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Session 28

**Socio-demographic challenges, diversity and gender –
Free market solutions versus political interventions**

#CIVITAS2019

TInnGO

Introducing the Transport Innovation and Gender Observatory

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Smart Mobility

- intelligent and sustainable
- multiple factors: energy-efficient, comfortable and cost-effective

Gender

- more than just the mere allocation of biological sex
- a matter of the socially and culturally shaped gender roles of women and men, which are learned and thus changeable

Diversity

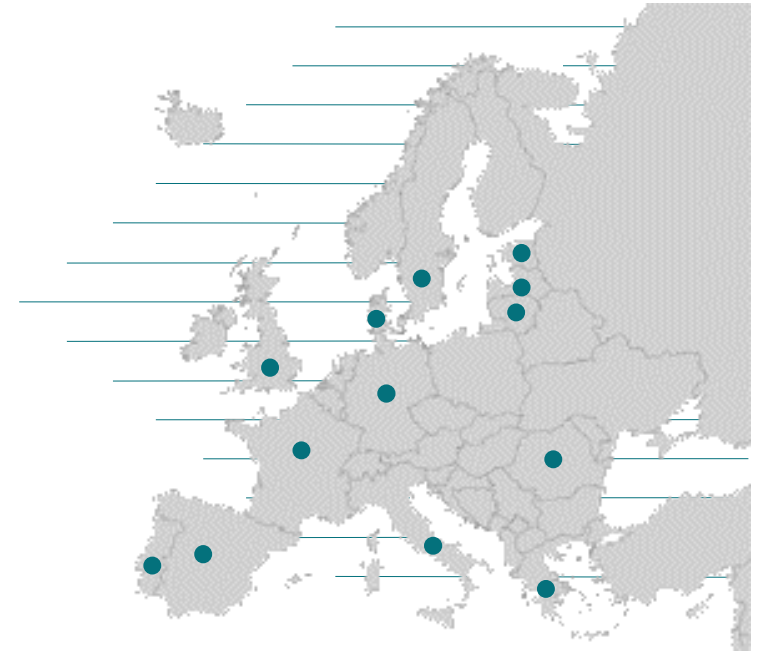
- social diversity and different life situations (e.g. age, income, religion, ethnic origin and restrictions due to special needs)

Gender & Diversity Smart Mobility

- relations between genders and mobility in terms of the different social, cultural and geographic contexts
- Gender, Diversity and Smart Mobility as components which influence each other
- Examples:
 - female and international travellers – different use of information technologies for public transport
 - female employees in public transport – implementation of gender-sensitive needs in Smart Stations

Source: https://www.deutschlandfunkkultur.de/migranten-am-arbeitsmarkt-eine-iranerin-wird-busfahrerin-in-1001.de.html?dram:article_id=383158 (Image 1) <https://www.bmfsfj.de/bmfsfj/gleichstellungsindex-2017-veroeffentlicht/121568> (Image 2) <https://images.app.goo.gl/Xr2ggXZYqkjUeAJb6> (Image 3) <http://www.lagh-hamburg.de/oepnv.html> (Image 4)

