

# INTERNET OF THINGS

Sings With Smart Connectivity For Better Road

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## LITERATURE SURVEY

### ABSTRACT

1. Manufacturing industry profoundly impact economic and societal progress. As being a commonly accepted term for research centers and universities, the Industry 4.0 initiative has received a splendid attention of the business and research community. Although the idea is not new and was on the agenda of academic research in many years with different perceptions, the term “Industry 4.0” is just launched and well accepted to some extent not only in academic life but also in the industrial society as well. While academic research focuses on understanding and defining the concept and trying to develop related systems, business models and respective methodologies, industry, on the other hand, focuses its attention on the change of industrial machine suits and intelligent products as well as potential customers on this progress. It is therefore important for the companies to primarily understand the features and content of the Industry 4.0 for potential transformation from machine dominant manufacturing to digital manufacturing. In order to achieve a successful

transformation, they should clearly review their positions and respective potentials against basic requirements set forward for Industry 4.0 standard. This will allow them to generate a well-defined road map. There has been several approaches and discussions going on along this line, a several road maps are already proposed. Some of those are reviewed in this paper. However, the literature clearly indicates the lack of respective assessment methodologies. Since the implementation and applications of related theorems and definitions outlined for the 4th industrial revolution is not mature enough for most of the reel life implementations, a systematic approach for making respective assessments and evaluations seems to be urgently required for those who are intending to speed this transformation up. It is now main responsibility of the research community to developed technological infrastructure with physical systems, management models, business models as well as some well-defined Industry 4.0 scenarios in order to make the life for the practitioners easy. It is estimated by the experts that the Industry 4.0 and related progress along this line will have an enormous effect on social life. As outlined in the introduction, some social transformation is also expected. It is assumed that the robots will be more dominant in manufacturing, implanted technologies, cooperating and coordinating machines, self-decision-making systems, autonom problem solvers, learning machines, 3D printing etc. will dominate the production process.

Wearable internet, big data analysis, sensor based life, smart city implementations or similar applications will be the main concern of the community. This social transformation will naturally trigger the manufacturing society to improve their manufacturing suits to cope with the customer requirements and sustain competitive advantage. A summary of the potential progress along this line is reviewed in introduction of the paper. It is so obvious that the future manufacturing systems will have a different vision composed of products, intelligence, communications and information network. This will bring about new business models to be dominant in industrial life. Another important issue to take into account is that the time span of this so-called revolution will be so short triggering a continues transformation process to yield some new industrial areas to emerge. This clearly puts a big pressure on manufacturers to learn, understand, design and implement the transformation process. Since main motivation for finding the best way to follow this transformation, a comprehensive literature review will generate a remarkable support. This paper presents such a review for highlighting the progress and aims to help improve the awareness on the best experiences. It is intended to provide a clear idea for those wishing to generate a road map for digitizing the respective manufacturing suits. By presenting this review it is also intended to provide a hands-on library of Industry 4.0 to both academics as well

as industrial practitioners. The top 100 headings, abstracts and key words (i.e. a total of 619 publications of any kind) for each search term were independently analyzed in order to ensure the reliability of the review process. Note that, this exhaustive literature review provides a concrete definition of Industry 4.0 and defines its six design principles such as interoperability, virtualization, local, real-time talent, service orientation and modularity. It seems that these principles have taken the attention of the scientists to carry out more variety of research on the subject and to develop implementable and appropriate scenarios. A comprehensive taxonomy of Industry 4.0 can also be developed through analyzing the results of this review.

## REFERENCE

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