European Inter-Disciplinary Research on Intelligent Cargo for Efficient, Safe and Environment-friendly Logistics

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SingularLogic

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EURIDICE at a glance

- Overal budget: 14.1 m EUR
- Overal funding: 8.25m EUR
- Start – end date: 1/2/2008-30/11/2011
- Coordinator: Insiel

Agenda

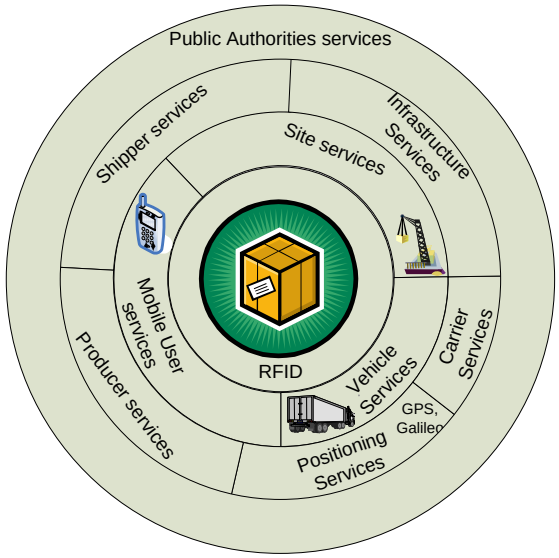
- The Intelligent Cargo concept
- Demo
- EURIDICE technical implementation
  - Service-oriented approach
  - Architectural approach
  - Intelligent Cargo and Cargo Intelligence
- Pilot operation and initial results
- Market orientation

Business and ICT challenges for Logistics industry

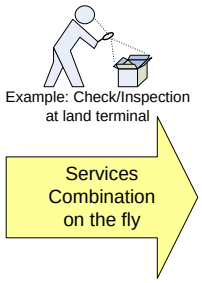
- Fragmented logistics and distributed manufacturing leading to huge traffic of goods inside EU and abroad
  - Need for efficient monitoring of transport process
  - Better utilization of trucks, warehousing and parking areas
- Efficient transport
  - Customer responsiveness
  - Estimated Time of Arrival
  - Exception management – anomaly detection
- Safety and secutiry
  - Sensitive goods
  - Security during transport
- From centralized information systems to more distributed and “cargo” oriented information services

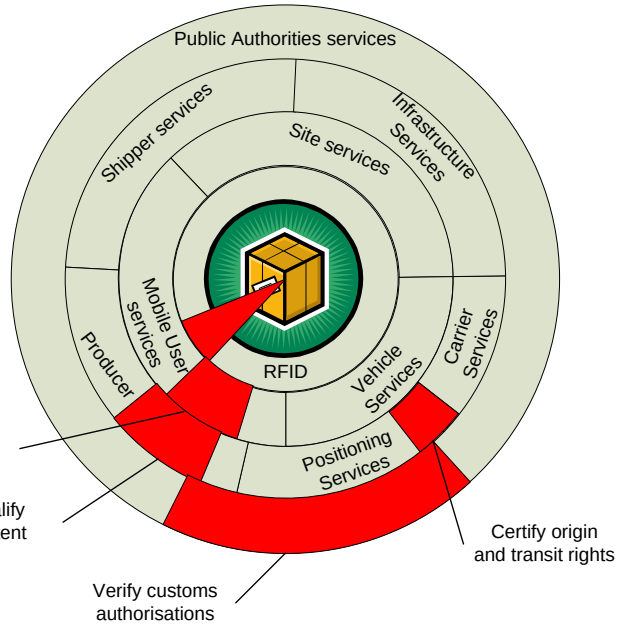
Why Intelligent Cargo?

