



7- Building Lean, Adaptive, Demand-Driven Supply Networks

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E-Business

Source

- ◆ ROSS, D. F., Introduction to Supply Chain Management Technologies. 2nd ed. Boca Raton: CRC Press, 2010 (Chapter 4)

Chapter Outline

- ◆ what it means to be lean, adaptive, and demand-driven.
- ◆ The key focus is on exploring how integrative technologies can provide organizations and their supply chains with access to demand and supply signals that assist them to reduce the latency that grows in a supply channel from the point a business, environmental, transactional, or out-of-bounds metric occurs to the point that it reaches the final downstream node in the channel network

Six Challenges

- ◆ Customer Intimacy & *individual customer* Demand-Driven Supply Network Management
- ◆ Ensuring the long-term profitability cost management
- ◆ Increasing the velocity of inventory and delivery network processes while continually reducing costs lean SCM
- ◆ Architecting supply chains consisting of productive assets that are agile and flexible operations performance
adaptive SCM
- ◆ Increasing the level of collaboration and access to channel partner competencies
- ◆ Enabling greater levels of connectivity to more closely interweave the knowledge and skills of cross-channel teams

The Lean Supply Chain

- ◆ the continuous reduction of waste and the need for continuous process improvement
 - not only inside the organization,
 - but also with customers and suppliers found anywhere in the supply chain.
- ◆ Lean SCM provides the know-how enabling companies to tackle the difficult task of
 - creating the strategies,
 - developing the cross-channel plans, and
 - optimizing the supply network's collective capabilities that will enable them to reach superior levels of performance

Lean SCM

- ◆ a set of organizations directly linked by upstream and downstream flows of products, services, finances, and information that collaboratively work to reduce cost and waste by efficiently and effectively pulling what is needed to meet the needs of the individual customer

Manrodt, Abbott, and Vitasek

- ◆ a collaborating set of businesses linked by the end-to-end flows of products and service, information and knowledge, and finances, resulting in total enterprise optimization gained through total elimination of waste and increased revenues gained through greater customer satisfaction

Poirier, Bauer, and Houser

a supply and delivery network of firms capable of supplying the right product at the right cost at the right time to the customer with as little waste as possible.

Lean Thinking Principles

- ◆ *Produce Value*
- ◆ *Optimize the Value Stream*
- ◆ *Convert the Process to Flow*
- ◆ *Activate the Demand-Pull*
- ◆ *Perfection of All Products, Processes, and Services*

benefits delivered by lean

- ◆ Reduced lead times
- ◆ Improved delivery performance
- ◆ Increased sales revenue
- ◆ Lower operating costs and increased profits
- ◆ Improved customer satisfaction and supplier relations
- ◆ Increased inventory turns and a drastic reduction in inventory
- ◆ Better employee morale and increased employee retention
- ◆ Improved quality
- ◆ Creation of additional working capital for new products
reduced physical space requirements

Table 4.2 Comparing Lean and Lean SCM

<i>Lean Production</i>	<i>Lean SCM</i>
Reduction of processing wastes and removal of non-value-added activities	Reduction of processing wastes, lead times, and costs everywhere in the supply chain
Optimization of shop floor resources, setup reduction and removal of unnecessary movement	Optimization of product movement and cost reduction across all supply channel processes
Utilization of structured toolsets such as the Poka-yoke, Six Sigma, and the 5 "Ss" to improve enterprise processes	Utilization of the kit of structured lean toolsets to improve processes at each node in the supply chain as a collective correlative
Reduction of component and finished goods inventories through Kanban, continuous flow, and demand-pull	Reduction of total channel inventories through demand-pull driven by end-to-end channel visibility

Source: Karl B. Manrodt, Jeff Abott, and Kate Vitasek, "Understanding the Lean Supply Chain: Beginning the Journey," *APICS White Paper* (November 2005), p. 6.

