

# Progetto SUSTEXNET

Supply chain of fashion: how to improve the  
environmental impact of transports and logistics

CONFINDUSTRIA BARI e BAT

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Arcavata di Rende, 28 Luglio 2015

# Agenda

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- Features of fashion supply chain today: complexity and fragmentation
- Environmental impacts of fashion supply chain
- New paradigm for fashion supply chain: Agile Supply Chain
- Features of fashion supply chain in Italy
- Priority actions to be taken in the industrial sector of the fashion in the region Puglia

# Features of fashion supply chain today: process complexity

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- Different Product variety
  - Item: growing item number
  - Product families: brand extension
  - Life cycle: Carry over (standard) and seasonal products
- Different Demand variability
  - Predictable variability: week effect, season effect
  - Not predictable variability: consumer behavior
- Different order fulfillment process due to customer type
  - Direct customer : web services
  - Wholesaler: information sharing

# Features of fashion supply chain today: value chain fragmentation

- Different Suppliers
  - Product families: focused suppliers
  - Life cycle: sell in phase – sell out phase
  
- Different Customers
  - Consumer (Internet etc)
  - Retailer
  
- Different delivery strategies due to retailer type

Type of product	Delivery strategy	customer class	
		small retailers	large retailers
Standard products	make-to-stock	<ul style="list-style-type: none"> <li>• warehouse stock based delivery</li> <li>• never-out-of-stock delivery</li> </ul>	<ul style="list-style-type: none"> <li>• never-out-of-stock delivery</li> </ul>
Seasonal articles	make-to-order	<ul style="list-style-type: none"> <li>• classical seasonal order business</li> </ul>	<ul style="list-style-type: none"> <li>• large retailer orders</li> </ul>
Intermediate articles	hybrid forms	<ul style="list-style-type: none"> <li>• Seasonal Filling Up</li> </ul>	<ul style="list-style-type: none"> <li>• Seasonal Filling Up</li> </ul>

Order and delivery models in apparel supply chains (Ahlert and Dieckheuer, 2001, Bruckner and Müller, 2003)

# Environmental impacts of fashion supply chain features

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- Packaging: materials
  - More packaging variety
  - More package wastes
  - Impact of packaging materials
- Warehousing: energy
  - Larger surfaces of warehouse
  - More facility consumptions: air conditioning, lighting etc
- Transport: energy and pollution
  - Lower Transport saturation (volume)
  - More Last mile deliveries (flag shops and consumer)

# Strategy of reduction of environmental impacts of fashion supply chain

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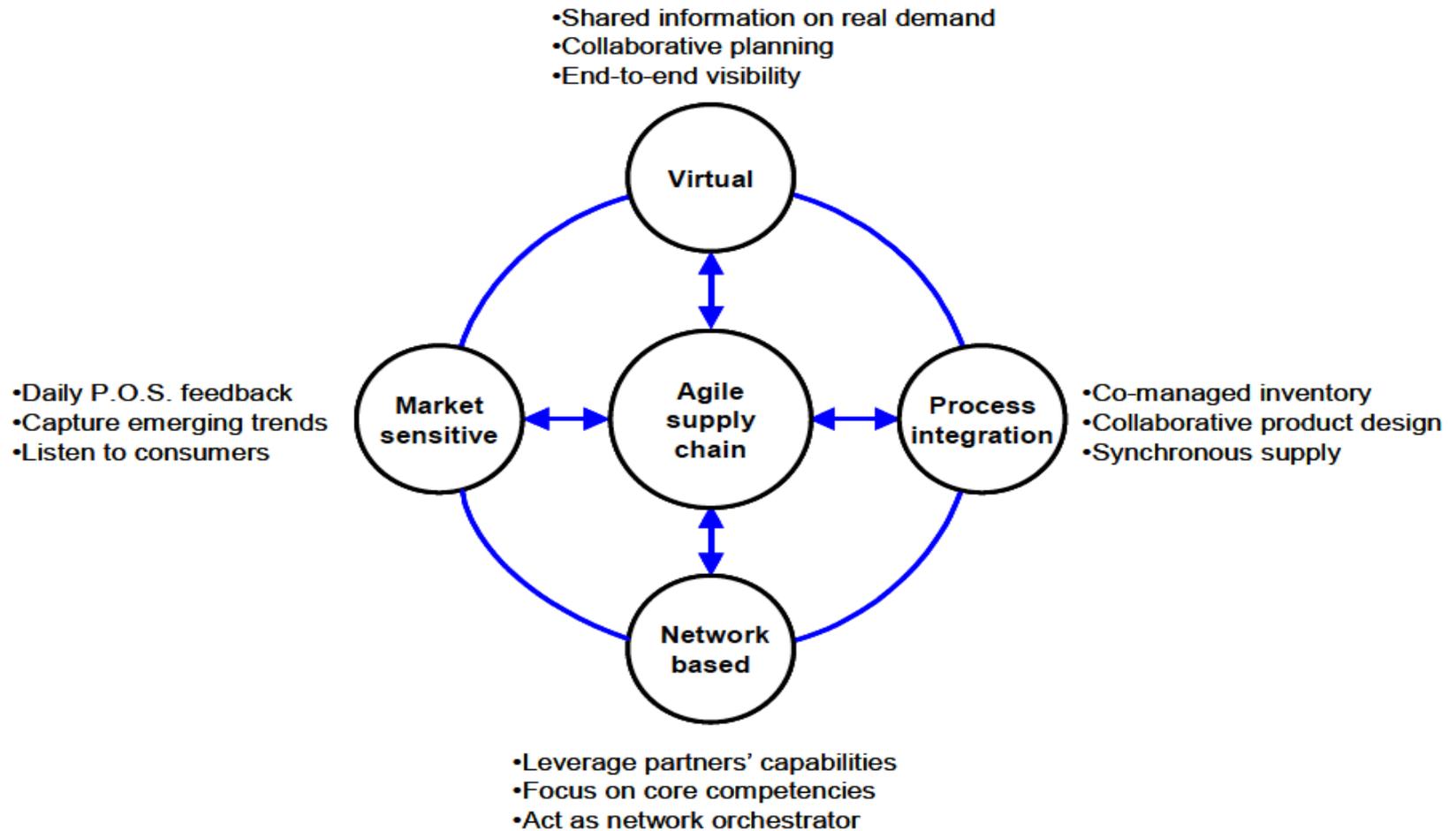
- Packaging: materials
  - Re-utilization of packaging
  - Packaging design for many deliveries
- Warehousing: energy
  - Minimization of surfaces of warehouse
  - Energy production: solar cells
  - Reduction of energy consumption: led lighting etc
- Transport: energy and pollution
  - Maximization Transport saturation (volume)
  - Utilization of truck with minimum pollution
  - Innovative Last mile deliveries: electric or hybrid transport systems

