

BIG DATA

"Big data" refers to the information and communication technologies trend of processing huge amounts of data in order to derive the appropriate data for rapid decision making for increased productivity. This can refer to anything from a few terabytes to many petabytes of data.

Doubling in size every year, the digital universe is forecast to grow to around 44 zettabytes (40 trillion gigabytes) by 2020. Embedded systems data in the Internet of Things is expected to grow from just two percent of the digital universe in 2013 to 10 percent in 2020. Global "big data" market volume is expected to rise to more than EUR 15 billion in 2015 – with Germany accounting for around EUR 1.6 billion of total volume.

The majority of the new created data between now and 2020 will not be produced by people, but by machines as they talk to each other over data networks. Yet only a fraction of this data will be of real value in the marketplace. And even today, only a fraction of the data being produced has been explored for its value using data analytics.

The sheer volume of data created within the Internet of Things is so enormous in scale that it cannot comprehensibly be processed in conventional databases. The detailed and complex nature of the information created by intelligent objects demands solutions capable of addressing interaction and flexibility issues; not to mention questions of data security and privacy.

Scalable data management and analytics systems allow the swift and effective management of "big data" to create "smart data," from which new products and services are created. Big data solutions allow decision-making times to be accelerated and business processes to be optimized.

Within the INDUSTRIE 4.0 and SMART SERVICE WORLD environments, big data can be spoken of in terms of six Cs:

- Connection (sensors and networks)
- Cloud (computing and on-demand)
- Cyber- (model and memory)
- Content/Context (meaning and correlation)
- Community (sharing and collaboration)
- Customization (personalization and value)

In the INDUSTRIE 4.0 world, big data is processed using advanced analytics tools to generate meaningful production management information.

Predictive analytics tools allow INDUSTRIE 4.0 and SMART SERVICE WORLD data to be processed into data sets taking non-visible factors to create self-aware, self-maintaining production and service facilities.



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