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…

The Gen Z Mindset

- One Day Delivery
- Hypercognitive
- Digital Natives
- Pull Economy
- Multi-screen engagers
- Consumption-led
- Pay-for-value
- Variety Seeking
- Experience-driven
- Value Transparency
- Short attention spans
- Zero Defect
Tapping into the Brains of Gen Z - Core Characteristics

- Need for speed and instant gratification
- Anticipation of near zero-defect products (quality & experience)
- Access to multiple information sources for cross-reference
- Intent to pay is based on value perceived (of products or services)
- Using multiple electronic devices and user interfaces each day
- Heavily influenced by social media
- Strong brand identification
- Lowered attentions spans, typically less than 8 seconds
- More environment conscious
- Follow flexible and unconventional career paths
- Exploratory purchase behavior
Influence of B2C on B2B Strategies

<table>
<thead>
<tr>
<th>Time to market</th>
<th>2019</th>
<th>2030</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>Limited</td>
<td>Across value chain</td>
<td>Ability to track behind the scenes</td>
</tr>
<tr>
<td>Mass</td>
<td>Personalized</td>
<td></td>
<td>Personalized solutions at scale</td>
</tr>
<tr>
<td>Death of loyalty</td>
<td>Competitive advantage</td>
<td>Using brand loyalty for competitive advantage</td>
<td></td>
</tr>
<tr>
<td>Error-prone</td>
<td>Zero defects</td>
<td></td>
<td>Zero-defect delivery</td>
</tr>
</tbody>
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Changes in the B2C market are bleeding over to the B2B market, too...
B2B Trends is leading to the need for Digital Industries

The Vision of Digital Industries

Stage 1: Sense
Getting access to data

Stage 2: Understand
Process data and convert to information

Stage 3: Prepare
Contextualize information to develop insights

Stage 4: Adopt & Adapt
Use insights to generate value

Step 1 - Basic

Step 2 - Developed

Step 3 - Enhanced

Step 4 - Advanced

Digital industries promises a new era of industrialization, that will reinvent many existing production and manufacturing approaches.
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’

01 Artificial Intelligence
An endeavor to create machines that can sense, process and act like humans, including object and sound recognition, and problem-solving.

02 Edge Computing
The practice of processing data near the edge of a machine network instead of in a centralized data processing warehouse.

03 Augmented Reality
An amalgamation of the digital world with the real world which helps generate an enhanced vision of reality.

04 Autonomous Systems
Systems that can gain information about their environment, adapt and independently make decisions based on reasoning.

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

06 Cognitive Engineering
Application of cognitive psychology and related disciplines to the design and operation of human-machine systems.
Future of Automation

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

Existing
- TIA in the Digital Enterprise

Current Innovations
- First portfolio elements
  - AI Module
  - Edge Device & Apps

Upcoming Innovations
- Automation of Engineering
  - Industrial Artificial Intelligence
  - Industrial Edge
  - Industrial Augmented Reality

Big Picture
- Automation of Automation
  - Edge meets AI
  - Autonomous Machines
  - Cognitive Automation Engineering
  - Blockchain

Zero Engineering
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
Autonomy gives each asset on the factory floor the decision-making and self-controlling 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.
Leading the Digital Transformation

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.
Leading the Digital Transformation

Cognitive Engineering Interface

Questions:
- Your project contains a fail-safe controller: ZT01.ZT01.AO (S7-1500F, CPU 1517F-3 PN/DP). What is the SIL level (Safety Integrity Level) of the system that you are automating?
- Does the plant resource HKS_Halter that is controlled in the project HKWob_V15.1 operate with pneumatic elements?

Recommendations:
- Add a new device of category Controller to your project (6ES7516-3AN01-0AB0)
- Add a new device of category Controller to your project (6ES7515-2FM01-0AB0)
- Add a new device of category Controller to your project (6ES7511-1AK02-0AB0)
- Add a new device of category Controller to your project (6ES7515-2AM01-0AB0)

Emergency Stop Button is missing.

History...
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

1. **Edge Management**
   Central infrastructure to manage Edge devices

2. **Edge Devices**
   Secure, future-proof basis for running Industrial Edge applications

3. **Edge Apps**
   Applications for intelligent data use
Future of Automation will be all about ‘Value Creation’

**Lever of Change**

- **Edge Computing**
  - Tech Disruption: Computing: Centralized ➔ Decentralized
  - Value Creation: Distributed Intelligence

- **Artificial Intelligence**
  - Tech Disruption: Machine Intelligence: Programmed ➔ Self-learning
  - Value Creation: Continuous Process Improvement

- **Augmented Reality**
  - Tech Disruption: Visualization: Dashboard ➔ Immersive
  - Value Creation: Improved productivity

- **Blockchain**
  - Tech Disruption: Traceability: Paper-based ➔ Digital ledgers
  - Value Creation: Heightened security & trust

- **Cognitive Engineering**
  - Tech Disruption: Engineering: Manual ➔ Cognitive
  - Value Creation: Reduced Costs & Improved Efficiencies

- **Autonomous Systems**
  - Tech Disruption: Industrial Assets: Automated ➔ Autonomous
  - Value Creation: Greater productivity

**Future of Automation will facilitate:**

1. Autonomation
2. Virtualization
3. Data-driven business models
4. Predictive Operations
5. Automated transactions
LEADING
THE DIGITAL TRANSFORMATION

#ThinkingIndustryFurther