DITF Denkendorf
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LEAPFROG
Overview and RFID-Activities

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Core Competences and Major Research Activities

Knowledge Management
Information Management

Innovation Management
Change Management

Quality Management
Environment Management
Risk Management

Supply Chain Management
Electronic Business

Project Key Facts

- **Project: LEAPFROG** - Leadership for European Apparel Production From Research along Original Guidelines
- **Expected results**: LEAPFROG technologies and innovations to: Simplify the manufacturing process for fabric preparation (RM A); Automated Garment Assembly (RM B), 3D Virtual Prototyping (RM C) integration in the supply chain knowledge-Based Smart Networks of Enterprises (IM)
- **Project Coordinator:**
  - Lutz Walter
    AADLT / Euratex, Brussels
    Email: lutz.walter@euratex.org
- **Project URL:** leapfrog-eu.org
- **Partners:** 35 partner from 11 European countries, 12 of them from TCI
- **Duration:** May 2005 - April 2009
- **Total Cost:** 23,5 M€ (Funding 14 M€)
- **Programme:** 6th Framework Programme, Priority 3 NMP,
- **Instrument:** Integrated Project (IP)
- **Contract Number:** FP6-2003-NMP-NI-3-515810

LEAPFROG Business Targets

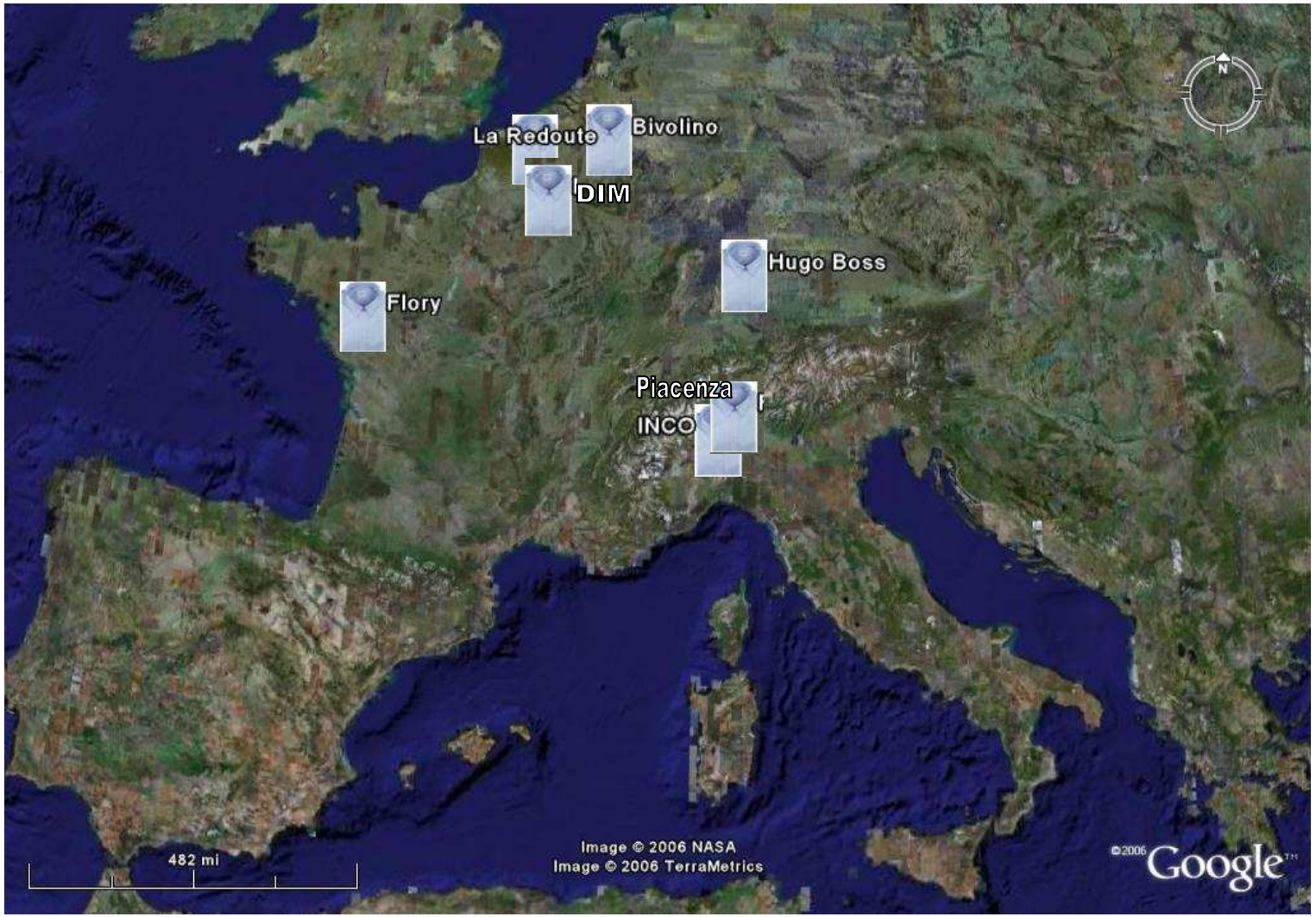
- Drive down EU manufacturing costs significantly by way of intelligent production automation and integration & improve overall quality levels.
- Drive down total costs and increase speed by erasing inefficiencies in the textile/clothing/retail network.
- Launch new product-service offerings to retailers and end consumers, which favour European production.

