Fujitsu World Tour 2018

2018



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Human Centric Innovation Co-creation for Success

#FujitsuWorldTour



Smart Factory

Accelerating the Industry 4.0 Digital Transformation Journey

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Agenda

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State of the Market - Overview



Manufacturing is a concerned industry due to global demand slow growth and political and economic concerns

Slow global demand for manufactured products

 Output is expected to increase to 3.9% in 2018, according to the International Monetary Fund

Pressure to adopt new technologies

 Businesses that don't adapt and adopt to the next generation of technology will become antiquated and be left behind

Complex IT systems

 Many industrial manufacturers find it difficult to manage digitization and big data analytics because their internal IT systems are so unwieldy

Political and Economic uncertainties

- Brexit is still a concern
- New nationalist governments around the world, including the US, are threatening
- to further weaken the free flow of goods
- The effects of attempts to reset trade agreements would be felt in the sector

Workforce concerns

- Aging workforce, a lack of skilled employees, and training of nextgeneration workers are a concern
- Improve human-to-machine interaction is crucial – "Smart manufacturing must begin with people, not machines"

Foreign trade at low levels

 Although oil prices have recovered a bit recently, they are not rising enough to undo the collapse in drilling and associated retraction in the rest of the energy supply chain

Customer Experience

 Manufacturers are expected to respond quicker and with higher quality to customers needs, and even anticipate what they want

Security concerns

- Industry 4.0 and IoT has increased the attack surface for cyber-threats
- Manufacturers want to evolve and innovate while ensuring the safeness, reliability and efficiency of operations

CIO Business Priorities & Challenges



The topic of increasing efficiency and reducing costs is the #1 challenge for manufacturers globally

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While this is considered a major challenge among manufacturers worldwide, manufacturers from the APAC region, in particular, consider this a major topic



- **Increased competition:** This is also not surprising because of the strong global competition in a global supply chain network
- The electrical engineering and high-tech industry, in particular, has rated this topic as a major challenge
- Reaching new customer groups and revenue areas: Manufacturers are expected to respond quicker and with higher quality to customers needs, and even anticipate what they want



How would you rate the following economic

Breakdown of responses from companies in manufacturing, expressed in % (n = 588) ("No challenge" not shown)

Source: CxO 3000 – Investment Priorities 2016 - Manufacturing, PAC; Harvey Nash / KPMG CIO Survey

2018 Manufacturing Predictions: Key Findings

- 1 Al is in the center of manufacturers' attentions even though companies are planning to start using it for various purposes, the lack of necessary staff skills is and will continue to be a challenge.
- 2 It is expected that manufacturers will be using IoT to extend the integrated planning process across the entire enterprise, in real time and to automate large-scale processes and speed execution times. Also, IoT will start being included as a part of the design process.
- **Blockchain** also seems to be calling manufacturers' attention due to its possible benefits. With this technology, manufacturers will be able to automate large-scale processes and speed execution times, track goods in anticipation of regulatory changes, resulting in an improvement in delivered product quality and overall enhance the understanding of supplier capacities.
- 4 Analytics-driven cognitive capabilities will also be used to support the operational supply chain, monitor the operations at every step of the distribution and, ultimately, increasing cost efficiency and service performance.
- 5 Manufacturers that manage data-intensive production and supply chain processes will also be **leveraging cloud-based execution models**, cloud-based commerce networks, and participating in industry clouds in order to have real-time visibility and operational flexibility, to improve resiliency and reducing the impact of supply disruptions and to monetize their data contributions.

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IDC: Worldwide Manufacturing Predictions

- 1. By 2020, 60% of G2000 manufacturers will rely on digital platforms that enhance their investments in ecosystems and experiences and support as much as 30% of overall revenue.
- 2. By 2021, 20% of G2000 manufacturers will depend on a secure backbone of embedded intelligence, using IoT, blockchain, and cognitive to automate large-scale processes and speed execution times by up to 25%.
- 3. By 2020, 75% of all manufacturers will participate in industry clouds, although only one-third of those manufacturers will be monetizing their data contributions.
- 4. By 2019, the need to integrate operational technology and information technology as a result of IoT will have led to more than 30% of all IT and OT technical staff having direct project experience in both fields.
- 5. By 2019, 50% of manufacturers will be collaborating with customers and consumers on product designs through crowdsourcing, VR, and product virtualization, with up to 25% improvement in product success rates.





Source: IDC FutureScape: Worldwide Manufacturing 2018 Predictions

Source: IDC FutureScape: Worldwide Supply Chain 2018 Predictions

Note: The remaining 3 predictions (1;2 and 5) were already captured in the manufacturing predictions

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process.
6. By 2021, one-third of manufacturers & retailers will be tracking goods using blockchain in anticipation of regulatory changes, resulting in an improvement in delivered product quality of up to 20%.

operational data to improve speed & accuracy of the fulfillment

4. By 2021, 60% of manufacturers will be leveraging an advanced

analytics-driven data aggregation platform for supply chain

7. By the end of 2018, the use of industry clouds, blockchain, and cognitive will have dramatically enhanced the understanding of supplier capacities for one-third of manufacturers, enabling the iterative rebalancing of critical supply based on capabilities rather than units and quantity.

3. By the end of 2018, half of manufacturers will be using analytics, IoT, and social collaboration tools to extend the integrated planning process across the entire enterprise, in real time.