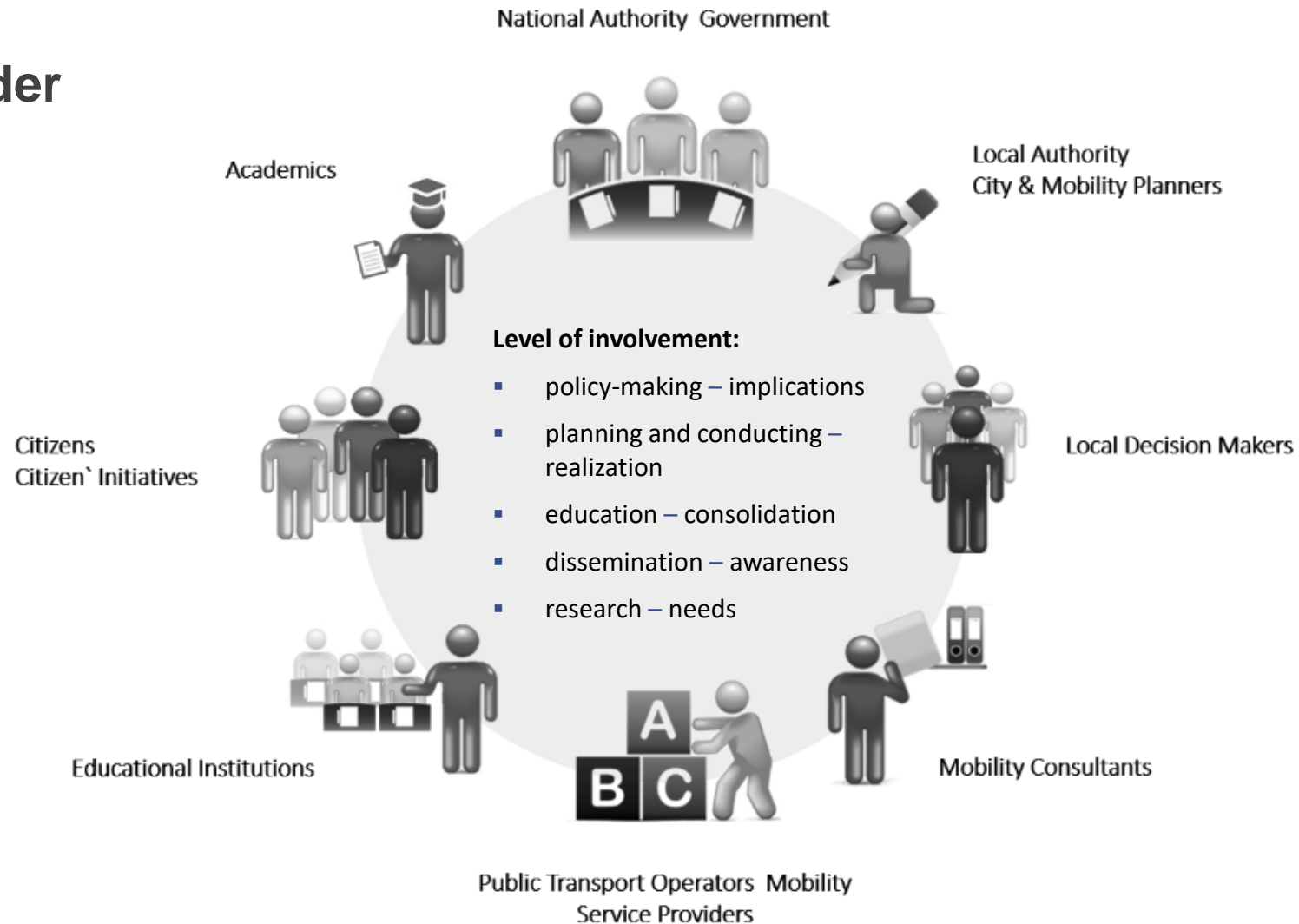
Observatory



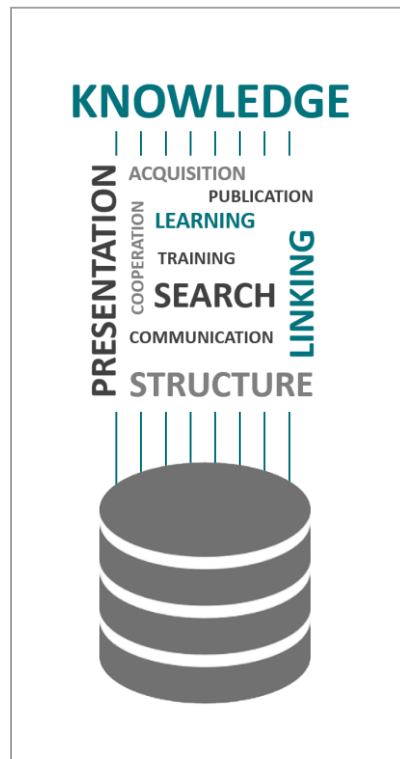
- in some countries the turning away from thinking in exclusively traditional gender roles progresses faster than in others
- It provides and prepares internationally scattered knowledge for the consideration of both gender and diversity issues in the field of mobility
- in a user-centered way, so that all stakeholders find, understand and use the provided information
- therefore particular contexts of use must be taken into account

