



Smart Statistics Kick-off meeting

Wiesbaden

15-16 Nov 2018

Albrecht Wirthmann

Smart Systems

- *incorporate functions of sensing, actuation, and control*
 - **to describe and analyze a situation, and**
 - **make decisions based on the available data in a predictive or adaptive manner.**
- *Dimensional reduction of technology:*
 - **Sensors, smart devices, algorithms, robots are used to collect data in order to decide an action.**
- *Rational decision-making process.*
- *Actuators that produce a smart action on the basis of a decision-making predictive or adaptive process*

Smart Statistics

process of statistical production - in (near) real time, incorporating functions of

- ***autonomous, automated and continuous** data collection,*
- ***data-driven processing** adaptively responding to environmental changes,*
- ***a control process** to describe and analyse a **phenomenon***
- *when the situation includes a **decision** the **smart statistics include also a rational decision-making process***

Smart Statistics Principles

- *adheres to principles and standards (trusted by design)*
 - **algorithmic transparency,**
 - **auditability,**
 - **reproducibility and**
 - **privacy protection**

Smart Statistics principles

- *Autonomous and automated data collection from sensors or algorithms;*
- *Continuous data collection;*
- *Large and often very large raw data sets (organic data);*
- *Adaptively responding to environmental changes, i.e., data-driven processing;*
- *Statistics extractable in real time or in as close to real time as makes sense;*
- *Including a rational decision-making process when statistics are used for decisions.*

"Smart statistics" in the business case 2018-2020

- *Use of citizen science data for individuals' well-being*
 - Use of smart devices, wearable sensor technology (e.g. fitness trackers) related to wellbeing and physical activities and/or health-related information (e.g. pulses, blood pressure)
- *Citizen science data and smart cities*
- *Smart cities and connected vehicles*
 - Use of smart vehicles, smart parking, meteorological stations
- *Smart farming*
 - Use of field smart sensors, satellite images, drones, meteorological stations



Year	2016		2017				2018				2019				2020				2021				2022				
Quarter	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
2016-2018																											
Pilots Phase I 2016-2018	STAGE I																										
2017-2018																											
Smart statistics Proofs-of-concept, quality, business process and information models																											
2018-2020																											
First Implementation phase 2018-2020					<i>Business case</i>			<i>budget</i>		STAGE II																	
Pilots Phase II 2018-2020					<i>Business case</i>			<i>budget</i>		STAGE II																	
Smart Statistics I 2018-2020					<i>Business case</i>			<i>budget</i>		STAGE II																	
2019-2021																											
Smart Statistics II 2019-2021								<i>Updated Business case</i>	<i>budget</i>	STAGE III																	
2020-2022																											
Smart Statistics III 2020-2022									<i>Updated Business case</i>	<i>budget</i>	STAGE IV																
Second Implementation phase 2020-2022									<i>Updated Business case</i>	<i>budget</i>	STAGE IV																

Smart Statistics

SMART STATISTICS	Business case Stage II
Use of citizen science data for individuals' well-being	X
Citizen science data and smart cities	X
Smart cities and connected vehicles	X
Smart farming	X
Smart mobility/smart traffic statistics	
Smart business cycle statistics	
Smart labour market statistics	
Smart energy use case SMPC	
Smart data collection (TUS, HBS, etc.)	

(WPL Preparing smart statistics)

Task 1 – Smart Farming (DE, AT, PL)

Task 2 – The use of IoT for Smart Cities (BG, DE, FR, IT, UK) 3 case studies

Task 3 – Smart devices (IT, PT, NL)

Task 4 – Smart traffic (FI, NO, UK)

Subtask 4.1 – Use of Traffic loops for economic estimates (FI, UK)

Subtask 4.2 – Truck transport (NO)

Advice on the contents of the forthcoming Stage III



Activities

- *Identify + analyse **smart systems** for producing statistics for multiple statistical themes*
- *Involve **subject matter experts***
- *Review and propose an adequate **quality and metadata framework** for the smart systems in official statistics*
- *Assess quality within the proposed quality framework taking into account the implementation in other languages*
- *Identify, define **target architecture and required IT capabilities** for data processing*
- *Outline architecture, processes and infrastructure for future production of statistical outputs in other statistical domains, including the aspect of scalability and evolution of IT resources*
- ***Develop a methodology for the proofs-of-concepts and produce statistical outputs***

Activities

- *Identify and define specific **skills and competences** for data analytics*
- *Exchange information with **stakeholders** within the **statistical system**, the **industry** (including standardisation bodies) and the **research community***
- *Analyse **access to smart systems***
- *Address issues related to sustainability of data sources, data use by NSIs, as well as data sharing between NSIs (risk management).*