

Siemens Digital Industries Partner Conference 2019 Digital – Future-proof

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The Emergence of Gen Z Consumer - What is changing in B2C?



We are at a crossroads where changing consumer behavior is necessitating the need to rethink B2B strategies...

Tapping into the Brains of Gen Z - Core Characteristics



Influence of B2C on B2B Strategies

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Time to market	Time intensive	Instant delivery	Reduced time to market
Innovation	Product	Solution	Shift to consumer oriented innovation
Visibility 👌	Limited	Across value chain	Ability to track behind the scenes
Production	Mass	Personalized	Personalized solutions at scale
Engagement	Death of loyalty	Competitive advantage	Using brand loyalty for competitive advantage
Accuracy +++++	Error-prone	Zero defects	Zero-defect delivery

Changes in the B2C market are bleeding over to the B2B market, too...

B2B Trends is leading to the need for Digital Industries



Digital Industries is driving a new vision for Factory Automation

... A factory automation vision for manufacturing processes built upon the following '6 levers of change'



Blockchain

A distributed database, wherein transactions are securely encrypted and replicated across many computers in multiple copies of a ledger.

Future of Automation

... is Siemens vision of future manufacturing processes based on key technology elements e.g. Edge Computing, Artificial intelligence, blockchain and further ...







Augmented Reality

Using new visualization methods to maintain control over **increasingly complex production methods**.

Augmented reality (AR) **extends the view** of the real production, plant and machines with virtual components

Why AR?

From the planning stage of new machines or plants right up to the operation of complete plants, AR enables an high degree of planning security, extended transparency on machine KPI and analysis possibility for production optimization.

With Augmented Reality we combine the digital twin with the production data in real time for full digital transparency



Virtual view of concealed production information



Maintenance personnel are guided exactly to the location of fault, see all the relevant information about the fault displayed, and can possibly use the digital twin for additional virtual views of the plant Experts situated anywhere in the world can communicate with the engineers on site, share their view of the real plant and work jointly on solving problems



Artificial Intelligence

Artificial Intelligence (AI) can use new data to **learn continuously**.

This vision that is driving us is that of an autonomation which is capable **optimizing itself** and even **automating itself**

Why AI?

Artificial Intelligence with all its different facets will reduce programming and engineering efforts, make control logic more agile and flexible towards changes in the environment and production processes more flexible and precise.



Flexible grasping using Artificial Intelligence





Flexible grasping using artificial intelligence

Artificial intelligence makes it possible to grasp arbitrarily shaped and positioned objects.





Artificial Intelligence module for Simatic S7-1500

Highlights

- Neural Compute Engine with on-device deep neural networks
- Powerful vision / imaging processing onboard

Potential use-cases

- Robotics learning
- Visual quality inspection
- Anomaly detection / Condition monitoring
- Additive manufacturing

Benefits

- Use AI to optimize the PLC process
- No separate IPC needed
- Direct communication to PLC reduces engineering effort





Autonomous systems

Autonomy gives each asset on the factory floor the **decision-making and selfcontrolling abilities** to take action independently in the event of a problem.

Why autonomous systems?

Their use in factories presents the opportunity to increase productivity, flexibility, and reliability; to add value in a competitive arena; and to compensate for an aging workforce.





Cognitive Automation Engineering

Apply AI to Automation Engineering: Intelligent automation engineering assistant for TIA Portal. Engineering systems actively learn from available data and experience.

Why CAE?

- Transform the relationship between engineering systems and users.
- From reactive engineering tools to proactive engineering assistants.
- Speed up engineering by reducing 50% of the effort

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Siemens Industrial Edge for automation

What Edge Computing is about – Edge combines benefits of local and cloud computing

Local computing



Devices installed once – never or few updates

Updates transferred via USB stick or local network

Cloud computing



App installation and deployment on-demand

- Central data and global intelligence
- Quick updates in the cloud
- Low frequency data/high latency of decisions
- Cloud dependency



Edge computing



App installation and deployment on-demand

- Local data and global data (if wanted)
- Shift from global to local intelligence
- Quick software update cycles for edge HW
- Analysis of high volume data and low latency decisions

Siemens Industrial Edge for automation – Concept Overview





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SIEMENS Ingenuity for life



Future of Automation will be all about 'Value Creation'

Lever of	Change	Tech Disruption	Value Creation	
	Edge Computing	Computing : Centralized → Decentralized	Distributed Intelligence	
	Artificial Intelligence	Machine Intelligence: Programmed → Self-learning	Continuous Process Improvement	Future of Automation
	Augmented Reality	Visualization : Dashboard → Immersive	Improved productivity	 Autonomation Virtualization
	Blockchain	Traceability: Paper-based → Digital ledgers	Heightened security & trust	 Data-driven business models Predictive Operations
0.000	Cognitive Engineering	Engineering: Manual → Cognitive	Reduced Costs & Improved Efficiencies	5. Automated transactions
	Autonomous Systems	Industrial Assets: Automated → Autonomous	Greater productivity	



LEADING THE DIGITAL TRANSFORMATION

#ThinkingIndustryFurther