**D1.1 Technology survey: Prospective and challenges: [month 7]**

**action**: establish the structure and a work method

**Contents (Draft)**

**1. Introduction**

The **research field**- smart data driven e-services in water resource management

Although it is a research field of the ICT domain, it requires deep **interdisciplinary** approach and competences.

* Global-scale climate and socioeconomic drivers are linked with regional-scale responses in land use decision-making, water quality, and water quantity.
* Understanding Water-Human Dynamics uses Intelligent Digital Watersheds.
* Current research addresses both energy and water consumption reduction.
* New engineering and research field, Hydroinformatics

**2. State of the art**

**Subjects to be approached in the survey**

* more accurate water monitoring
	+ multiple heterogeneous resources: sources sensors, IoT, open data, social networks …
	+ uncertain, incomplete data
	+ data provenance
	+ context data
	+ monitoring data acquisition, recording, archiving
	+ filtering, cleaning, pruning, conforming, matching, joining, and diagnosing data
* secure data storage, efficient (near-real-time) processing, analysis and sharing
	+ modeling real world water based systems to generate new knowledge
	+ getting Smart Data from Big Data
	+ streaming data analytics
	+ processing structured, unstructured and semi-structured data
	+ data integration, aggregation, and representation
	+ interpretation
	+ simulation and analysis of extreme events: floods, surges, droughts, pollution and significant morphological and ecological change
	+ data governance
* integrated platform for data acquisition, modeling and decision support
	+ architecture –cloud (Hadoop), HPC centers, in memory computing (HANA) …
	+ cyber-infrastructure
	+ scalability - large scale distributed platform
	+ fault tolerance - faults are the norm not the exception
	+ security – confidentiality, protection, anonymity, access control
	+ easy access, support of human collaboration
* water related processes that require IT support

2.1. Solutions, major contributions (for the subjects (or for a selection of subjects?) presented in

conference and journal papers

current EU projects

national projects

2.2. Research directions

future research subjects and challenges

correlation with priority areas of HORIZON 2020

2.3. Key actors – presentation of roles, profiles, contributions to the domain

research groups

companies

government

citizens

**3. Positioning of the research groups**

achievements

directions to follow

**References**