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T&T and  
Supply chain monitoring :  
Effective tool of  
product authentication ?



## StoP Tampering of Product

SToP Project, closure conference,  
Zurich, May 27<sup>th</sup>, 2009



# AGENDA

T&T and Supply chain monitoring : Effective tool of product authentication ?



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- Business needs & product specifics
  - Product Verification Infrastructure (PVI)
  - Secure & Verify: Why & What ?
  
- Tool of product authentication
  - Identifier (ID) management
  - Authentication process ID-based
  - Authentication process Tracking-based
  - Data collection from supply chain
  
- SToP real-world trials
  - Recap of authentication features combination
  - Illustration of PVI features
  - Trials & prototyping within the supply chain
  
- Conclusion

# Business needs & product specifics

## Product Verification Infrastructure



# Business needs & product specifics

Secure & Verify: Why & What ?

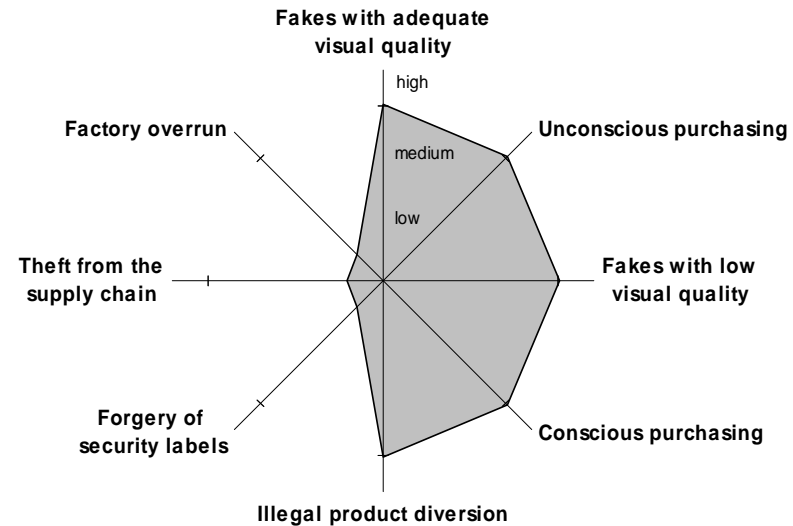


## ■ Why ?

Stakes & business needs

- Human safety
- Distribution efficiency
- Authorization management
- Maintenance management

Dimensions of illicit trade



## ■ What ?

Product itself,  
Certificate

Checking instance,  
Owner

Process,  
Service

»