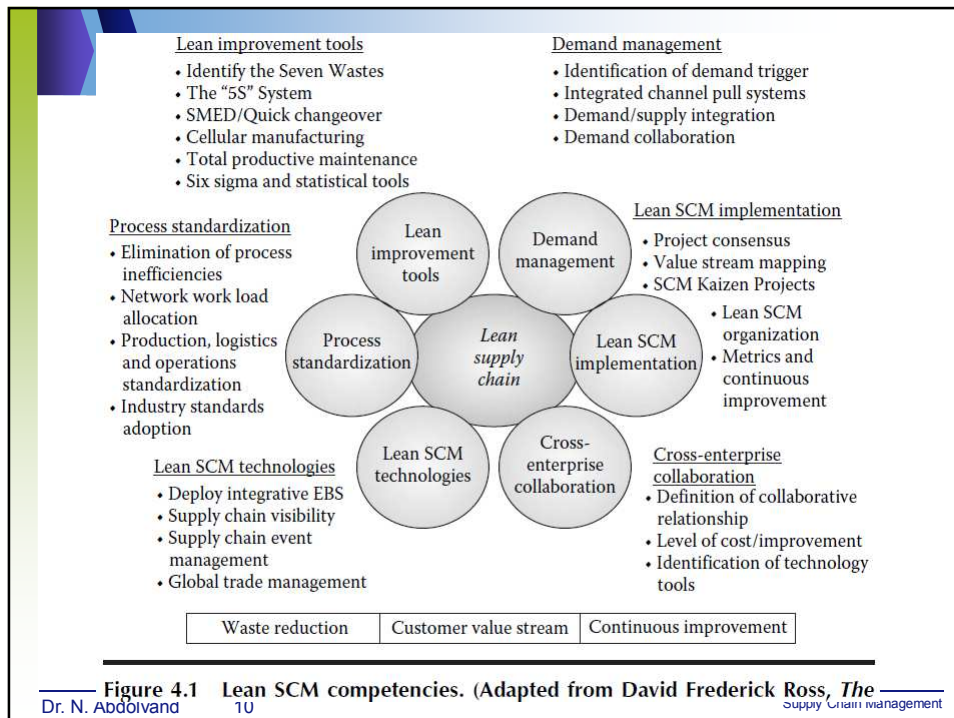


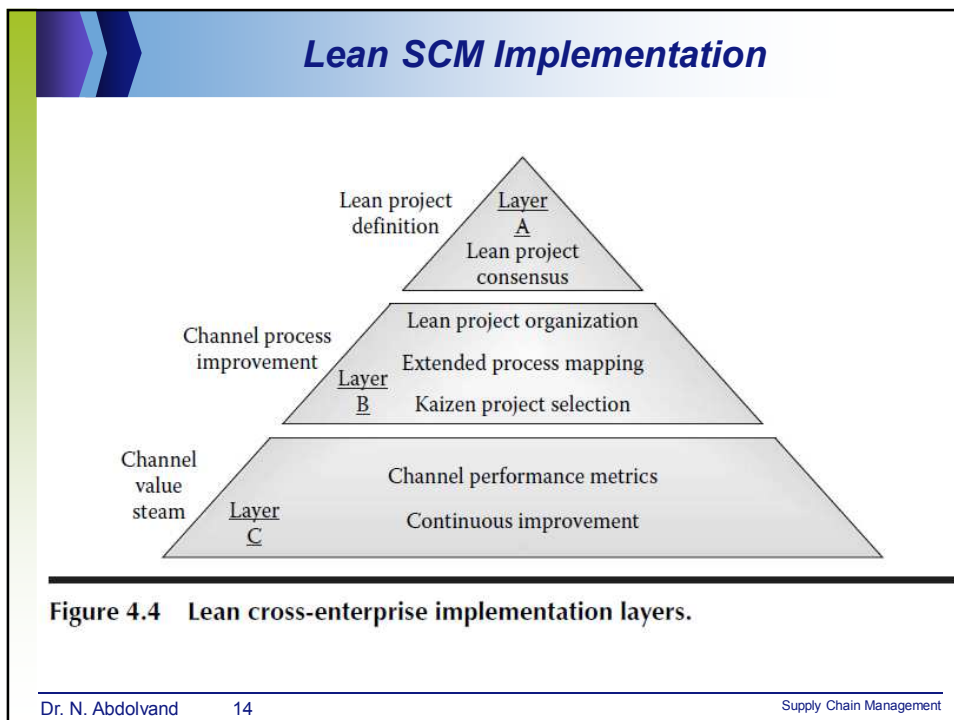
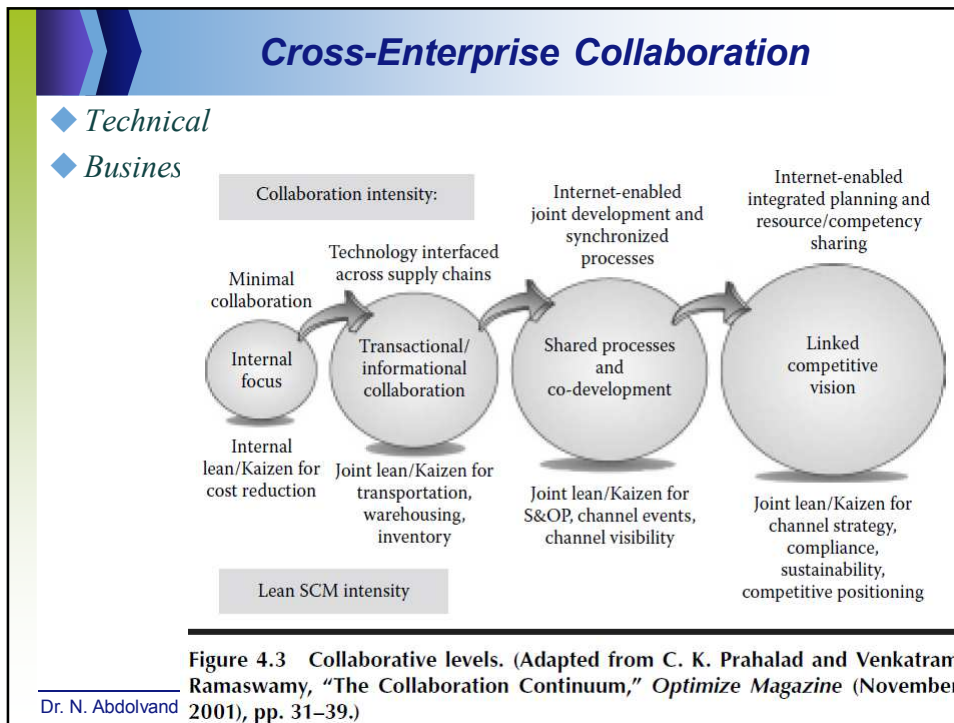
Figure 4.1 Lean SCM competencies. (Adapted from David Frederick Ross, *The Supply Chain Management*)
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Lean Improvement Tools

