INNOVATING DIGITAL MANUFACTURING

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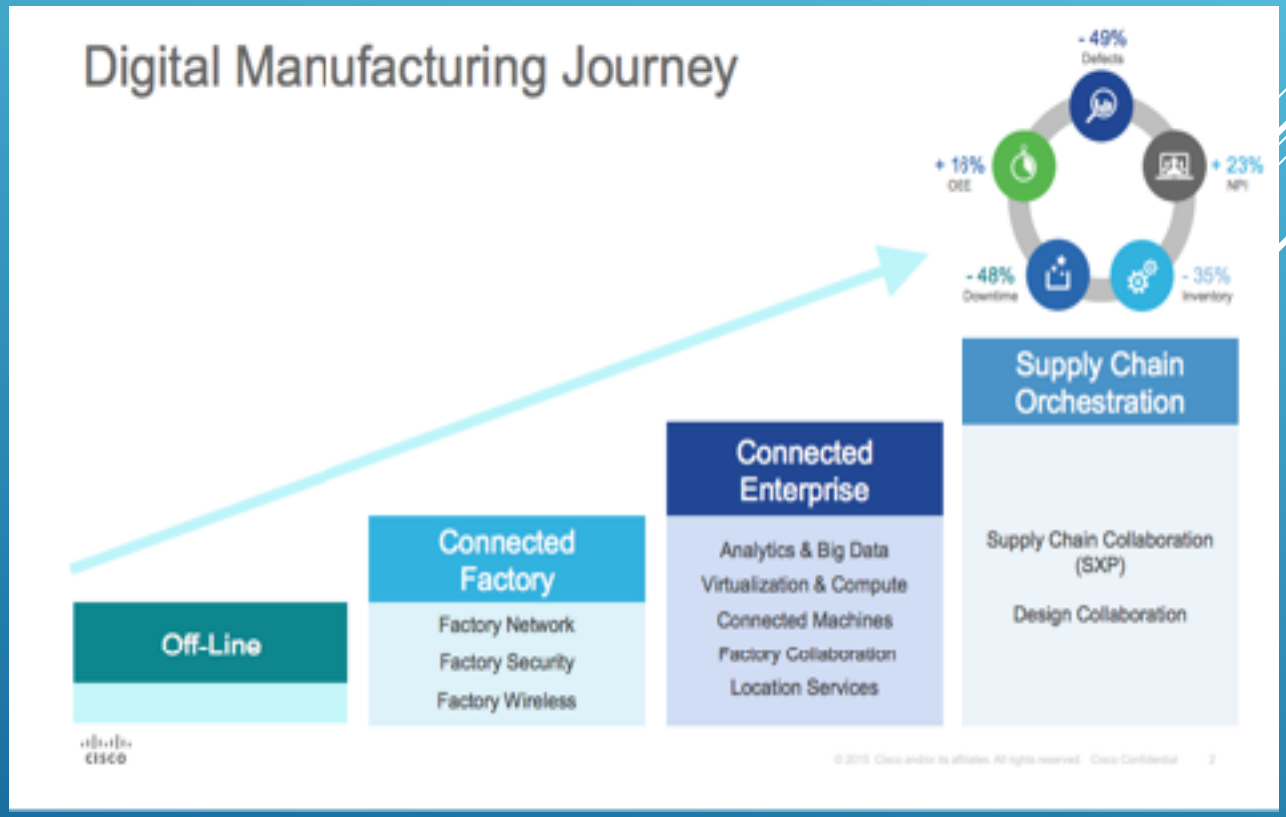
What is Digital Manufacturing?