# Tool of product authentication

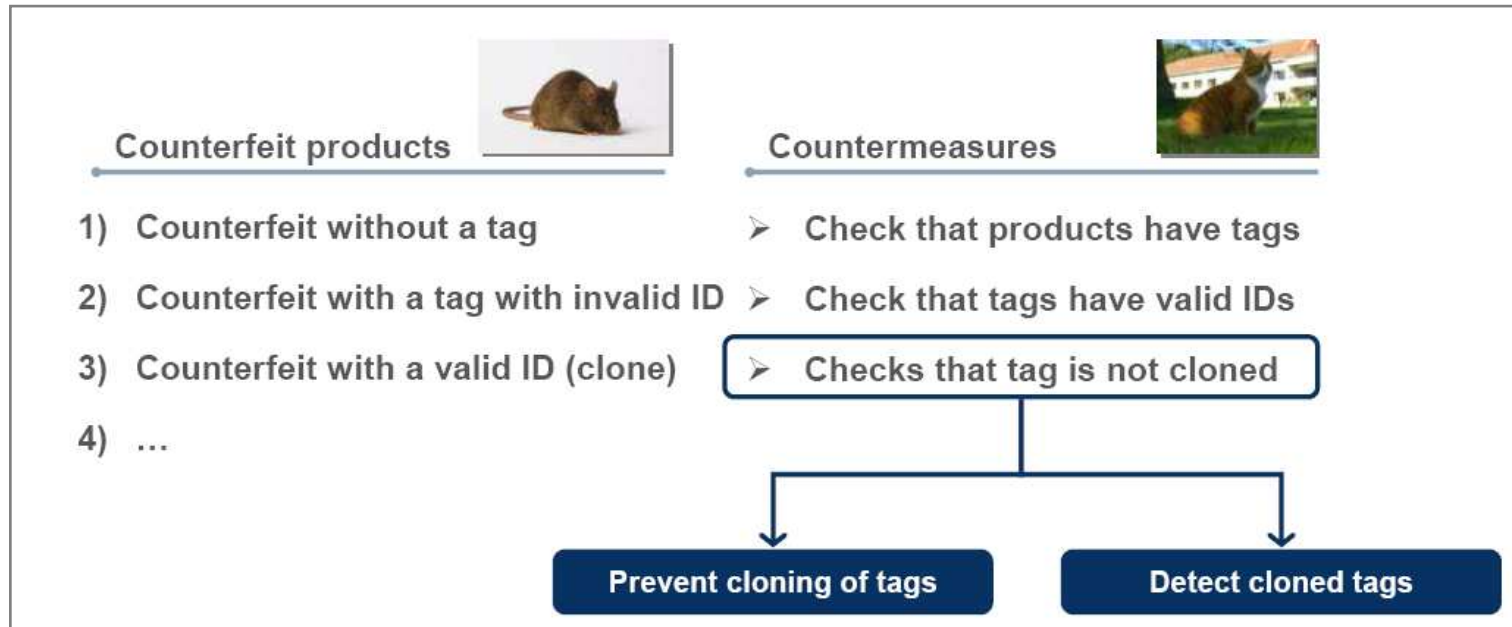
## *Identifier (ID) management*



- Unique item identifier (serial number)
  - ✓ One identifier = one physical product
  
- Random numbering
  - ✓ Number difficult to guess
  
- Combine several identifiers
  - ✓ E.g.: key components,
  
- Combine with covert additional identifier
  - ✓ E.g.: Restricted access: Product in hand + specific tools/knowledge
  
- Identify + Verify = Authenticate

# Tool of product authentication

Authentication process ID-based



Source: ETH Zurich - Mikko Lehtonen



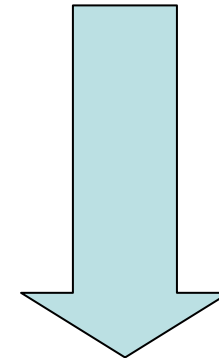
# Tool of product authentication

*Authentication process Tracking-based*



- ID status
- ID authorized next steps (in the supply chain)
- ID tracking history (internal events)
- ID tracking history (coming from external partners)
- ID related product specificity (i.e.: aesthetics, construction)
  
- Other ...