Objectives

LEAPFROG aims at stopping textile & clothing manufacturing migration away from Europe i.e. to enable the European industry to produce the majority of European end consumption at competitive cost in and around Europe.

- by use of a simplified manufacturing process for fabric preparation (resulting from research module RM A - led by D'Appolonia),
- to be used in automated garment production systems (as result of RM B - DIMEC), for garment production
- which were developed by way of 3D Virtual Prototyping (with systems resulting from RM C - IFTH),
- by companies interoperating in networks as Extended Smart Garment Organisations (xSGO) (resulting from IM - Integration Module - DITF-MR).

Industry Partners (Clothing)



Industry Partners (Textile)

Value Creation Network

ZULEEG

Color-Web GmbH by PEPPERMINT

KNOPFs SOHN characters for textiles

BOSS HUGO BOSS

Ermenegildo Zegna

IN.CO. S.p.A.

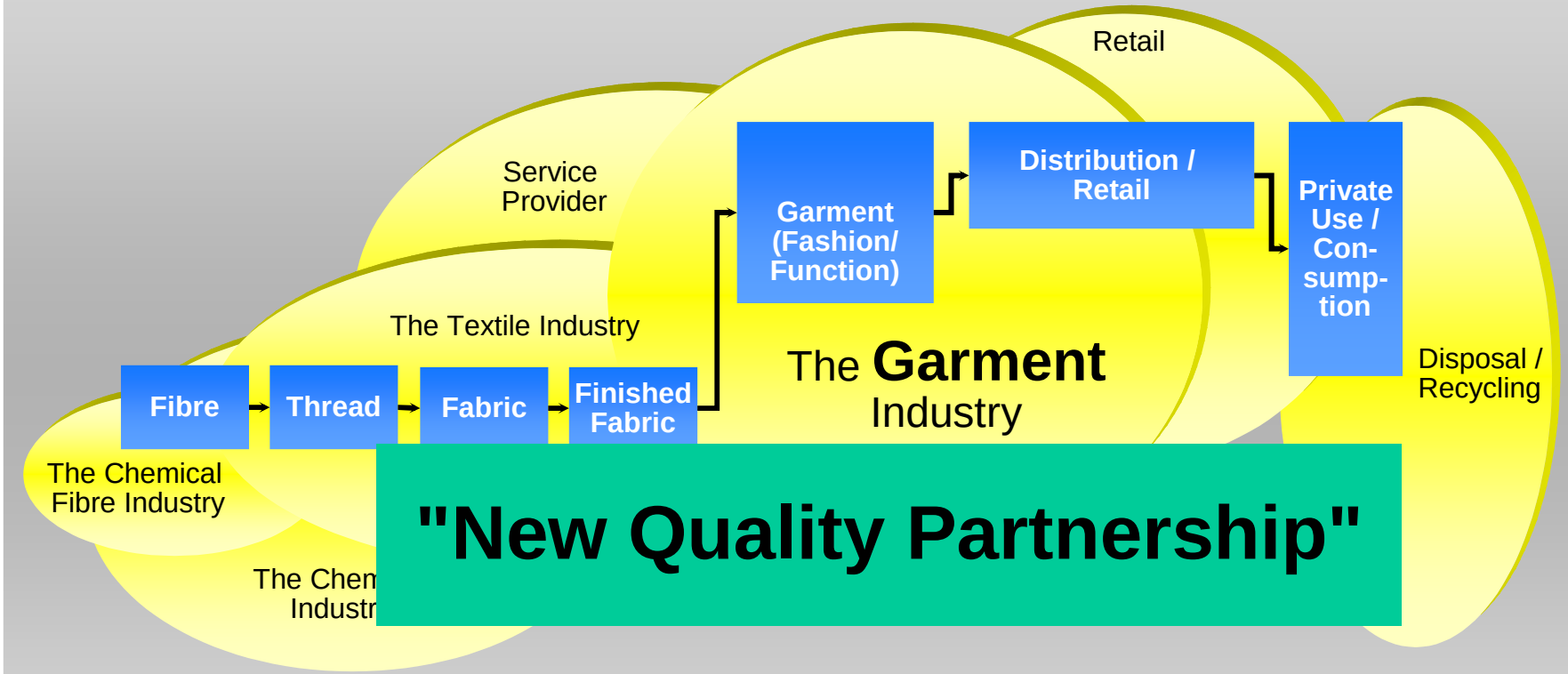
PIACENZA CASHMERE 1733

PIACENZA CASHMERE 1733

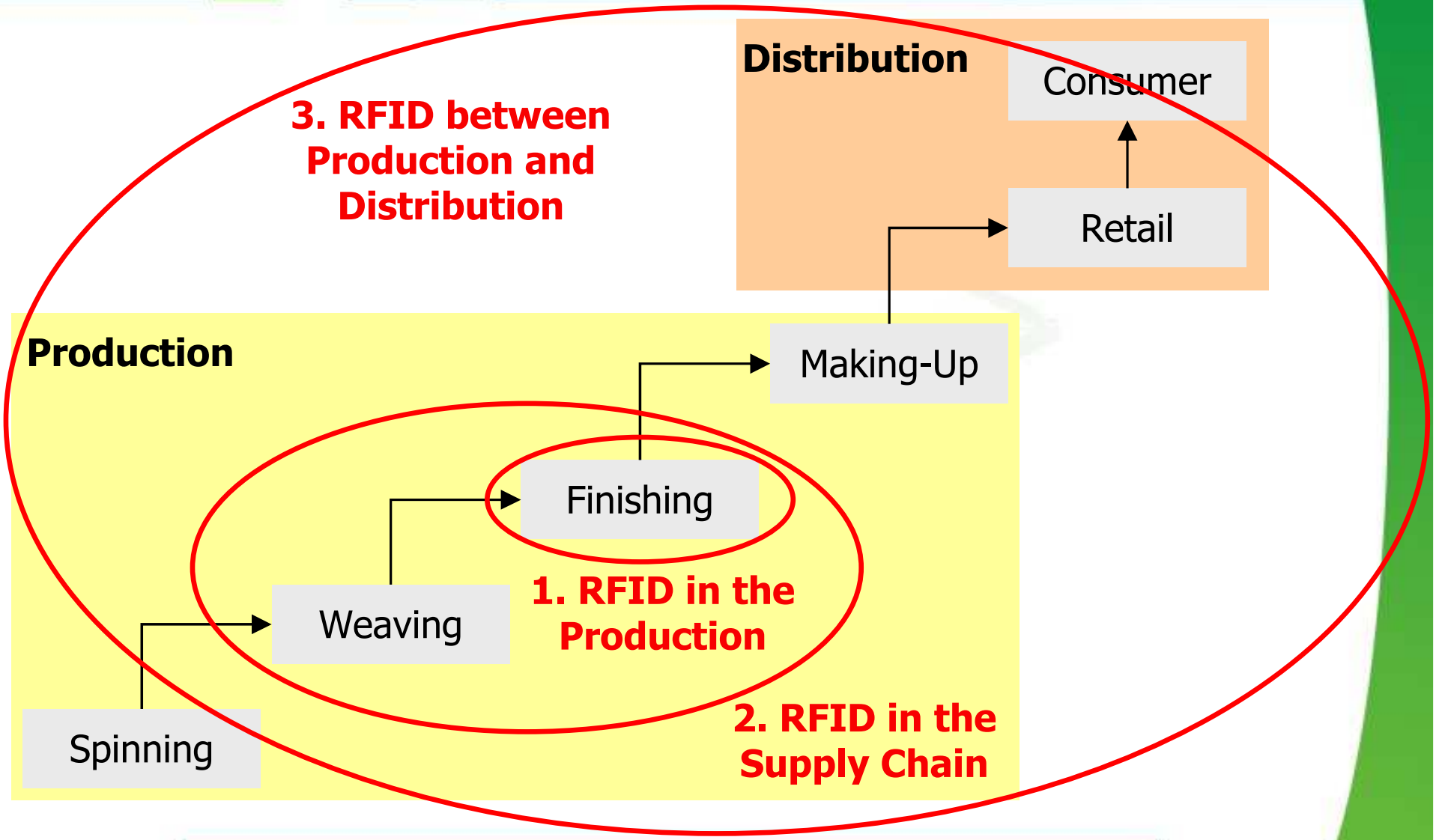
bivolino.com CUSTOMIZED SHIRTS ON THE WEB

