



## Recommendation 3:



Using '*big-data and data analytics*' to meet the societal need '*Inclusive well-being and health*'

### Status quo:

Big Data technologies will definitely open new opportunities and enable breakthroughs related to healthcare data analytics addressing different perspectives: (i) descriptive to answer what happened, (ii) diagnostic to answer the reason why it happened, (iii) predictive to understand what will happen and (iv) prescriptive to detect how we can make it happen.

There are already many examples for the application of big data analytics in health care up and running ranging from applications for asthma patients, treatments for cancer patients, rare diseases, to the personnel planning in emergency rooms.

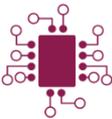
### Recommended actions:

#### Technical challenges:

- data quality and cleaning of data
- Data quantity (dealing with the large volume and velocity of data; including new data sources)
- Dealing with multi-modal data
- Data access (to different isolated data silos)
- Healthcare knowledge (include the knowledge of the healthcare professionals)
- Analytical methods (constantly improve and update existing analytical methods)

#### Non-technical challenges:

- *Personnel*: with sufficient technical expertise
- *Training*: digital training and education programs
- *Data storage*: (e.g. cloud-storage) and cross-border exchange
- *Strategic changes*: change the health care organizations to become data driven
- *Promotion*: deal with issues regarding the acceptance of big data/ data analytics
- *Regulations*: regarding the privacy and security of patient data
- *Good practice*: of data governance
- *Common standards*: across the big data value chain (addressing the issues of interoperability)



**Inclusive well-being and health:**

*This broad category pertains to the pursuit of well-being, provision of a primary health care services, realignment between work, personal and community life and a stable work-life balance across all age groups and gender . Some instances of this need include providing basic health care services and personalized services for disabled and physically impaired, child care, maintaining the quality of life (work-life balance, cultural and free time), and reducing the stark economic and social isolation of elderly people. 10 of our informants mentioned this as a priority need. Their comments and concerns embrace issues such as "more appropriate medical care", "improved access to primary health institutions", "social cohesion", and "lack of solidarity and rise of selflessness".*

**Big data and data analytics:**

*Big Data is a term for data sets with sizes and complexity beyond the ability of commonly used software tools to capture, curate, manage and process data within a tolerable elapsed time.*

*According to Gartner's definition, Big data is high volume, high velocity, and/or high variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision making, and process automation. That definition, which includes the 3Vs (Volume, Velocity, Variety) has been recently complemented to include also Value of data as well as Veracity, coining in this manner a 5V Big Data definition.*

*The term often refers simply to the use of Big Data Analytics to collect, organize and analyze large sets of data to discover hidden patterns, unknown correlations and other useful information.\**

\* Gartner Big data. <http://www.gartner.com/it-glossary/big-data/> Accessed 13 July 2017.  
Wikipedia (2017) Big data. [https://en.wikipedia.org/wiki/Big\\_data](https://en.wikipedia.org/wiki/Big_data). Accessed 13 July 2017.