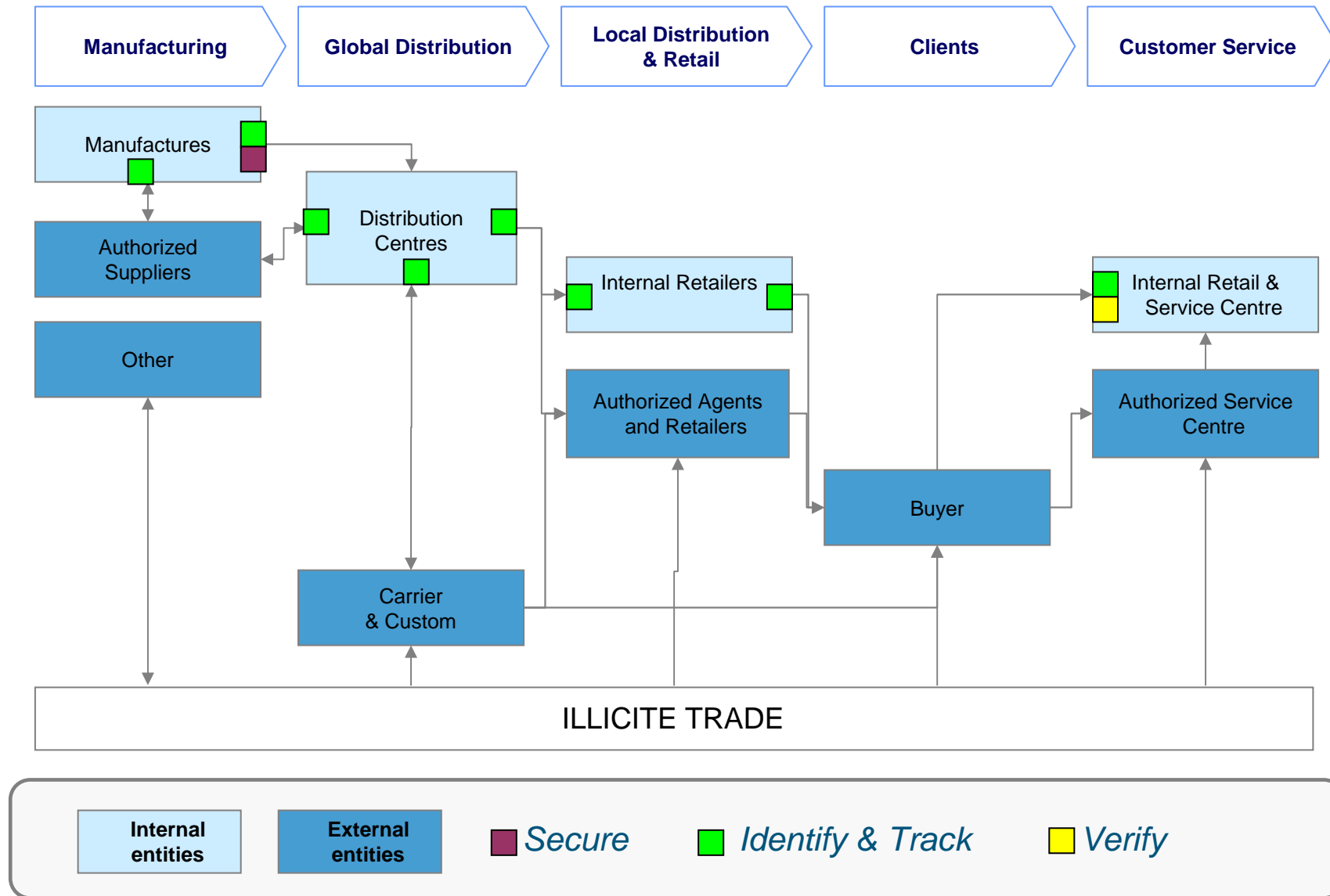
**PVI**  
**Automated features**



**HR analysis**  
**Documentation-based**

# Tool of product authentication

*Data collection from supply chain*



# SToP real-world trials

Recap of authentication features combination



	Secure logistic transfer	Mobile Mystery Shopper	Retail & Customer Service
Key Specificities	Bulk	All products	Multi-level Auth.
	100% RFID	External	Internal
Product (overt) ID validity		●	●
Product (covert) ID validity	●	○	●
Covert ID “reading security”	●		●
<u>IDs</u> combination validity			●
ID status (and location) validity	●	●	●
Product tracking history feedback	○	●	●
Product Aesthetics feedback		○	●

● Real-world trial      ○ Lab trial & PVI features

# SToP real-world trials

Illustration of PVI features



Product Verification Infrastructure Project website

SAP RESEARCH

Service Center

Type: **Maintenance**

Tag Number: **0000000BE562E8A**

Serial Number: **2384580339MX**

Warranty: **Sell Warranty: Until 01.06.2010**

Step	Location	Date
SALE	FRANCE_BOUTIQUE_A	01.06.08 - 12:45
DISTRIBUTION	SWITZERLAND_DC_B	28.10.07 - 08:00
PRODUCTION	MANUFACTURER_B	26.02.07 - 08:15

Final Result (OK)

SKU	Final Result	Status	Tag Number	Serial Number	History	Photo
-----						
					Yes	Yes
					No	No