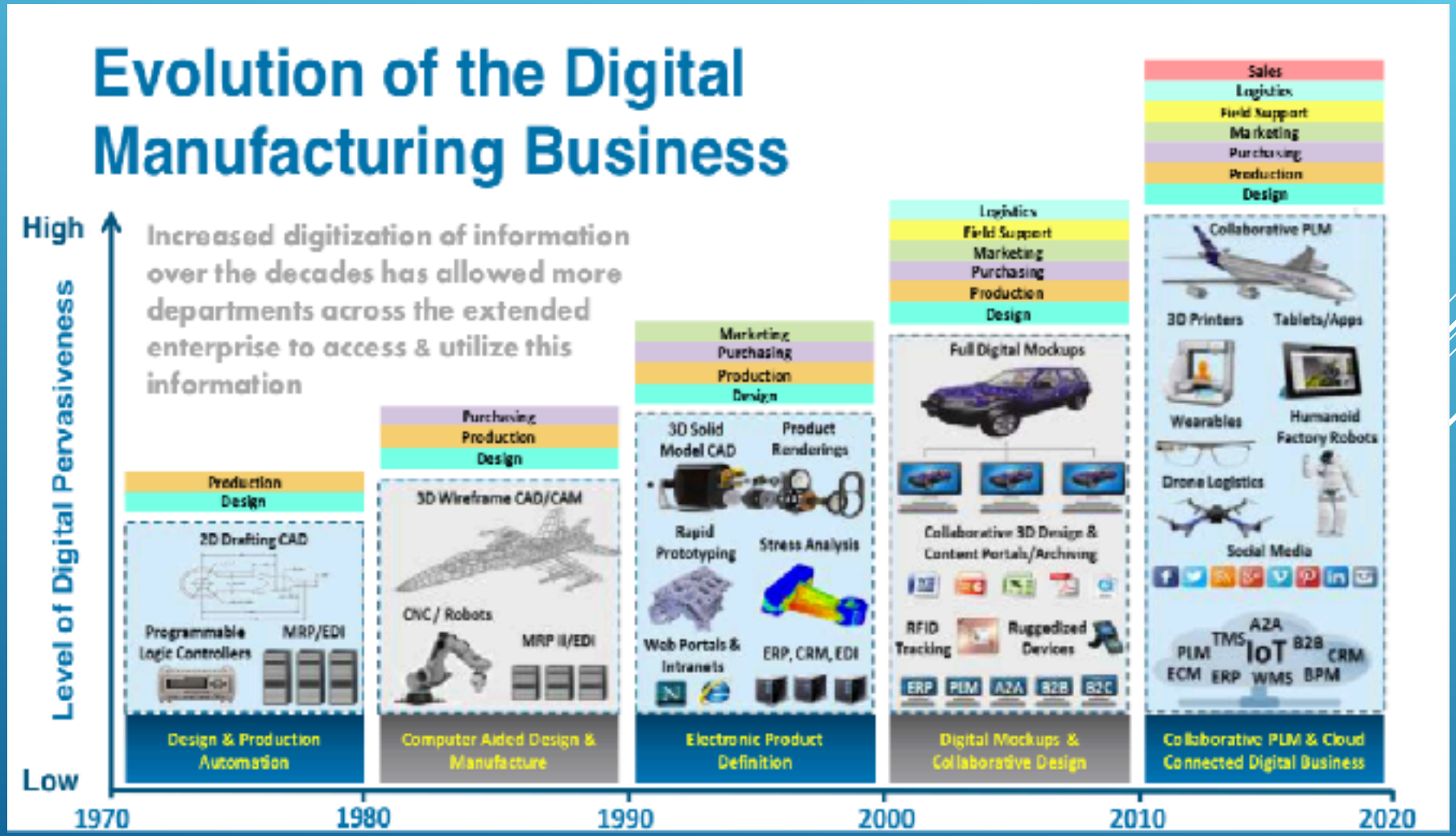
Digital Manufacturing is a term used to describe the integrated use of automated systems, processes and tools in design and manufacturing organizations to deliver products to clients as quickly as feasible, and with the minimum of operator intervention.



Evolution and Benefits

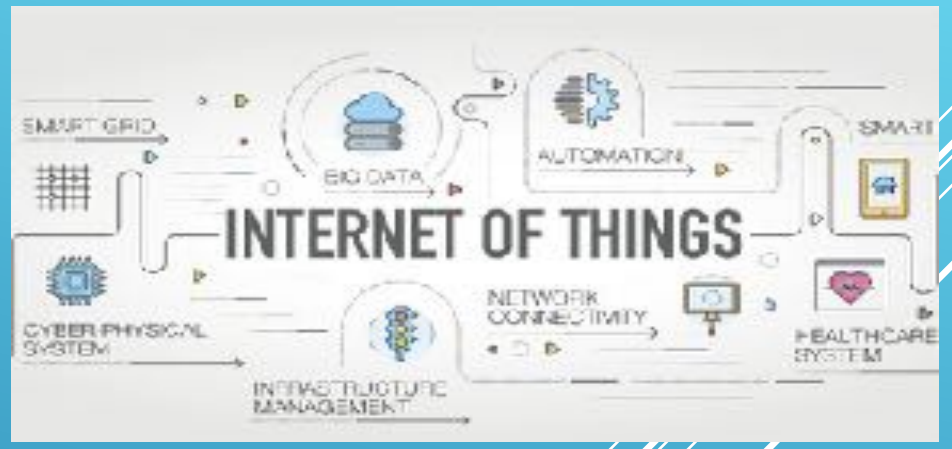
Benefits :