Source: <https://www.europakarte.org/leere-europakarte/>

Stakeholder



Repository for gender and diversity sensitive Decisions

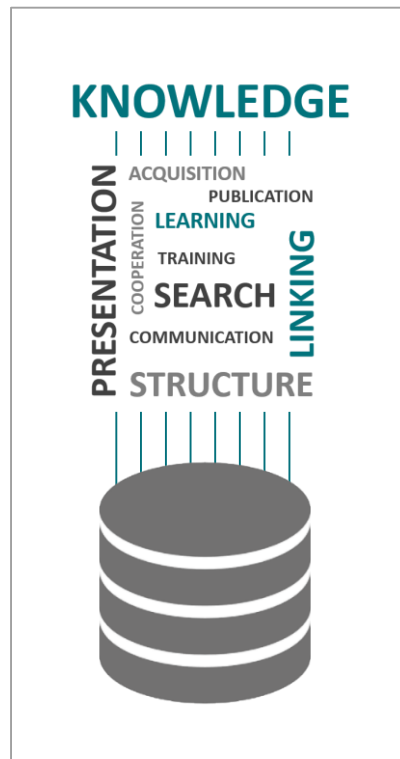


- provides and prepares internationally scattered knowledge for the consideration of both gender and diversity issues in the field of mobility
- in a user-centered way, so that all stakeholders will find, understand and use the provided information

therefore it

- describes knowledge elements that come from a variety of sources with the help of meta-data
- provides a taxonomy, knowledge structure or an ontology to meaningfully organize and link the knowledge elements analyze the semantics of the organizational knowledge base

Repository for gender and diversity sensitive Decisions



How can existing internationally scattered knowledge be prepared for the different profiles of stakeholders and their individual tasks and information interests?

Profile for each Stakeholder

CONTEXT OF USE RESPONSIBILITIES & COMPETENCES	PUBLIC TRANSPORT OPERATORS & MOBILITY SERVICE PROVIDERS
	<ul style="list-style-type: none"> • preparation of and participation in strategic planning concepts internally and externally • network expansion and line network design, updating of urban framework planning such as land use plan, urban development plan for transport • route identification and optimisation, determination of stop locations, securing trafficability • ability to quickly grasp complex knowledge and map it to one's own problem • a high level of knowledge based on a high level of education in the field of transport and civil engineering <p>Regarding gender issues, this means e.g.</p> <p>→ implementing gender-sensitive measures in transport companies</p>
	<ul style="list-style-type: none"> • user-centered design and operation of mobility and service offerings • implementation of safety and security standards • further development of mobility services with a focus on accessibility • responsibility in the role as employer, improve working conditions, design of workplaces and work tasks • participation in tenders • customer acquisition
KNOWLEDGE GOALS	Regarding the repository, they pursue the following knowledge goals:
	→ studies, data, numbers
	→ knowledge of the diversity of users (Personas und typical Scenarios) to better address their services
	→ relevant Good Practice examples
	→ work experiences from other providers and operators
	→ regulatory framework



Profile for each Stakeholder

PUBLIC TRANSPORT OPERATORS & MOBILITY SERVICE PROVIDERS	
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TASKFLOW	<ul style="list-style-type: none"> • user-centered development of mobility and service offerings • implementation of safety and security standards • further development of services with a focus on accessibility • responsibility in the role as employer to improve working conditions, design of workplaces and work • participation in tenders • customer acquisition
KNOWLEDGE GOALS	<p>Regarding the repository, they pursue the following knowledge goals:</p> <ul style="list-style-type: none"> → studies, data, numbers → knowledge of the diversity of users (Personas und typical Scenarios) to better address their services → relevant Good Practice examples → work experiences from other providers and operators → regulatory framework