- ◆ *“5S” System of Improvement*
 - sort, set in order, shine or purity, standardize, sustain
- ◆ *Process Flow Analysis*
- ◆ *Total Productive Maintenance*
- ◆ *Six Sigma and Statistical Methods*

EBS + Lean

- ◆ EBS functionality could assist in rolling out a lean program to the supply chain by doing the following
- ◆ *Operations.* (Resources can be freed up by streamlining processes)
- ◆ *Networking Sourcing (B2B)*
- ◆ *Optimizing Sales and Marketing (B2C, CRM, SaaS)*
- ◆ *Connect Collaborative Demand and Supply Planning*
- ◆ *Optimize Inventory Assets (using data sharing, data analyzing to balance inventory-to-sales levels, and manage service fill rates)*



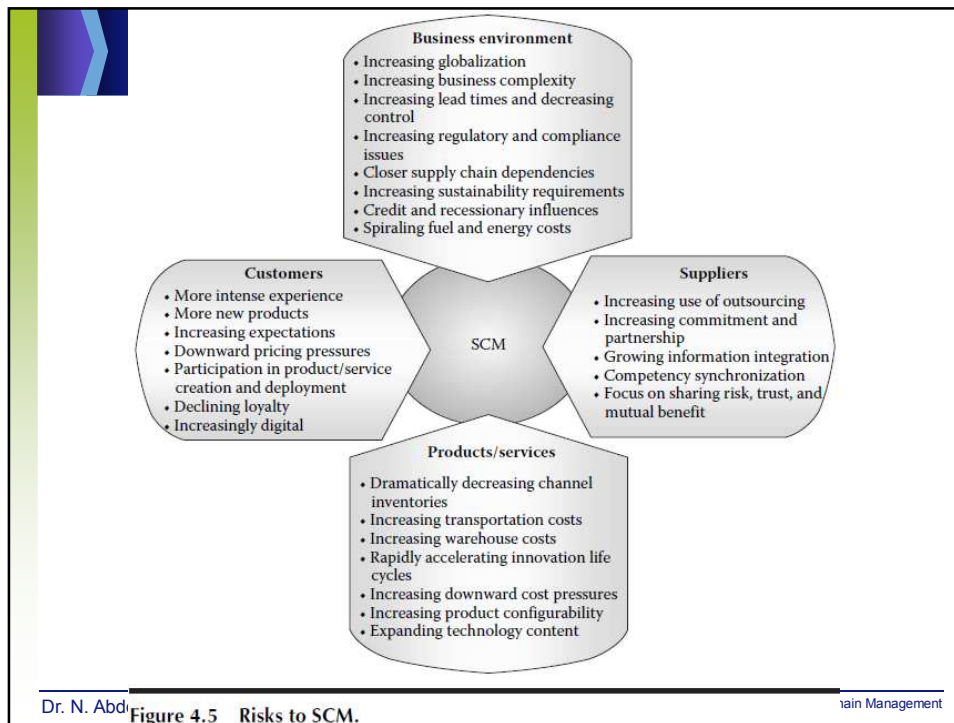
Important Steps

- ◆ *Champion a Lean Culture Everywhere in the Supply Chain*
- ◆ *Deepen Supply Chain Collaboration*
- ◆ *Implement Supportive Information Technology Solutions*
- ◆ *Lean SCM Performance Measurement*
- ◆ *Engage in Long-Term Lean Strategies*

Adaptive SCM

- ◆ *Lean SCM*
 - *elimination of waste*
 - *pursuit of continuous improvement*

- ◆ *adaptive SCM*
 - *Responsiveness*
 - *flexibility*



Adaptive Supply Chain

a virtual networked supply chain community possessing the capacity to sense marketplace changes as they occur anywhere in the channel and then to communicate through interactive information sharing and synchronized functions the critical intelligence necessary to enable rapid planning, decision-making, and alternative action execution to leverage risk to secure competitive advantage.