- Enhances productivity
- Reduces costs
- Flexible design and production
- High quality prototypes



Five Most Influential Manufacturing Tech Innovations

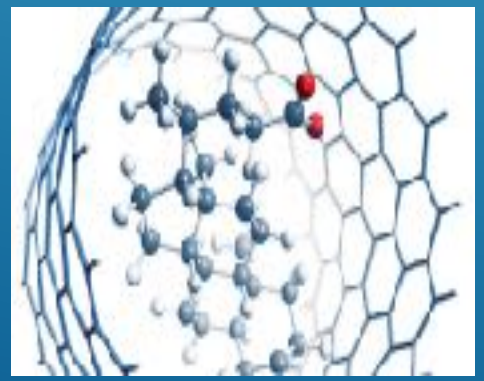
Additive Manufacturing / 3D Printing



Nanotechnology

(Deals with matter between 1 and 100 nanometers; 1 nanometer = one-billionth of a meter).

- Fortify
- Higher Efficiency
- Reduce Waste
- Increasing Applications



- Higher Durability
- Chemical Safety
- Counter Resource Shortage
- Other specialized improvements

Cases of Applied Digital Technology

Although it is not a manufacturing company, JD.com, China's second biggest e-commerce company is eager in applying digital technologies in processes that are highly related to manufacturing such as automated item distribution and packaging, massive data management system and cloud system which are all installed in their unmanned warehouse.

MINI Yours, with their slogan "Next Level of Individualization", is a parts and accessories personalization provided by MINI. This service is possible thanks to their advance 3D printing application that can easily create items based on specific requirements.

Challenges

The customization is a global trend and is likely to spread more rapidly across manufacturing industry in the future.

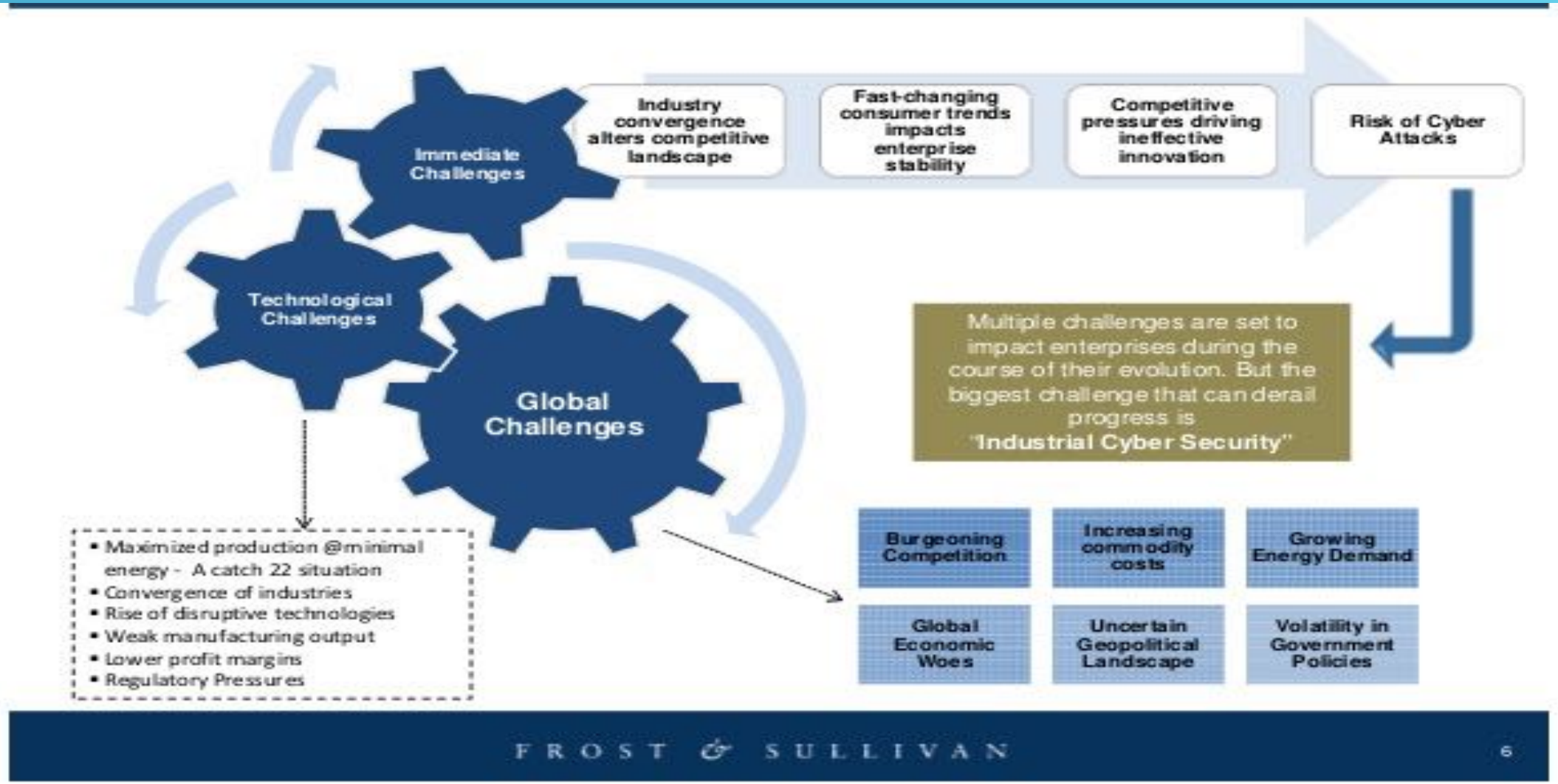
The scope for networking represented by digital industry transformation offer interesting opportunities for manufacturing companies to make more extensive, more efficient and more flexible use of this trend than they are currently able to.