CONTEXT OF USE – RESPONSIBILITIES & COMPETENCIES



- preparation of and participation in strategic planning concepts internally and externally
 - network expansion and line network design, updating of urban framework planning such as land use plan, urban development plan for transport
 - ability to quickly grasp complex knowledge and map it to one's own problem
- regarding gender issues, this means e.g. implementing gender-sensitive measures in transport companies

Profile for each Stakeholder

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KNOWLEDGE GOALS	Regarding the knowledge they pursue the following knowledge goals
	→ studies, data, market research
	→ knowledge of the diverse needs and requirements (Personas und typical Scenarios) to better address them
	→ relevant Good Practice examples
	→ work experiences from other providers and operators
	→ regulatory framework

TASKFLOW



- user-centered design and operation of mobility and service offerings
- implementation of safety and security standards
- further development of mobility services with a focus on accessibility
- responsibility in the role as employer, improve working conditions, design of workplaces and work tasks
- participation in tenders
- customer acquisition

Profile for each Stakeholder

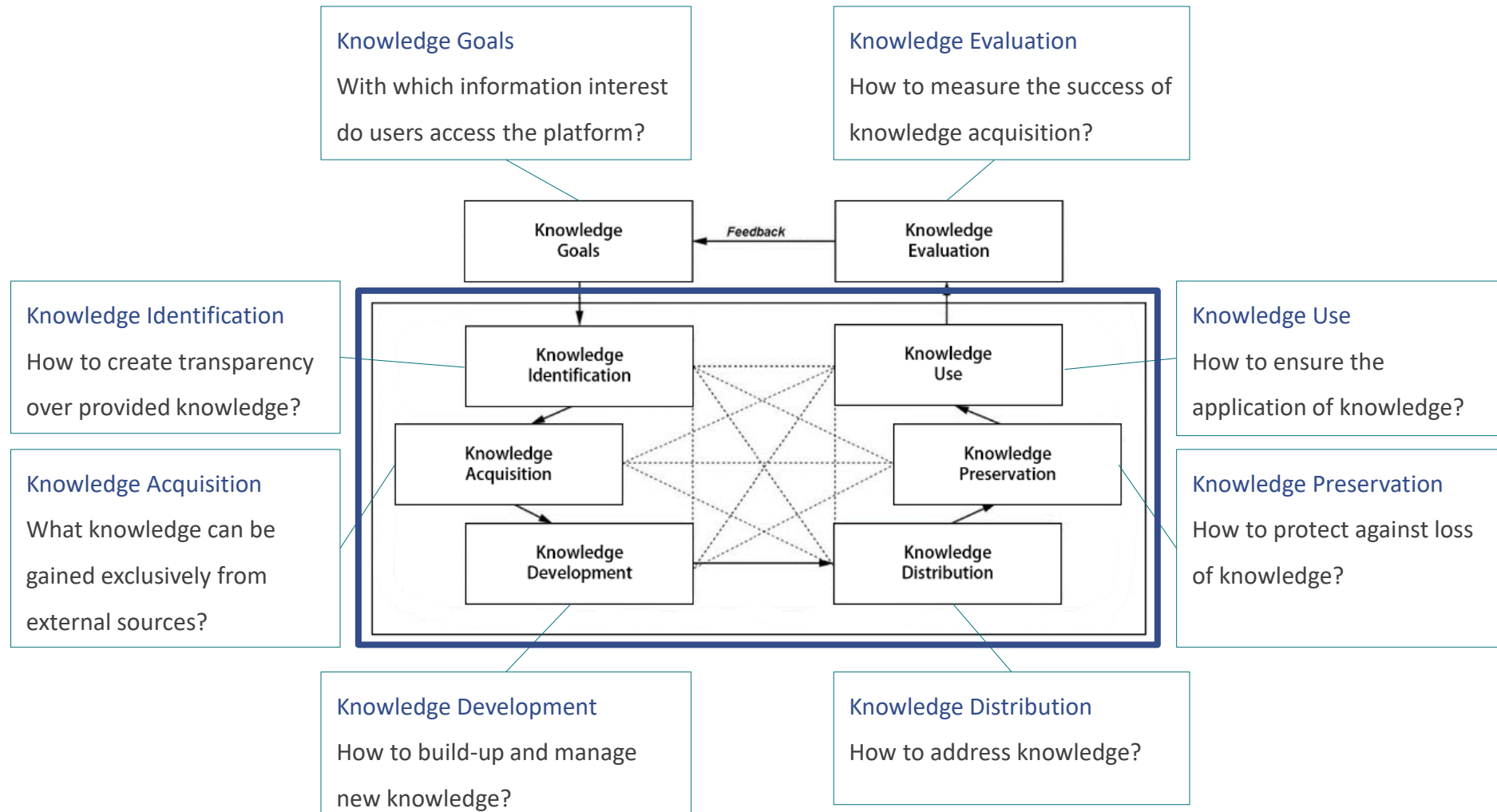


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- regulatory framework

- Theoretical Knowledge
- Experience Knowledge
- Country-specific Regulatory Conditions



Source: Maier, R.: Knowledge Management Systems: Information and Communication Technologies for Knowledge Management. 2nd edn. Springer, Berlin (2004)

User Centred Design

English: **students**

German: **Student/-in**

German: **Studierende**



Gender-sensitive language

- regarding communicating in different languages
- regarding providing/ addressing of information

Gender-sensitive visual language

- regarding communicating through depictions of humans instead of objects
- regarding balanced depiction of women and men in pictures
- regarding showing diversity
- regarding using icons

