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Prezentácia článku
Industry 4.0: A Korea perspective

This article explains such problems as:

- Refine and elaborate Industry 4.0 strategies enacted by the central government
- Establish operational system to maximize the effectiveness of initiatives
- Develop concrete and workable action plans for Industry 4.0
- Establish infrastructure to lead all Industry 4.0 initiatives

Introduction

In the introductory section I wanted to explain what the concept of Industry 4.0 is. Why and for what it was invented and why it is so widely used. In this article, we will draw a parallel between Industry 4.0 and fourth industrial revolution - what is the difference between the two concepts

Definition and concept

I don't think we need to go into the details of the Industry 4.0 concept, but I would like to mention a few things.

What has changed since this concept came into reality?

Industry 4.0 is considered the next stage in the digitalization of the manufacturing sector, and it is driven by four revolutionary changes: astonishing growth in data, computing power and connectivity, especially the new low-power global networks; the emergence of analytics and business intelligence capabilities; and new forms of human-machine interaction.

Why 4.0

Most likely because it's the 4th major shift in manufacturing today.

Industry 4.0 versus the Fourth Industrial Revolution

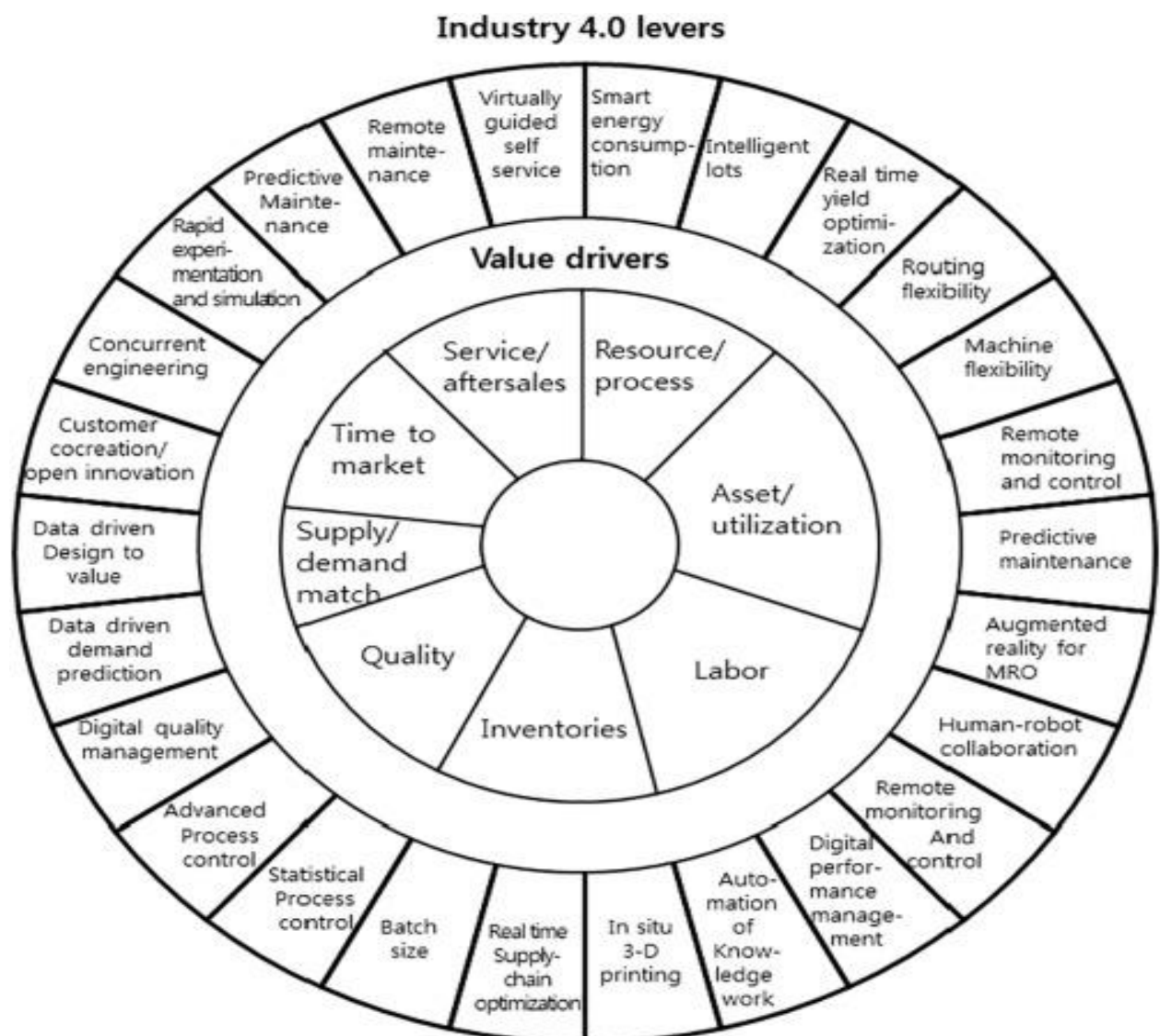
In general, Industry 4.0 has been compared to the fourth industrial revolution and used interchangeably. However, the latter refers to a systemic transformation that includes impacts on civil society, governance structures, and human identity in addition to purely economic and production ramifications.