Adaptive Supply Chain

- ◆ adaptive supply chains possess three critical attributes:

Attribute	Information enabler	description
management of visibility	quality of information	enables businesses to extract relevant demand and supply intelligence from multiple systems across the network and broadcast it in real-time
management of velocity	timeliness of information	intelligence and assets can be moved through the supply network based on timely information
management of variability.	depth of information	to manage the <i>variability occurring in customer</i> demand and supply chain capabilities as robust information about orders, inventory, plans, delivery, profit margins and other data is available to all channel members

operational characteristics

- ◆ *Demand Flexibility*
 - demand-gathering, planning, and execution technologies
 - adapt and synchronize *marketing factors* and *operations factors*
 - intimate understanding of actual customer wants and needs
- ◆ *Supply Flexibility*
 - intense collaborative integration between buyers and suppliers
- ◆ *Delivery Flexibility.*
- ◆ *Organizational Flexibility*
 - *Adaptive planning*
 - *Adaptive execution*

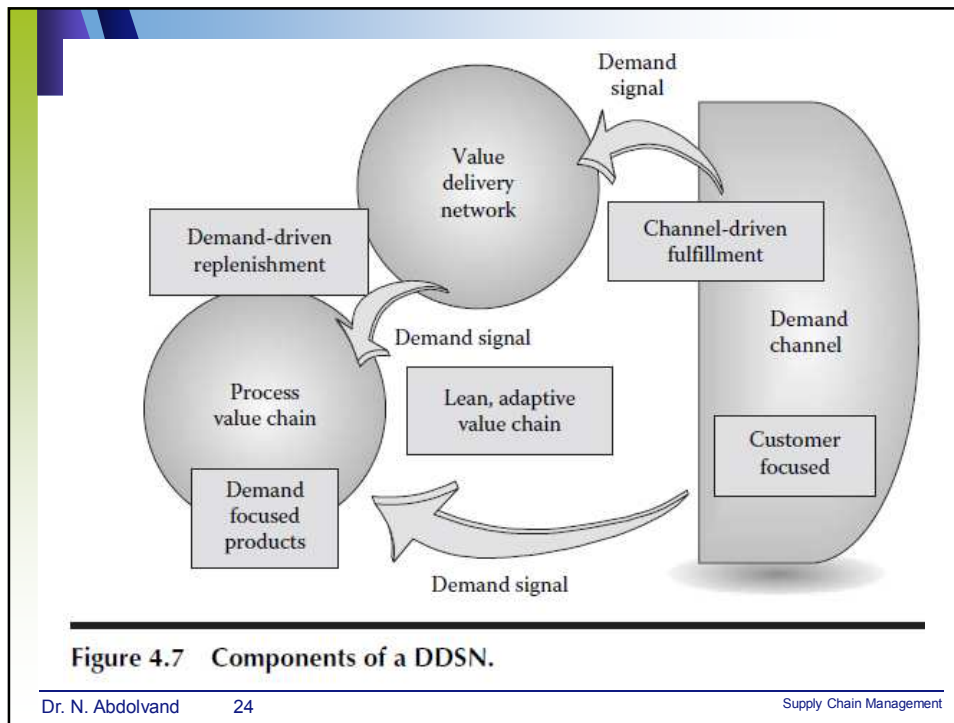
Advantages of Adaptive Supply Chain Management