The most challenges posed by digital industry transformation are :

- Managing Data
- Risks to data security
- Question of resources

- Role of Government
- Technological
- Global challenges

Challenges


Immediate Challenges
Technological Challenges
Global Challenges
Industry convergence alters competitive landscape
Fast-changing consumer trends impacts enterprise stability
Competitive pressures driving ineffective innovation
Risk of Cyber Attacks
Multiple challenges are set to impact enterprises during the course of their evolution. But the biggest challenge that can derail progress is "Industrial Cyber Security"
• Maximized production @minimal energy - A catch 22 situation
• Convergence of industries
• Rise of disruptive technologies
• Weak manufacturing output
• Lower profit margins
• Regulatory Pressures
Burgeoning Competition
Increasing commodity costs
Growing Energy Demand
Global Economic Woes
Uncertain Geopolitical Landscape
Volatility in Government Policies
FROST & SULLIVAN
6

Predictions : 5 Trends

IT/OT

Smart Mechatronics

Cyber-physical System

Big Data and Analysis

Intelligent Automation

Intelligent Supply Chain

10 Predictions for Global Manufacturing : IDC

- **By 2020, 60% of the top manufacturers will rely on digital platforms that support as much as 30% of their overall revenue.**
- **By 2020, 75% of all manufacturers will participate in industry clouds.**
- **By 2020, 80% of supply chain interactions will happen across cloud-based commerce networks, dramatically improving participants' resiliency and reducing the impact of supply disruptions by up to one-third.**
- **Etc.**

Specific utilized technology :

- Integrated Workflows
- Mobile Collaboration
- Machine Learning & AI
- Analytics
- IoT

Business Opportunities and Application

Capgemini estimates the size of the connected products market globally will range between $519B to $685B by 2020.

- 60 % of manufacturers are struggling to ensure digital continuity throughout their entire product lifecycles.
- 54% of manufacturers have initiated programs to enable collaboration and greater innovation with start-ups, third parties, and suppliers, expanding their digital ecosystems to include co-creators in new product development.

Business

Government actions

- Raising funds to enterprises in order to make technology resources available to them.
- Encouraging entrepreneurship and innovation in society, education etc.
- Elaborate regulations.

Individual level

- Learning with the purpose of contributing in the society with real actions.
- Creating startups and enterprises to provide solution of digital manufacturing needs

Thank You!

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