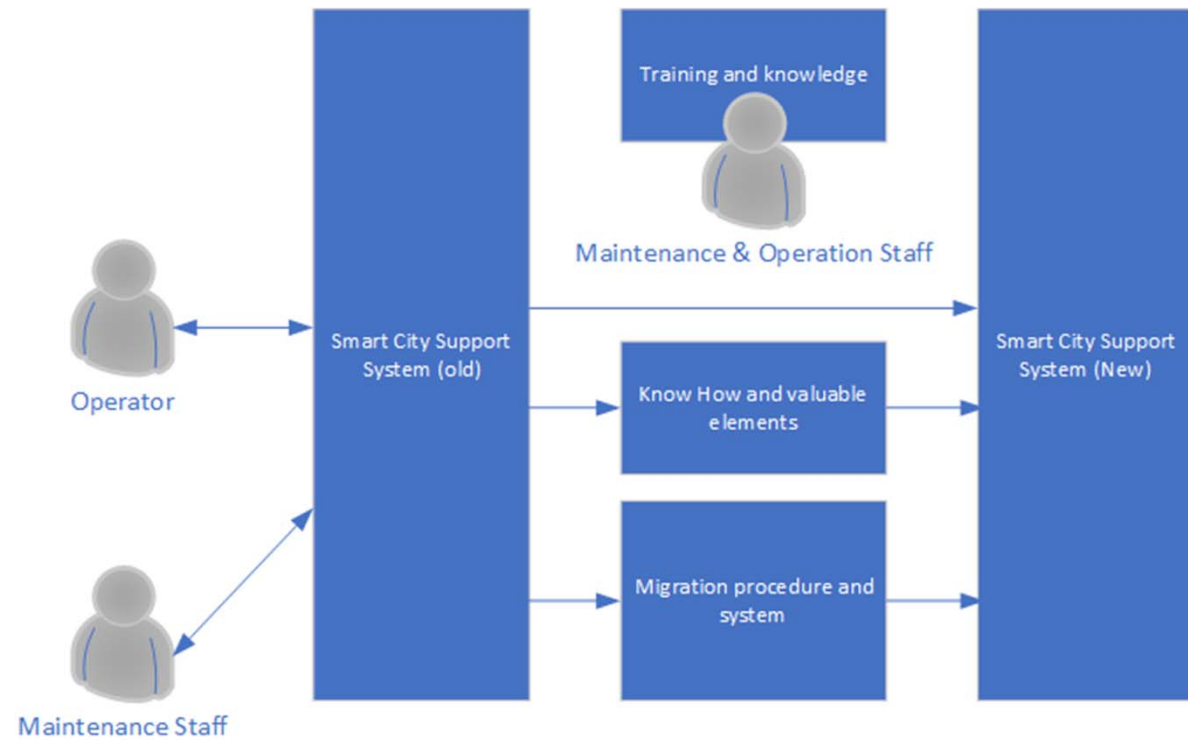
Human intervention & roles

- The recovery stage - in the case of attacks or other threats - the human is a key component of the system which is used to recover the functionality of the system after an attack.
- The replacement stage - the system is replaced with a new system and the human has to be the bridge between the systems in terms of using experiences and other valuable elements of the old system in installation and operation of the new system.

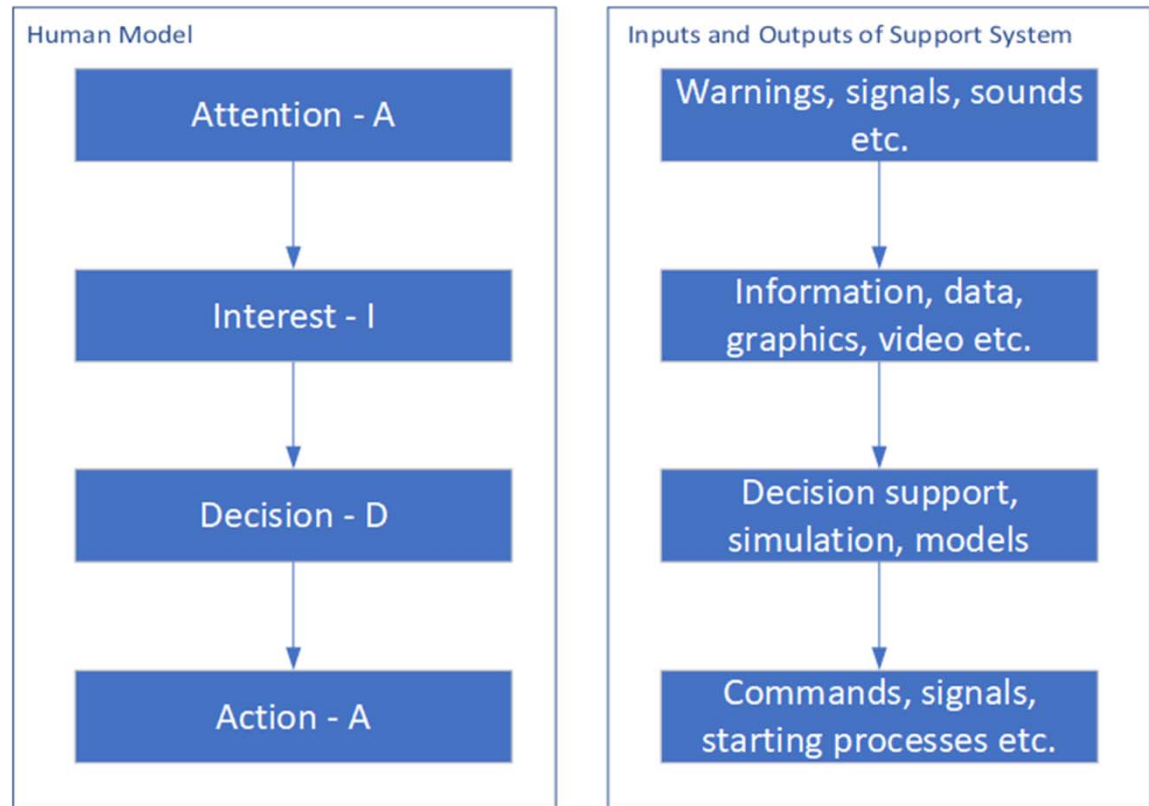
Models – operational stage



Models – replacement stage



Models – humans



Trends

- Integration of humans in technical systems - humans as part of the system
- Automation of processes and activities - no human intervention in some tasks
- Autonomous systems - with zero human intervention
- Machine-to-machine approach - no human representation of information
- Virtualisation of human activity
- Avatar and e-profile of humans

Conclusions

- There is a huge need for human integration in systems
- Smart city is a result of smart application of technologies and knowledge in urban area
- The human behaviour has to be analysed before the design of the system
- The human behaviour will be changed after the installation of the system
- Dynamic and Adaptive integration of humans in technical environment

Thank you for
your attention!



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