- ◆ *Customer Focus*
- ◆ *Event Visibility*
- ◆ *Operations Flexibility*
- ◆ *Lean Strategies*
- ◆ *Increased Channel Collaboration*
- ◆ *Exploit New Revenue Opportunities*

Demand-Driven Supply Networks

- ◆ DDSN attempts to connect and focus the three fundamental components of SCM
 - *the demand channel,*
 - *the process value chain, and*
 - *the value delivery network.*

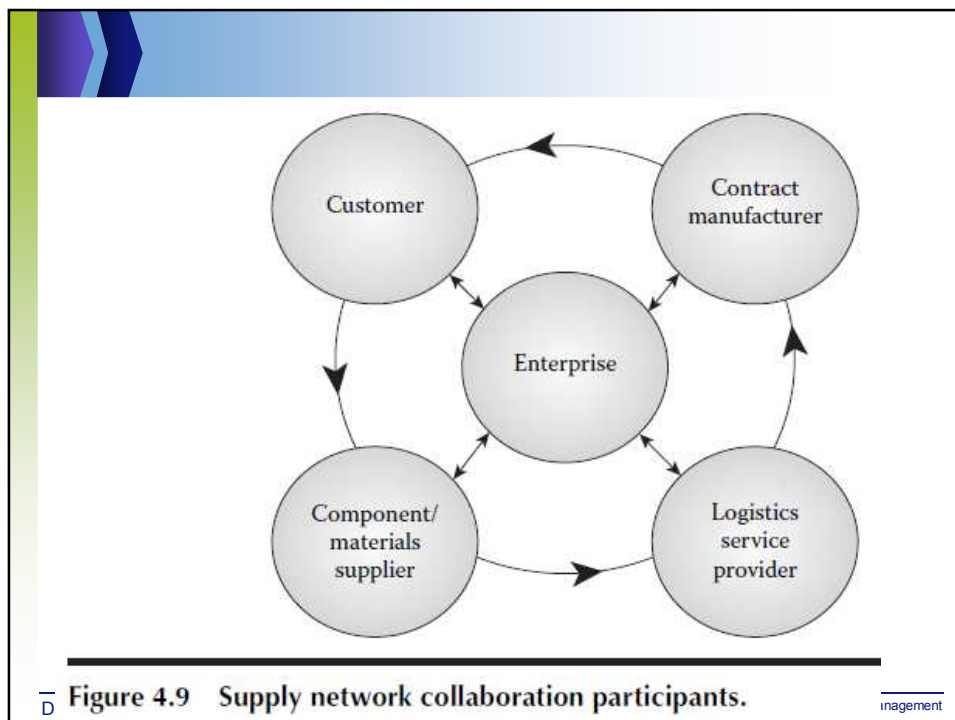
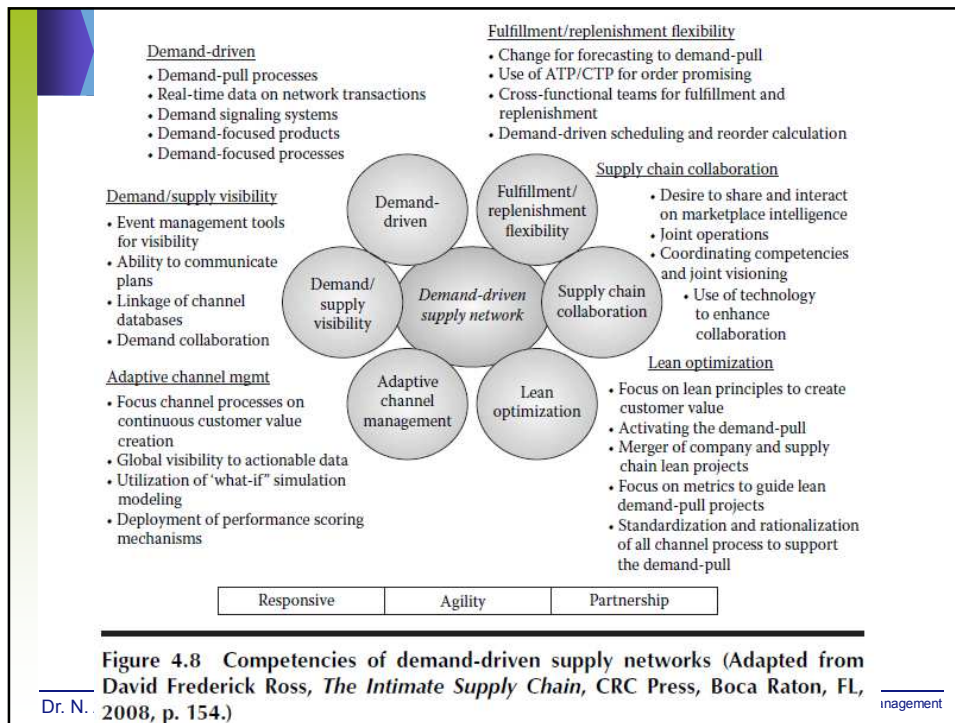
- ◆ *supply flexible ⇔ demand flexible*