# Implementation of reduction of environmental impacts of fashion supply chain

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- Logistic Platform: scale's economy
  - Minimization of surfaces of warehouse
  - Energy production: solar cells
  - Reduction of energy consumption: led lighting
  - Maximization Transport saturation (volume)
  - Re-utilization of packaging
  - Packaging design for many deliveries
- Distribution network
  - Logistic platforms: receiving, warehousing
  - Cross docking platforms: customer deliveries
- Sharing Information
  - Forecasting
  - Inventories
  - Deliveries

# New paradigm for fashion supply chain: Agile Supply Chain (1)



Based on the model originally developed by Harrison, Christopher & van Hoek (1999)

# New paradigm for fashion supply chain: Agile Supply Chain (2)

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- Agile supply chain is focused on customer value only
- The activities not “value added” are reduced or deleted.
- So an agile supply chain is able to maximize the transport efficiency due to best load saturation
- So an agile supply chain is able to minimize the packaging cost because it is not value added for the customer
- Finally a.m. approach agile supply chain have minimum environmental impact on energy or material utilization

**Agile Supply Chain implementation require large and fashion focused logistic providers and information sharing between the SC players**

# The characteristics of the supply chain of fashion in Italy are unfortunately different from the Agile SC model: demand side

The results of different surveys ( ref. Luigi Battezzati, Analisi qualitativa e quantitativa dell'impatto ambientale ed economico della logistica nell'industria tessile-abbigliamento in Italia, Suxstenet Project, 2014)

The common factors are discussed below:

- **Limited Outsourcing**- Companies claim a low level of outsourcing and, often, especially in the case of small (SME) , are outsourced only the traditional functions : transport and, in part, warehousing;
- **No outsourcing strategy but day by day approach**-In cases where, instead, the number of functions outsourced was high, there is a general tendency of companies not to bind to a single logistics operator, but several operators, each for each subset of the logistics system ( procurement, production, distribution ) ;
- Therefore, there is still a **lack of systems integration** ;
- **Large companies** demonstrate a more generic different behavior than small : the first, generally more likely to export, seeking logistics service providers with **global coverage** ( especially shippers and couriers integrated ) ; the second, working mainly on the domestic market, seek, transport operators mostly road or couriers, who are still a widespread distribution ;

## The characteristics of the supply chain of fashion in Italy are unfortunately different from the Agile SC model: supply side

- **Specialized integrated logistics** operators have extended the offer of logistics services, adding the physical preparation of samples and kits, quality control, quality improvement with the work of ironing or sewing, in partnership with the customer that increasingly require them ;
- The level of **information integration** between customer and supplier logistics is quite low with the traditional operators of transport, a little ' higher with logistics integrators ;
- **No partnership, the contracts** for the supply of logistics services are often yearly or spot with transport companies (usually more than one ), but they are usually either continuous towards supplements. They are, in fact, necessary investments “ad hoc” (ie. dedicated vehicles for the transport of hanging clothes or equipment for the warehouse ) that can be written off only in the medium to long term;
- The companies are still characterized by a high use of **traditional instruments of communication** (telephone, fax, e -mail ) and traceability of the product ( the radio frequency systems, RFID, are mostly unknown or considered too expensive and useful for the more to the defense of the mark or as shoplifting

# Priority actions to be taken in the industrial sector of the fashion in the region Puglia

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- Priority actions that you must take is to improve the processes of information management because are necessary for:
  - Process Integration of Agile Supply Chain
  - Virtual Supply Chain
- The main impact on the management of information that must be consistent with the new demands of the agile supply chain that tends to minimize waste and therefore reduces the impact in terms of the use of energy and materials
  - ensure traceability
  - quickly update data with the actual state of processes
  - eliminate errors caused by manual typing of data by bar code readers

***Questions?***

***Thank you***