Source: <https://abi.unicum.de/aktuelles/news/wo-sind-die-mint-maedels> (image 1) <https://images.app.goo.gl/Xr2ggXZYqkUeAJb6> (Image 2) <http://www.lagh-hamburg.de/oepnv.html> (Image 3)

Results – Analysis of platforms – How to find information?

Search/ Access via specific categories:

- Safety/ Security of Women in Public Transport
- Women in STEM
- depending on experience and/or knowledge background
- Glossary
- ...

Navigation Area

- clearly structured and intuitive
- allows access from different perspectives/interests
- use of icons - understandable across multiple languages
- different access categories
- ...

Search/ Filter

- advanced search and filter function
- Research - Gender Data sets of 2015
- countries related
- institution related
- publications of a specific author
- different types of users
- depending on experience and/or knowledge background
- Typeahead
- ...

Results – Analysis of platforms – How to find information?

Recommendations/ Related Topics

- to elaborate interests
- images and headlines attract attention
- Women in STEM
- surveys and data to trace the issues
- Best Practice Examples – ideas and solutions
- phases: theory/ method/ implementation
- ...

Structure

- uniform criteria and structure
- customized in language regarding to the diversity of the future users
- structured information/ knowledge to make it searchable/ findable
- categories, tags #safety, links, relations
- keep up motivation and provide guidance

Sharing

- share content - Social Media, Messengers etc.
- raise awareness – promote Gender and Diversity projects
- build-up contact: Womens Associations etc.
- develop a community
- ...

Results – Analysis of platforms – How to provide information?

Templates and forms

- uniform structure
- guidance
- split screens – preview mode
- ...

Tools

- simplify the insert of information
- automatic creation of a basic structure
- keep up motivation and provide guidance
- ...

Quality & Security

- role-based access – moderators, admins, users
- rights and duties
- ...

Communication & Interaction

- internal communication – exchange of messages between users (formally)
- chat function between users
- discussion forums
- ...

Results – Analysis of platforms – How to provide information?