Weaving → **Finishing** → **Garment Production**

Integration Module



Three application areas for RFID



Overview

Availability of Tags for Textile and Clothing Industry

- Deister Electronics:
  - tex-tag: Label for clothes and partly production
  - laundry-tag: Label for Washing, Dry-Cleaning and maybe finishing production
- Schreiner LogiData
  - Dura-Tag: transponder in thin film
  - Other standard tags
- Other suppliers: no tags dedicated for textiles available at the moment, survey in progress

Industrial pilot cases for testing and feasibility studies

- **Piacenza**: Deister tex-tag
- **Zegna**: Deister tex-tag
- **Zuleeg & Knopf's Sohn**: various tags from Schreiner, Deister and possible other suppliers

Industrial Pilot Cases (1)

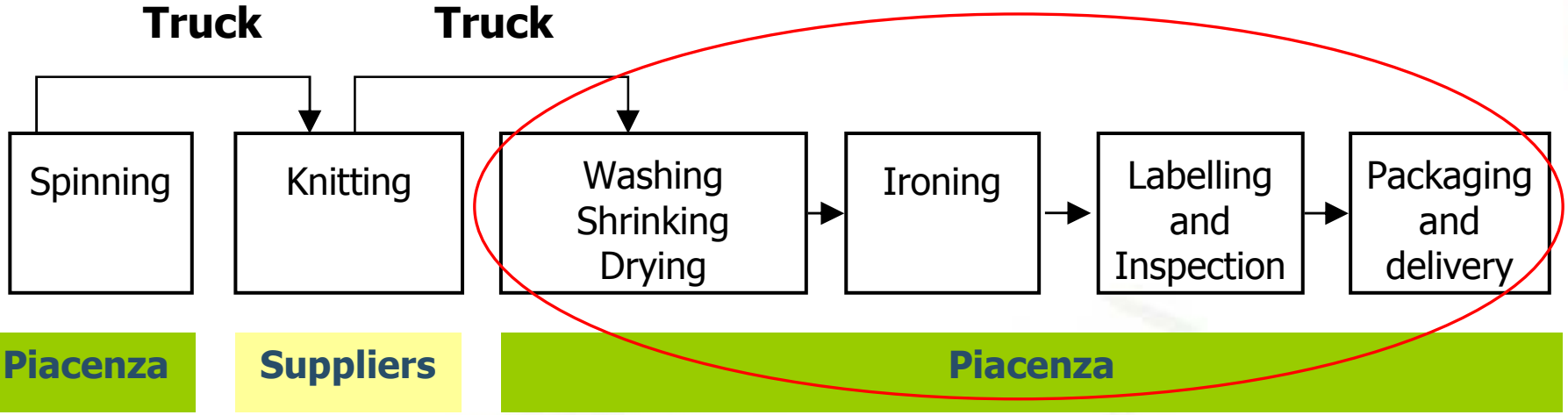
Piacenza

- Textile-Tag: First tests with limited number successfully completed
- Test included several processes, e.g. Foulard, Washing and Tumbling
- Further tests with ca. 500 Tags in April/May 2008
- Tests will include a process re-engineering analysis by DITF-MR
- Pilot tests expected for autumn 2008
- Future potential up to 100.000/year

Zegna

- Textile-Tag: First tests with limited number successfully completed
- Test included jackets, trousers, shirts
- Further tests with ca. 500 Tags in April/May 2008
- Tests will include a process re-engineering analysis by DITF-MR
- Pilot tests expected for autumn 2008
- Future potential up to 3.000.000/year

Piacenza Knitwear Production Process







Tag Selection

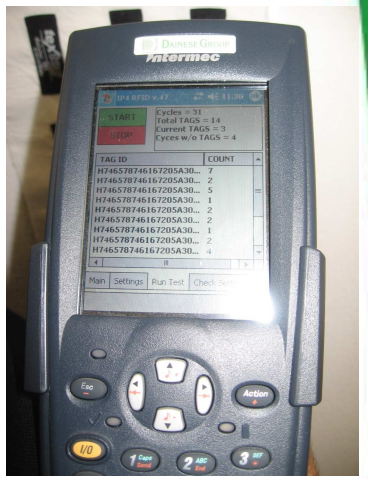
Requested characteristics

1. Able to survive to the whole production process (in the case o Piacenza knitwear and accessories)
2. Integrated into the brand label for retail and anti counterfeiting future purposes

