

Towards ‘Smarter’ Supply and Demand-Chain Collaboration Practices Enabled by RFID Technology

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Collaboration in the Supply and Demand Chain (1)

- Information sharing ('visibility') in the supply chain
 - Improve operational performance (Swaminathan and Tayur 2003)
 - Bullwhip effect (Lee et al., 1997)
 - Supply-chain performance (Chen et al. 2000; Gavirneni et al. 1999; Lee et al. 2000)
 - Vendor Managed Inventory (Cetinkaya and Lee 2000; Cheung and Lee 2002)
 - Continuous Replenishment Program (Clark and Lee 2000)

Collaboration in the Supply and Demand Chain (2)

- Sharing forecasts
 - Improve operational performance (**Kaminsky and Swaminathan 2001; Cattani and Hausman 2000**)
 - Collaborative Planning Forecasting and Replenishment (**VICS 2000; Seifert 2002; Pramatarı et al. 2002**)

Collaborative Supply-Chain Practices in Retailing



Supply-Chain Collaboration Practice

	Traditional ordering process	VMI/CRP	CPFR	PCSO: Daily, store-level CPFR
<i>Information Exchanged</i>	<input type="checkbox"/> Orders <input type="checkbox"/> Dispatch advices	Orders Suggestive orders Inventory report	Orders Inventory reports Aggregated POS data Sales forecasts Promotion plans	Orders Store inventory Daily POS data Assortment Store promotion activities Dispatch advices
<i>Collaborative Business Processes</i>	Replenishment	Central Warehouse (CWH) Replenishment	CWH Replenishment Store Replenishment Promotion planning	Store Replenishment

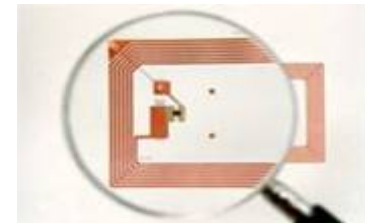
Enabling Collaborative Practices

		Supply-Chain Collaboration Practice		
	Traditional ordering process	VMI/CRP	CPFR	PCSO: Daily, store-level CPFR
<i>Technology supporting information exchange</i>	Paper EDI EDI over Internet (lately)	EDI (mainly) EDI over Internet (lately)	XML/ ASCII files over Internet	XML/ ASCII files over Internet
<i>Technology supporting collaboration</i>	Internal ERP systems	Internal specialized application Collaborative platform – retail exchange	Collaborative platform – retail exchange	Collaborative platform – retail exchange

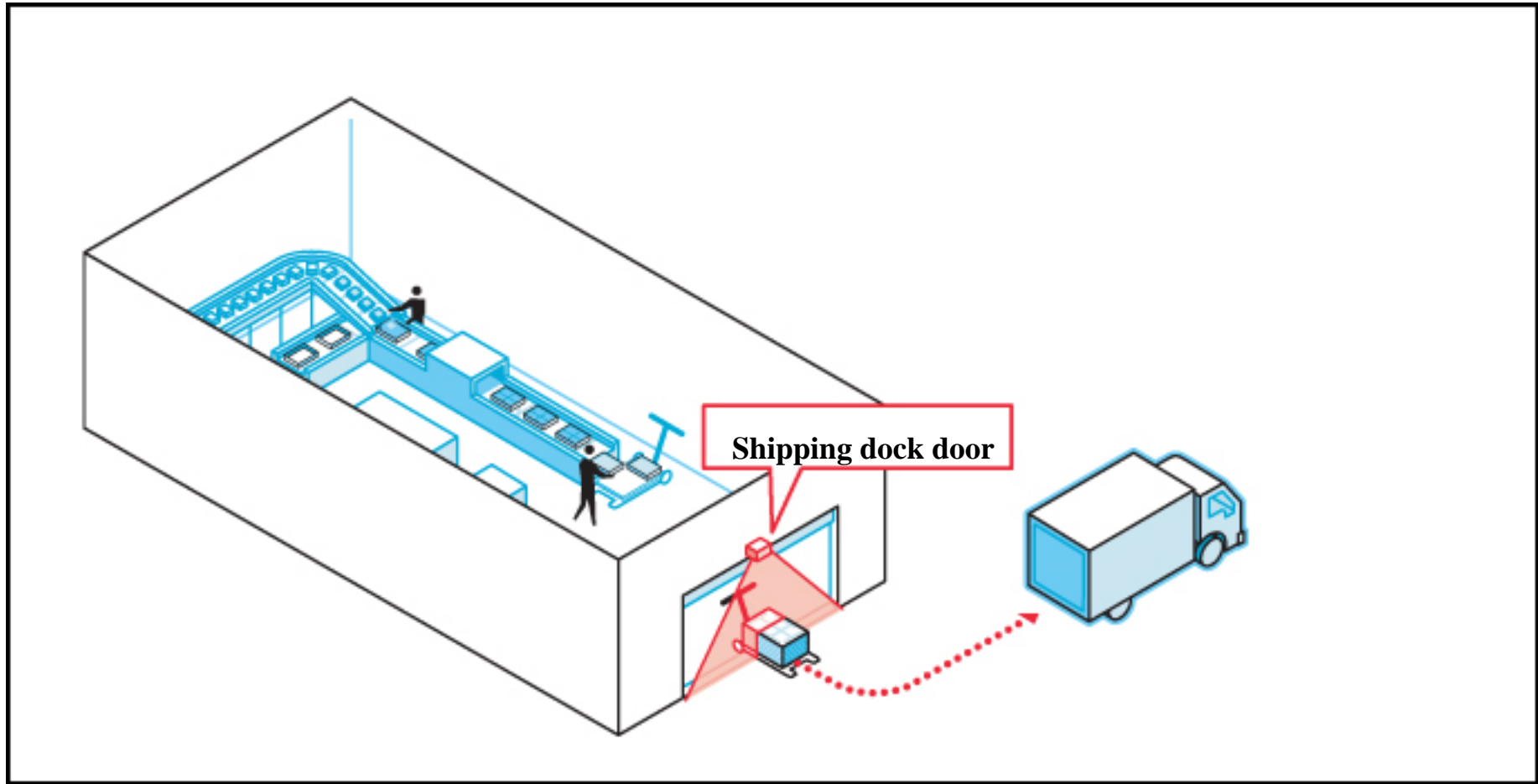
Pramatari et al. (2004)