The term "Fourth Industrial Revolution" has been applied to significant technological advances over the years, and its meaning is the subject of scholarly debate.

Value drivers

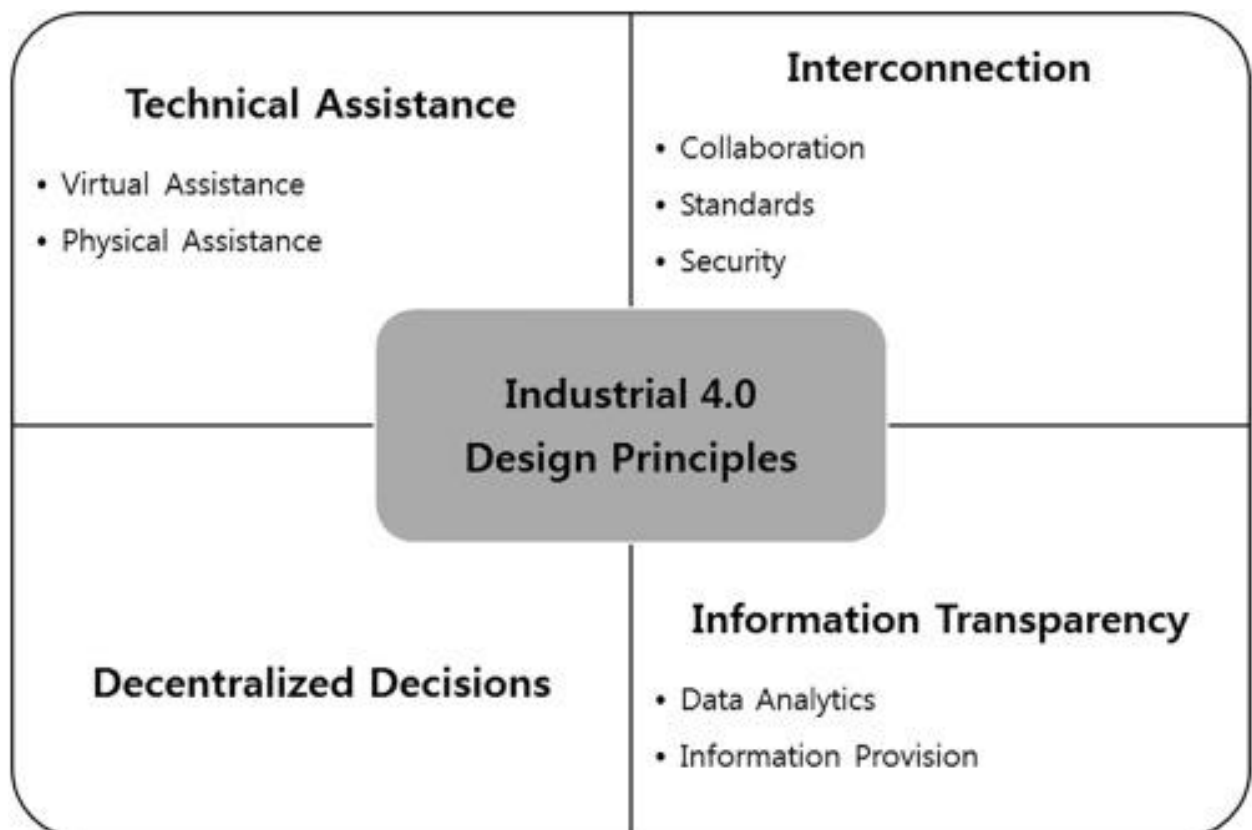
It is very important to gather a lot of information and it is not unimportant to lose a little useful information.

To provide useful information for enterprise management and get the right content, data must be processed using advanced tools (analytics and algorithms) that can generate meaningful information.



Design principles

- **Connections:** The ability of machines, devices, sensors, and people to connect and communicate with each other via the Internet of Things (IoT) or the Internet of People (IoP). This principle requires collaboration, security, and standards.
- **Information transparency:** The ability of information systems to create a virtual copy of the physical world by enriching digital plant models with sensor data. This includes data analysis and provision of information.
- **Technical assistance:** Visual and physical assistance. The ability of assistance systems to support humans by aggregating and visualizing information comprehensibly to make informed decisions and solve urgent problems on short notice and the ability of cyber physical systems to physically support humans by conducting a range of tasks that are unpleasant, too exhausting, or unsafe for their human co-workers.
- **Decentralized decisions:** The ability of cyber physical systems to make decisions on their own and to perform their tasks as autonomously as possible. Only in the case of exceptions, interference, or conflicting goals, are tasks delegated to a higher level.



Effects

There are differences between the typical traditional factory and the Industry 4.0 factory. According to Tec.News (2016), the key to success in today's industry is to provide high-quality services or products at the lowest cost, and industrial companies are trying to maximize productivity to increase their profits and their reputation.