The tag has been selected for tests:

Testing Process

A first test with a limited number of Tags has been successfully competed in the following production phases:



Washing 30° - 5′ → Shrinking 30° - 10′ → Drying 110° - 10′ 1500 rpm – 3′ → Ironing 120° - 8′ → Logistics

Industrial Pilot Cases (2)

Knopf's Sohn

- Tests with new laundry-tag from Deister and other tags from Schreiner on all process steps foreseen for Summer 2008
- Currently: analysis of mechanical and chemical stress parameters as input for Laundry Tag development

Zuleeg

- Pilot case for inter-organisational logistics (Zuleeg – Knopf's Sohn) with tags attached to the fabric are expected to take place after the Knopf's Sohn pilot case

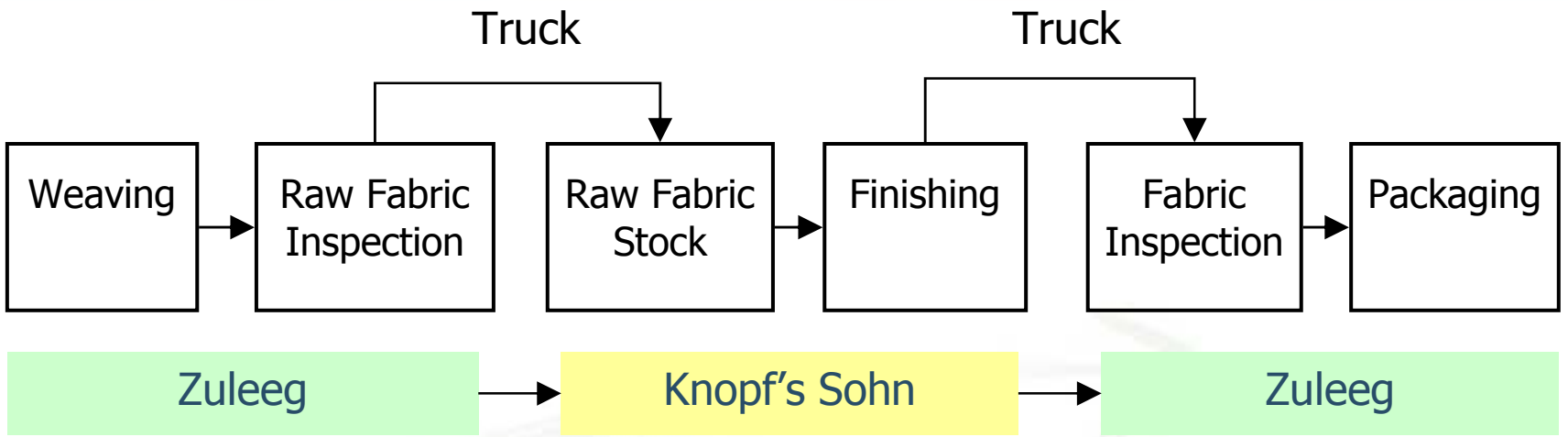
Hugo Boss

- No decision on pilot cases taken yet

Pilot Case Zuleeg – Knopf's Sohn

- Evaluation of processes between the weaving company Zuleeg and the finishing company Knopf's Sohn
- Goal: Evaluation of possible application of RFID to support and improve the process
- Important
  - Definition of orders
  - Handling and Grouping of pieces
  - Related information objects
- Vision: integrated solution along the supply chain

Zuleeg – Knopf's Sohn: Process



Zuleeg – Knopf's Sohn: Conclusion

- The RFID tags could either be attached on the fabric pieces or at the paper cores
- The paper cores for raw and for finished fabrics are not the same, during the finishing there are no paper cores
- The benefit of RFID attached to paper cores is rather small
- The ideal solution would be to attach the tags on the fabric at the loom in a persistent way so that they survive the finishing process. Then they could be used for
  - Monitoring the raw fabric pieces
  - Monitoring the finishing process and the order of the pieces sewed together to one finishing lot
  - Monitoring of the finished fabric up to the packaging where they are split into 50m pieces
- The critical part is the finishing process and the different types of stress the tags are exposed to.

Web

www.leapfrog-eu.org
www.ditf-denkendorf.de/mr

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