Connected Supply Network – Internet of Supply Chains

A web of data and analytics creating value

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Cape Town, South Africa

The Leading Event in Africa for Supply Chain Professionals
Before We Start … Your “Digital Readiness”? 

→ Have **SC visibility** into your supply network? 

→ Need more agility creating value with the wave of **digital signals from the IoT world**? 

→ Did EDI and Supply Portals bring us into the **world of “digital collaboration”**? 

→ How mature are your **creating value with your “big data”** today? 

  - Level 1: Reduce transactional effort by having data with common meaning, no “Dumb Big Data”, data standardized 
  - Level 2: Process automation: buyer/supplier order exchange, real-time delivery status, synchronizing updates in product master data, etc. 
  - Level 3: Smart collaboration with customers and suppliers exchanging more and more data, e.g., tier 2/3 supply status, sensor data from production, co-development of business intelligence based on this shared data
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• New Paradigm Sharing Data - Digital Supply Network

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• Digital Readiness Model – Collaborate on Data

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• Q&A
Digital Readiness -- We’ve tried to tackle “Dumb Big Data” already!

→ Some thoughts …

1. Why did “SC Control Towers” and the “Business Objects” approach fail to deliver on their promise?

2. Did you try expanding EDI and Supply Portals beyond basic data points of the order process?

3. Did you know?
   - AI/Machine Learning engines need to be trained by feeding it with large amounts of big data
   - That big data has to be “clean” (contextualized)
   - Data points in that pool of big data need context (= interconnected on the basis of factual relationships)
   - If not … that is “dumb” big data and any algorithm or modeling tool will be challenged to deliver meaningful results.

Source; RFS, T Gaal
Problem: Disconnected Data Silos

Digital Readiness?
All “Big Data” is “Dumb Big Data”
We need “Smart Big Data”

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Data Exchange Model for Digital Supply Network

-- Ambition --

- A new format for data exchange using digital technologies
- Aligns disparate data formats and ensures management and coordination
- Secure data integration layer for all parties in ecosystem of business partners

IDS/ODS* Technologies

- Decentralized, secure exchange of data on the go
- Real-time, web-based sharing of data

Utilizes International Standards and Data Science creating a web data

Reduce costs in B2B data exchange and improve quality of data for decision-support

IDS = Industrial Data Space
ODS = Operational Data Space
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The New Paradigm to Manage Data Across the e2e Network

Solution is the “De-Silofication of Data” with new digital technologies

Unifying “knowledge graph / ontology”

IDS/ODS* Technologies

Data Models

ERPs

Key Takeaways

Don’t need to change your underlying Data Model or ERP implementation

Need to agree on the meta data model to link the data objects

Emerging Digital Technologies – Key Words

The 3 components:
- Linked Data – data driven connectivity
- Ontology & Knowledge Graphs – data relationships
- Blockchain – Trust in data

* IDS/ODS = Industrial Data Space / Operational Data Space

Source: RFS, T Gaal
Data Defined in Relation to Other Data Points - Semantic Data Management

- Semantics is the glue linking internal and external business information.
- Business concepts represented at a conceptual level.
- Model is adaptable and based on common data definitions.
- Concept is business oriented and contextual.
Semantic Data Management provides Contextualized Data

→ Search “Daniel Craig” in Google and you get these data points (=information)

A Quantum Leap:
Subject-Predicate-Object triples as „Lingua Franca“ of machines

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<th>Object</th>
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</tbody>
</table>

Source: eccenca, H-C Brockman
INFORMATION CAN “ROAM”
WAY TO FIND THE INFORMATION “HOME”

URI

www.ericsson.com

www.trucker.com

Package - 2  Package - 1

Consignment-ericssonus-2016-06-08-105949
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Level 2: Collaboration Automation

Level 3: Intelligence Automation
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Level 3: Intelligence Automation

Intelligence Automation Case 1: Supply-Visibility
APICS Special Focus Forum Semantic SC, 2016
– A Web of Networked Value Chains
“Virtual” Worldwide Warehouse of Cable FG

1. Test machines (different data models)
   - BRA
   - USA
   - HAN
   - SHA

2. Raw Data (local servers)
   - -- global access --

3. Meta Data Model for RFS Cable “RFSCableVoc”

4. “RFS Cloud”

5. ODS

6. Use Cases
   - A
     - Global Capacity PLAN
   - B
     - Sales
   - + Automation Measures
     - Automation of product selection for “standard cases”

- Success / Proof of Value -

- Digital Transformation

- Sales can “pick” globally regardless of region
- Global capacity planning reflect global inventory positions

Status Feb. 12, 2018
Business View of Knowledge Graph Use
Example: Project-driven SC – Ideation with AT&T February 2017

- Everyone working from the same data
- Data is at the center of the supply chain
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1. APICS work on “digitalizing” SCOR
   → Make SCOR relevant for the digital world

2. Ericsson and RFS ideating on implementing the model in their business activities

3. Early Adaptors leading the change
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Acknowledgements

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INFORMATION CAN “ROAM”
WAY TO FIND THE INFORMATION “HOME”
Knowledge Graphs are further evolution of database technology

1980s

Flat-File Databases
“Data stored as plain text.”

Relational Databases
“Data with common attributes stored in a table.”

Graph Databases
“Data stored together with the relationships between each datum.”

2014 - Present

Source: neo4j
Level 1: Data Standardization
At the core APICS provides data standards that enable collaborative automated use and seamless interpretation of data. Organizations start embracing data types on a use-case driven basis.

Level 2: Collaboration Automation
Leverage standardized data and industrial data space for process automation sharing data on product, capabilities, capacity, inventory, quality, services, logistics...

Level 3: Intelligence Automation
Apply and readily deploy AI and Bots to meaningful data in real-time.