IDC: Worldwide Supply Chain Predictions





FutureScape: Worldwide Supply Chain 2018 Predictions

Obstacles



- Reluctant investment behavior There is a large backlog of demand with regard to the modernization of IT landscapes.
- LoBs involvement Lines of Business will be increasingly involved in the direct purchase of IT services. Th
- Silos Investment decisions that are made on horizontal solutions are difficult to make because various stakeholders from different company areas need to be involved.
- Hampered Investments in IT due to "old" machines that cannot be easily connected.
- Resistance from workers Implementing IT solutions is of major interest from a management perspective, but there is often resistance from workers on the shop floor.
- Regulations The regulations that affect some sub-sectors of the manufacturing industry (aerospace, automotive, nuclear, life sciences, etc.) may slow down the adoption of new technologies such as IoT, because they need to be certified.

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Security of data is significant concern.



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Fujitsu Manufacturing GTM

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North America Manufacturing Focus



Smart Factory - Providing real time operational **Insight** and **Intelligence** across the Manufacturing Estate to improve tactical and strategic operations gaining competitive advantage.

Service Innovation - Enabling manufacturer to provide products **"as a service"**, delivering outcomes to customers and changing the customer experience based on extensive usage and customer feedback.

Human 2 Machine Optimization - Enabling the rich data being created in the digital era of manufacturing to be presented to current and future workers in a human centric point of view that enables decision making.

FAST Enablement - Modernization of IT environments and practices leveraging modern platforms and methodologies to enable the **rapid response to business demands**, provided in a cost efficient manner that frees core IT resource to better align with business.

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"Smart Factory"

Manufacturing 4.0. – Accelerating Your Digital Transformation Journey

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Fujitsu Smart Factory Framework





... is a journey to gain actionable intelligence and optimize operational effectiveness continuously in an interconnected value chain

"Smart" = Real Time + Connected + Intelligent





Smart Capabilities

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Smart Green Manufacturing

"Smart Factory" Technology Enablers (Examples)





Technology (Agnostic)

- Recognized as one of the "Enablers" in the journey to a "Smart Factory"
- Dependent on the organization, business, processes and products.
- Must be relevant, provide value, and support the business and be accepted by the users

Business Driven Outcomes

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Results Chain'[™] Setting the correct agenda for change



Fujitsu Fact Sheet Map to target architecture Present decision options



Decision Tree Automated decisions based upon objective data



Assessment Repository Data for objective decisions and action Execute



Smart Factory Waves Industrialized transformation

Success starts with clear goals and a targeted Business outcome

Fujitsu Smart Factory Framework



Smart Factory

- Pragmatic approach to "Factory of the Future"
- Business Value

Attributes

Domains

Enablers

- Start with business outcome
- Map and validate business benefits
- Technology agnostic
 - Builds on existing and future technology and applications

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Fujitsu Smart Factory Use Case

\$2B Global IMC Manufacturer

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Case Study International Manufacturer of Industrial Components





Fujitsu Smart Factory Approach & Methodology





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SFOF Roadmap Overview





Customer Validated Benefits



Outcome Impacted	Estimated Benefits (Annual)	Wave 0 (Low - High)	Wave 1 (Low - High)	Wave 2 (Low - High)	Wave 3 (Low - High)	Total (Low - High)
IDL/DL	• IDL Reduction (Hrs.)	2000 - 3000	113,000 - 224,000	63,000 - 100,000	57,000 - 84,000	235,000 – 411,000
	• DL Reduction (Hrs.)	-	162,000 - 245,000	113,000 - 255,000	-	275,000 - 500,000
	 W/C Utilization Improvement (Hrs.) 	-	8,000 - 17,000	-	8,000 - 13,000	16,000 – 30,000
ZCD	• QN Decrease (%)	-	10% - 15%	20% - 25%	-	30% - 40%
NPD Cycle	 NPD Cycle Time Reduction (Hrs.)* 	-	600 - 900	-	50 - 150	650 - 1,050
EoU	• Ease of Use	50% - Min. Improvement over the baseline				
Financials (Annual Savings)						\$20.4M - \$36.2M

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Fujitsu Smart Factory Journey



Adaptive Testing

- ✓ Event assistance
- ✓ Dynamic test control
- ✓ Problem visualization
- Multiple operation / less invest

Quality Improvement

- ✓ Online problem solver
- ✓ Process instruction
- Escalation assessment
- ✓ Trigger on event

Shopfloor Management ✓ Worker's place control ✓ Real time data

🖌 Mobile App

Power / Energy Management

- ✓ Peak reduction
- Energy cost saving
- Consumption supervision



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Operation instruction with AR





- Integrated with FNC's MES System (QDC)
- SFP configuration is loaded onto the HoloLens.
- After scanning the SFP barcode the Hololens application will indicate the installation positon.

The indicator overlays and locks on to physical unit regardless of where the operator is looking.



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Fujitsu Digital Co-creation

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The Journey with the Fujitsu Smart Factory

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Transformational Managed ServicesDev Ops



Getting Started – Explore Workshop



Explore	Discover and Design	Deliver
1 day Vision and Scope Definition	2 weeks Design Thinking and Prototype	6-8 weeks Proof of Value or Pilot
Fujitsu Investment	Shared Investment	Commercial agreement
 Explore workshop with business stakeholders Understand challenges, barriers and wishes Align with business strategy and outcomes 	 Observation and participatory Design Workshop Confirmation of technical feasibility Development of interactive low fidelity prototype Development of HL business case 	 Development of a functional PoV or Pilot Development of a proposal for full implementation Monitor and evaluate the value realization
 Heat Map of use cases Transformation Game plan Value Assessment report Decision to Packaged Solution or Co-creation 	 Interactive prototype and customer validation High level business case Proposal for pilot implementation 	 Functional pilot of accelerator or Co-creation Detail business case Governance model for ongoing engagement Proposal for full implementation



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