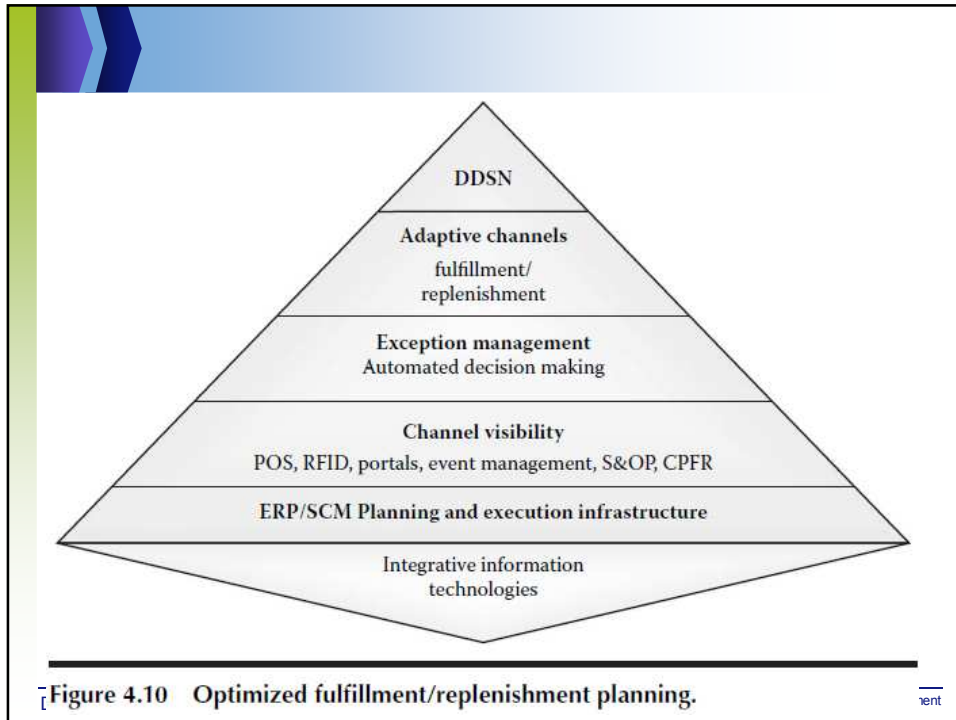


Defining Demand-Driven Supply Networks

- ◆ DDSN
 - *demand sensing*
 - *demand shaping*
 - *demand response*
- ◆ DDSN Processes' Attributes
 - Business Philosophy
 - Technology
 - Demand
 - Collaborative Network

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Questions?