General comment

Send

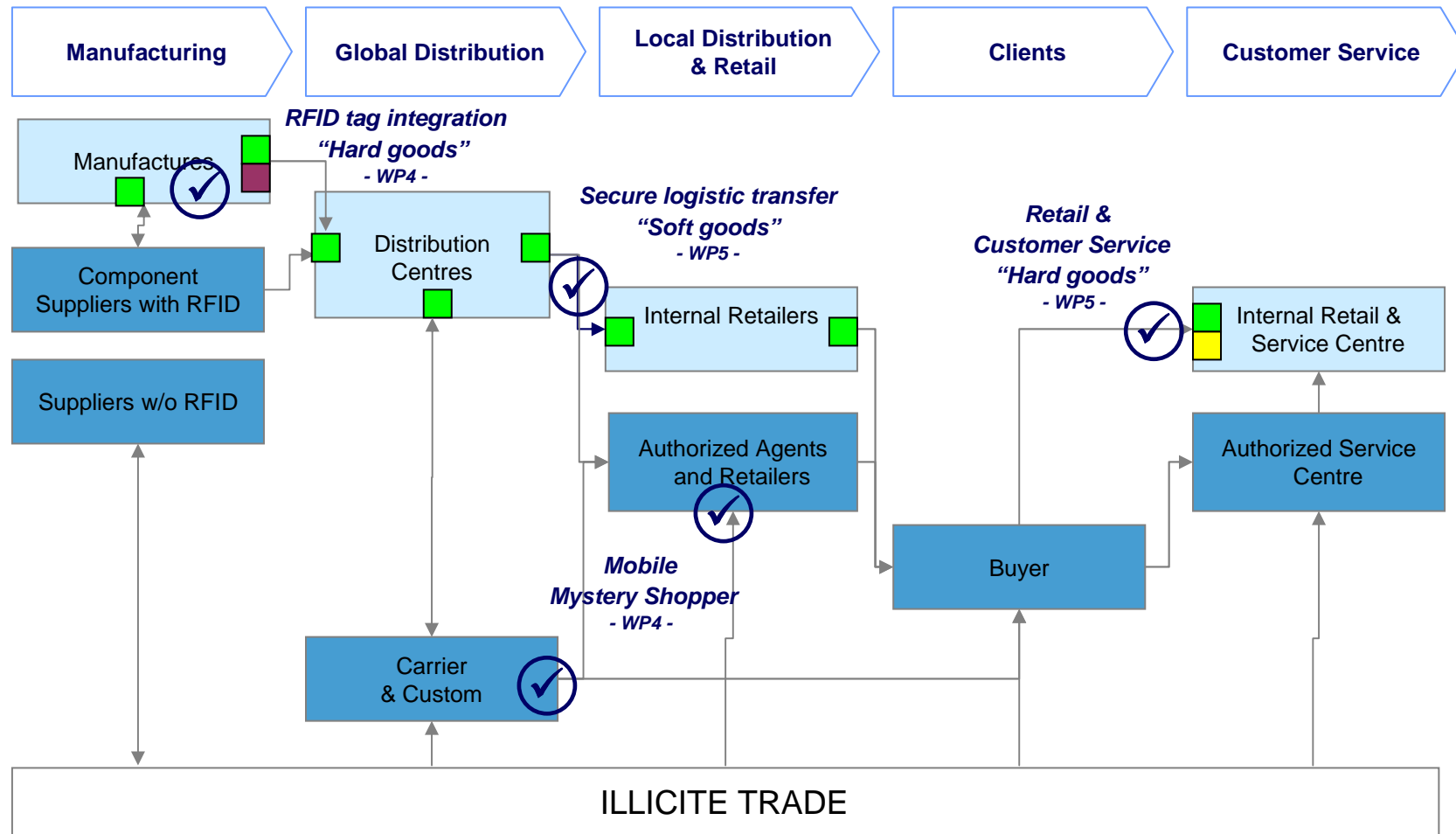
Product picture

Product picture

Source: SAP Research

# SToP real-world trials

*Trials & prototyping within the supply chain*



# CONCLUSION

T&T and Supply chain monitoring : Effective tool of product authentication ?



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- Product serialization is a project
- Tracking and Data collection involve process modification and security
- Data management and business rules should be structured (PVI)
- Capability to track outside the internal network would provide full success
- The team to support**