Industry 4.0 The business model of traditional manufacturing is changing, and new models are emerging.

Challenges

- IT security issues
- Reliability and stability required for critical machine-to-machine (M2M) communications, including very short and stable latency
- The need to maintain the integrity of production processes
- Any IT issues must be avoided as they can lead to costly production downtime.
- The need to protect industrial know-how (also found in control files for industrial automation equipment)
- Lack of an adequate skill set to accelerate progress toward the fourth industrial revolution.
- The threat of corporate IT redundancy
- General reluctance of stakeholders to change
- Loss of many jobs due to automated and IT-controlled processes, especially for the less educated in society.

The transition to Industry 4.0 will require major investments in new technology, and the decision to do so will have to be made at the CEO level. Even then, the risks must be calculated and taken seriously.

While it's too early to speculate about employment issues with Industry 4.0, it's safe to say that workers will need to acquire a different or entirely new skill set.

Privacy is a concern not only for the customer, but also for the manufacturer. In such an interconnected network of Industry 4.0, manufacturers need to collect and analyze a huge amount of data.

Discussions and political implications for Korea

In Korea, the fourth industrial revolution is a more widely used term than "Industry 4.0" because the Korean government prefers to use the fourth industrial revolution to get more attention from industry leaders and the public. The media has also adopted the fourth industrial revolution as a representative term for new emerging industrial changes.

Country competitiveness rankings for the fourth industrial revolution

Rank	Nation	UBS	WEF	IMD	Average
1	Singapore	2	1	1	1.3
2	Finland	4	2	4	3.3
3	U.S.A.	5	5	3	4.3
4	Netherland	3	6	6	5.0
5	Switzerland	1	7	8	5.3
	Sweden	11	3	2	5.3
7	Norway	8	4	10	7.3
8	United Kingdom	7	8	11	8.3
	Denmark	9	11	5	8.3
10	Hong Kong	7	12	7	8.7
11	Canada	15	14	9	12.7
12	New Zealand	10	17	14	13.7
13	Germany	13	15	17	15.0
14	Taiwan	16	19	12	15.7
15	Japan	12	10	27	16.3
16	Australia	17	18	15	16.7
17	Austria	18	20	16	18.0
18	Israel	21	21	13	18.3
19	Korea	25	13	19	19.0
20	Ireland	14	25	21	20.0
21	Belgium	19	23	22	21.3
22	France	20	24	25	23.0
23	Malaysia	22	31	24	25.7
24	Portugal	23	30	33	28.7

This table lists all of the initiatives that the Korean government plans to implement.

Ministry	Initiatives
Science & ICT	<ul style="list-style-type: none"> - Providing support for core technology development to seize initiatives - Formulating strategy and policies
Culture, Sports & Tourism	<ul style="list-style-type: none"> - Nurturing contents industry and implementing stable culture supply systems
Trade, Industry & Energy	<ul style="list-style-type: none"> - Establishing industry infrastructure including smart factory
Employment & Labor	<ul style="list-style-type: none"> - Preparing law and policy regarding employment - Fostering human resources
Strategy & Finance	<ul style="list-style-type: none"> - Financial planning and coordinating all related entities for effective and proactive response
Interior & Safety	<ul style="list-style-type: none"> - Transforming to a more intelligent government system
Oceans & Fisheries	<ul style="list-style-type: none"> - Upgrading current industries and creating new industries through technology development and application
Education	<ul style="list-style-type: none"> - Strengthening college education and fostering human resources for creativity and convergence
Agriculture, Food & Rural Affairs	<ul style="list-style-type: none"> - Upgrading agriculture industries through big data analysis, intelligent tools, and technology
Personnel Management	<ul style="list-style-type: none"> - Building a more effective personnel management system
Land, Infrastructure & Transportation	<ul style="list-style-type: none"> - Augmenting efficient and intelligent transportation system for the future
Government Legislation	<ul style="list-style-type: none"> - Preparing and arranging necessary laws
Financial Services Commission	<ul style="list-style-type: none"> - Providing more financial resources for core future industries

CONCLUSION

The purposes of this paper are (1) to explore Industry 4.0 into a more detailed and practical discussions, and (2) suggest policy implications to transit to Industry 4.0 in Korea.

The fourth industrial revolution is more widely accepted as a standard term than Industry 4.0 in many countries, especially in Korea, because the term “fourth Industrial revolution” is more appealing and familiar.

To successfully transform Korean industries to the next level of Industry 4.0, the following policy implications are suggested. (1) The strategies of the central government for the fourth industrial revolution or Industry 4.0 should be refined and elaborated to build economic and social systems that can flexibly respond to changes, (2) it is needed to establish some kind of operation system to maximize effectiveness of initiatives and policies, (3) it is advised that concrete and workable action plans are needed to transition toward economic and social systems that can accommodate the changes in a turbulent global economic environment with an unbalanced social structure, and (4) it is necessary to establish the infrastructure to lead all initiatives with specific and detailed policies that encompass local governments, industries, research institutes, universities and social culture and the economy.

Question

Why did the author choose Korea to write this article, since there are many other countries with strong economies and progress?