2014 IEEE World Forum on Internet of Things (WF-IoT)

IoT and Cloud Convergence: Opportunities and Challenges

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Abstract—The success of the IoT world requires service provision attributed with ubiquity, reliability, high-performance, efficiency, and scalability. In order to accomplish this attribution, future business and research vision is to merge the Cloud Computing and IoT concepts, i.e., enable an “Everything as a Service” model; specifically, a Cloud ecosystem, encompassing novel functionality and cognitive-IoT capabilities, will be provided. Hence the paper will describe an innovative IoT-centric Cloud smart infrastructure addressing individual IoT and Cloud Computing challenges.

Keywords—Internet of Things; Cloud Computing; Convergence;

I. INTRODUCTION

The Cloud Computing concept has greatly matured over the last few years. The concept means that anything that can be hosted on the Internet, i.e., resources/services/data is available for use, when needed, for the composition and provision of more sophisticated services. Key cloud characteristics are: on-demand service provision, ubiquitous access, resource pooling, as well as elasticity.

In the meantime the “Internet of Things” (IoT) vision has evolved and is coming to reality. The IoT involves several billions of diverse devices inter-connected by 2020 [1] vast amounts of quickly-emerging/versatile data (i.e., “big data”), and numerous services. Connected devices can be sensors, actuators, smart phones, computers, buildings and home/work appliances, cars and road infrastructure elements, and any other device or object that can be connected, monitored or actuated. Devices are connected to the Internet, as well as with each other, via heterogeneous access networks. Services aim at leading to a smart, sustainable and inclusive society and economy. In the light of the issues discussed, the success of the IoT services can only be achieved if they are attributed with ubiquitous accessibility (i.e., more business opportunities), reliability (e.g., for handling context/policy changes and accomplishing trust from the parts of the users), high-performance (e.g., due to the associated “big data”), efficiency (for improving the position of all stakeholders, e.g., providers and users), and scalability (e.g., as various volumes of users, resources and data may be involved in service provision).

The Cloud features mentioned in the first paragraph are essential today for the IoT world. For instance, resource pooling enhances the reliability and efficiency of service provision, the on-demand and elasticity features are

fundamental for efficient and scalable service provision (resource provision where needed, for the amount of time needed), etc. All these facts make a more than compelling case for the merging of the Cloud and IoT paradigms.

II. IOT AND CLOUD CHALLENGES AND HAPPY MARRIAGE

IoT is the vision of future connected world. In order to realize this vision targeting future market potential several requirements have to be taken into account, for example i) Ubiquitous accessibility and connectivity, facilitation of maximum accessibility as well as connectivity of the diverse heterogeneous objects/services and various volumes of users including mobility through commonly agreed APIs and standards ii) *Dynamic management/orchestration* of users, billions of devices as well as massive amount of data produced by those connected devices iii) *Maximum resources utilization*, enabling of sharing of IoT resources (objects, applications, platforms) iv) *Personalization of users and services*, providing services based on users preference and requirements including real-world context. All the above functionalities have to be i) reliability (e.g., for handling context/policy changes and accomplishing trust from the parts of the users) and ii) *Scalability* (e.g., as various volumes of users, resources and data may be involved in service provision)

A. What Cloud can offer?

Cloud computing relies on sharing of resources, which is key requirements for IoT platform. The Cloud Computing is not only sharing the resources but also maximizing the resources. It is also location independent, the users access the cloud services from any location and with any devices through the internet connection. When we talk about the IoT platform then it should also be access from anywhere, any time. The virtualization of physical devices is another important characteristics, virtualization allow users to easily share the devices. Due to virtual world nature, it is also more homogeneous. Multitenancy feature of cloud computing enables sharing of resources to multiple users over spatial and time distribution. In addition, Cloud offer elasticity and scalable of resources and application, the service and resources are easily accessible and available. Hence the convergence of Cloud and IoT can provide huge opportunities for both technologies.

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Understanding mobility needs

Engaging and fostering solutions to gender-sensitive smart mobility challenges in the European transport ecosystem

A sustainable game change in European transport

TlnnGO aims to become the reference portal for all issues related to gender and mobility in the EU.

FIND OUT WHO WE ARE

Thank you for your attention.