RFID-Rollout Announcements

- Wal-mart: from Jan 1st 2005 onwards rollout with 100 suppliers
- METRO Group: Business units Cash & Carry, Real and Kaufhof: 8 DCs and 270 stores
- Pallets and cases equiped with transponders



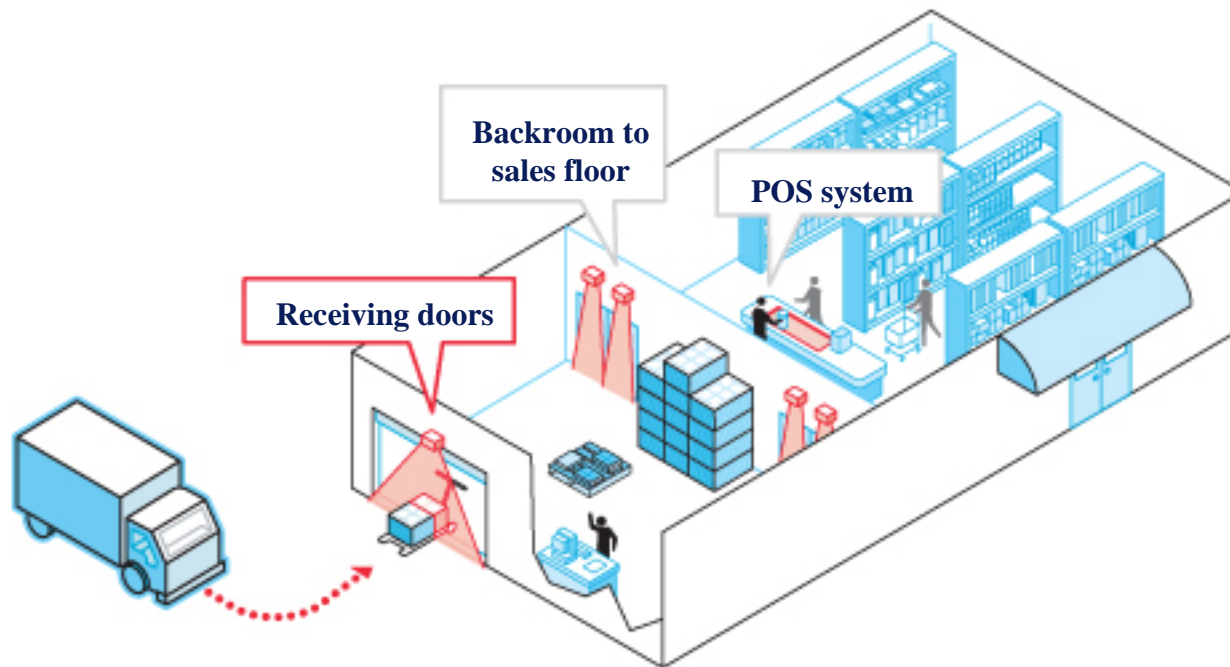
Manufacturers ship tagged pallets and cases to retailer distribution centers



MANUFACTURING PLANT OR DISTRIBUTION CENTER

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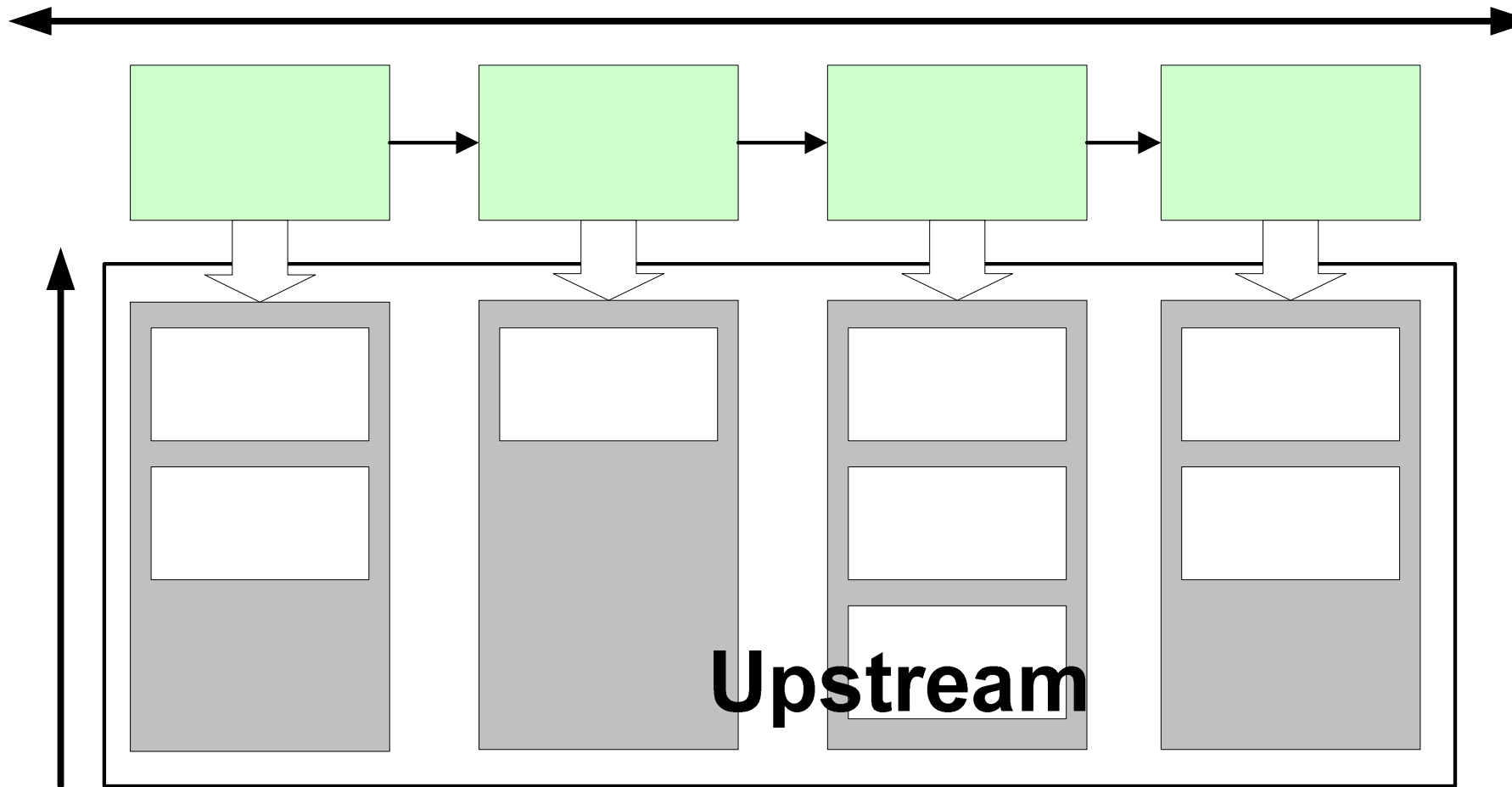
“Tagged” cases arrive at store and read, real-time, in back room



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RETAIL STORE

RFID-Enhanced Applications

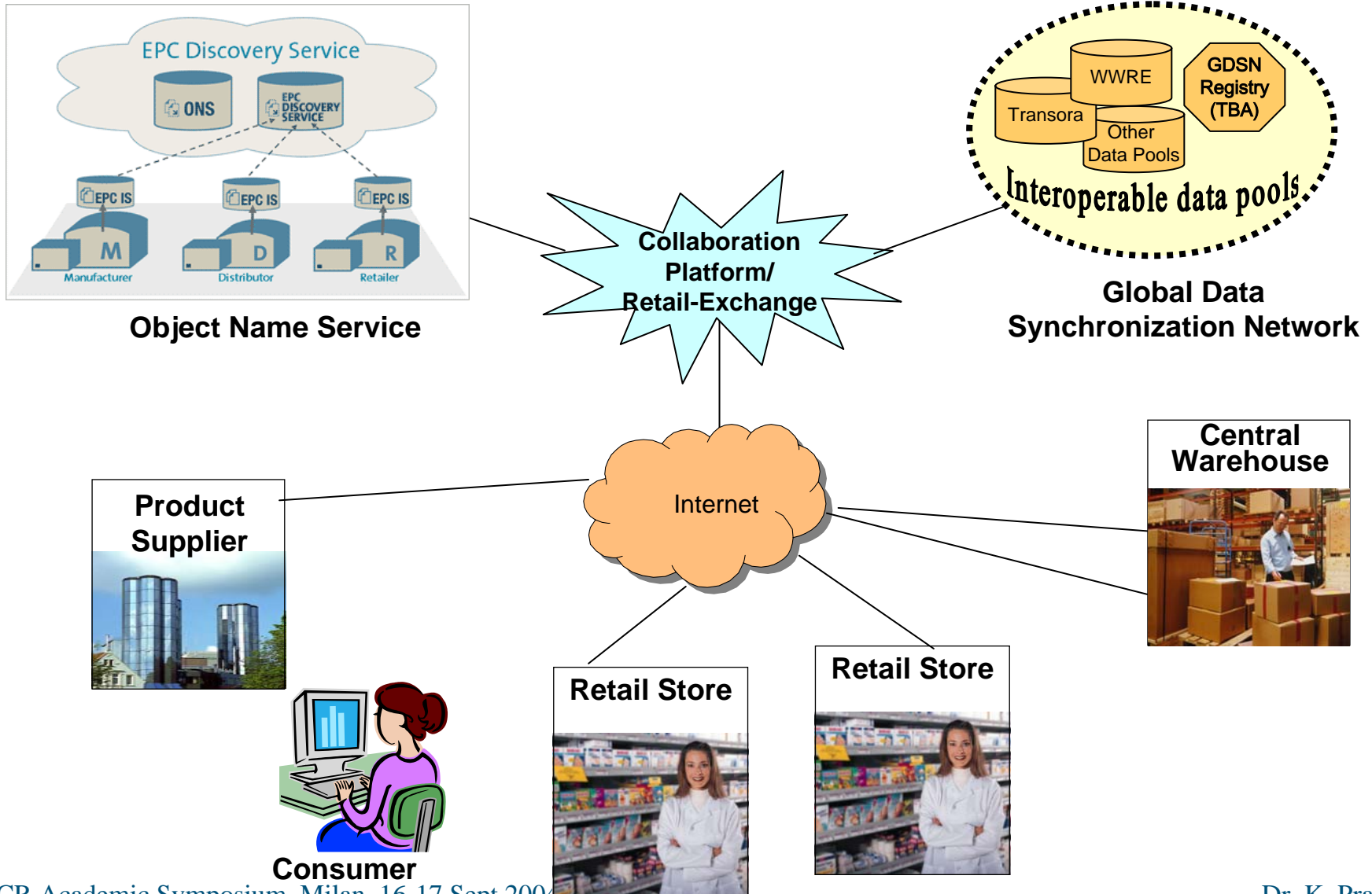


RFID-Enabled Collaboration

	RFID-enabled collaboration
<i>Information Exchanged</i>	<ul style="list-style-type: none"> □ - Products shelf position - Out-of-shelf indication - Accurate inventory information (including lot numbers, expiration dates, etc.) - In-store shopping route - Order and place of product selection ...
<i>Collaborative Business Processes</i>	<ul style="list-style-type: none"> - Replenishment - Shelf management - Evaluation of promotion effectiveness - Promotion planning
<i>Technology supporting information exchange</i>	XML/ ASCII files over Internet
<i>Technology supporting collaboration</i>	Collaborative platform – retail exchange (expected)

Pramatari et al. (2004)

RFID-Enabled Collaboration



Some concluding remarks

- Collaborative infrastructure required to support:
 - Product traceability
 - Food security sense to consumers
 - End-to-end supply chain effectiveness
- Suppliers benefit from RFID through:
 - Internal exploitation in SCM
 - Collaboration with supply-chain partners