"by 2013, most of the goods flowing through European freight corridors will be 'intelligent', i.e.: self-aware, context-aware and connected through a global telecommunication network to support a wide range of information services for logistic operators, industrial users and public authorities



Cargo-centric Information Services Infrastructure

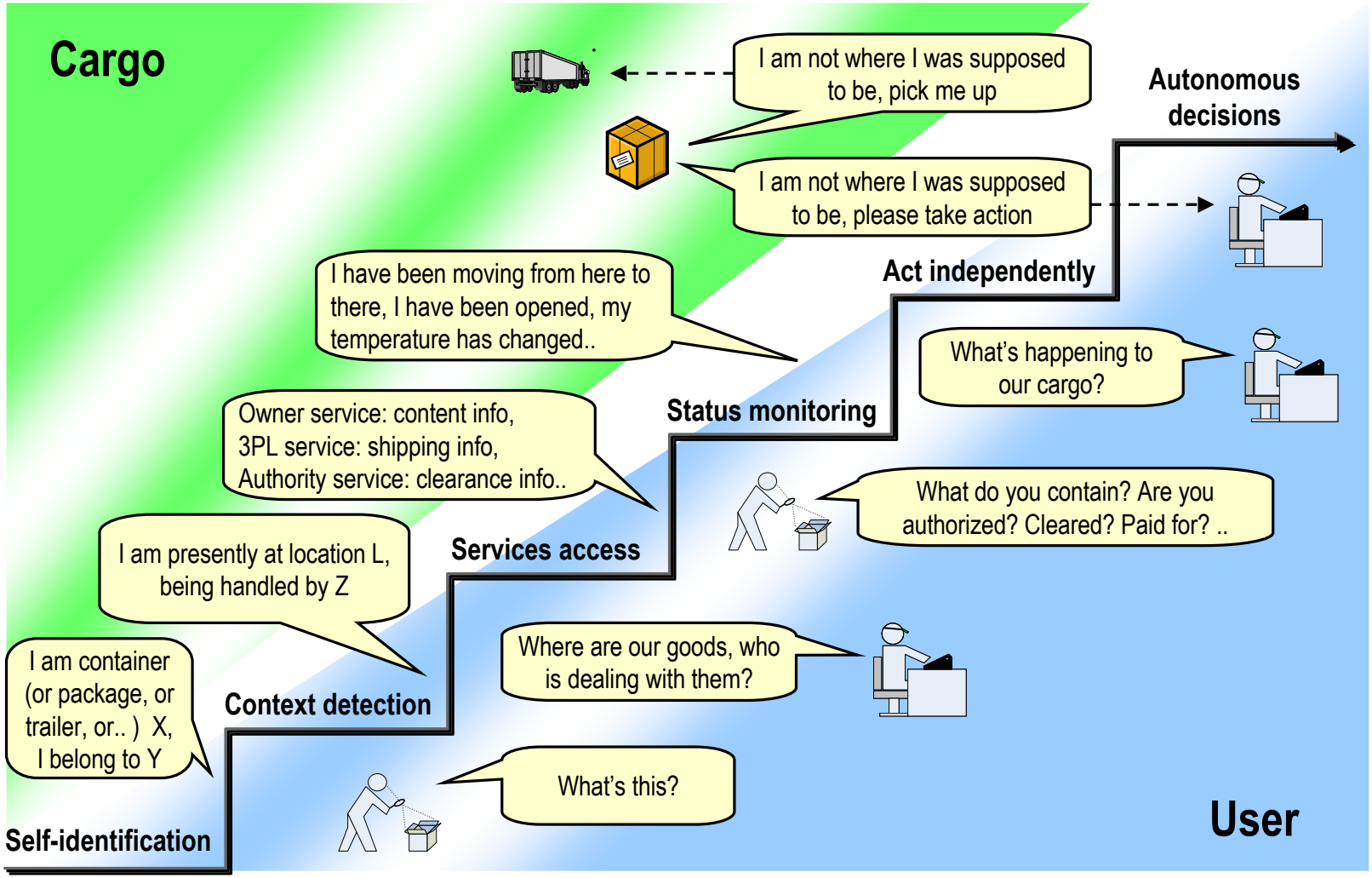




User and context specific interaction

Source: Euridice project

The intelligent cargo concept



Source: Euridice white paper

Intelligent Cargo capabilities

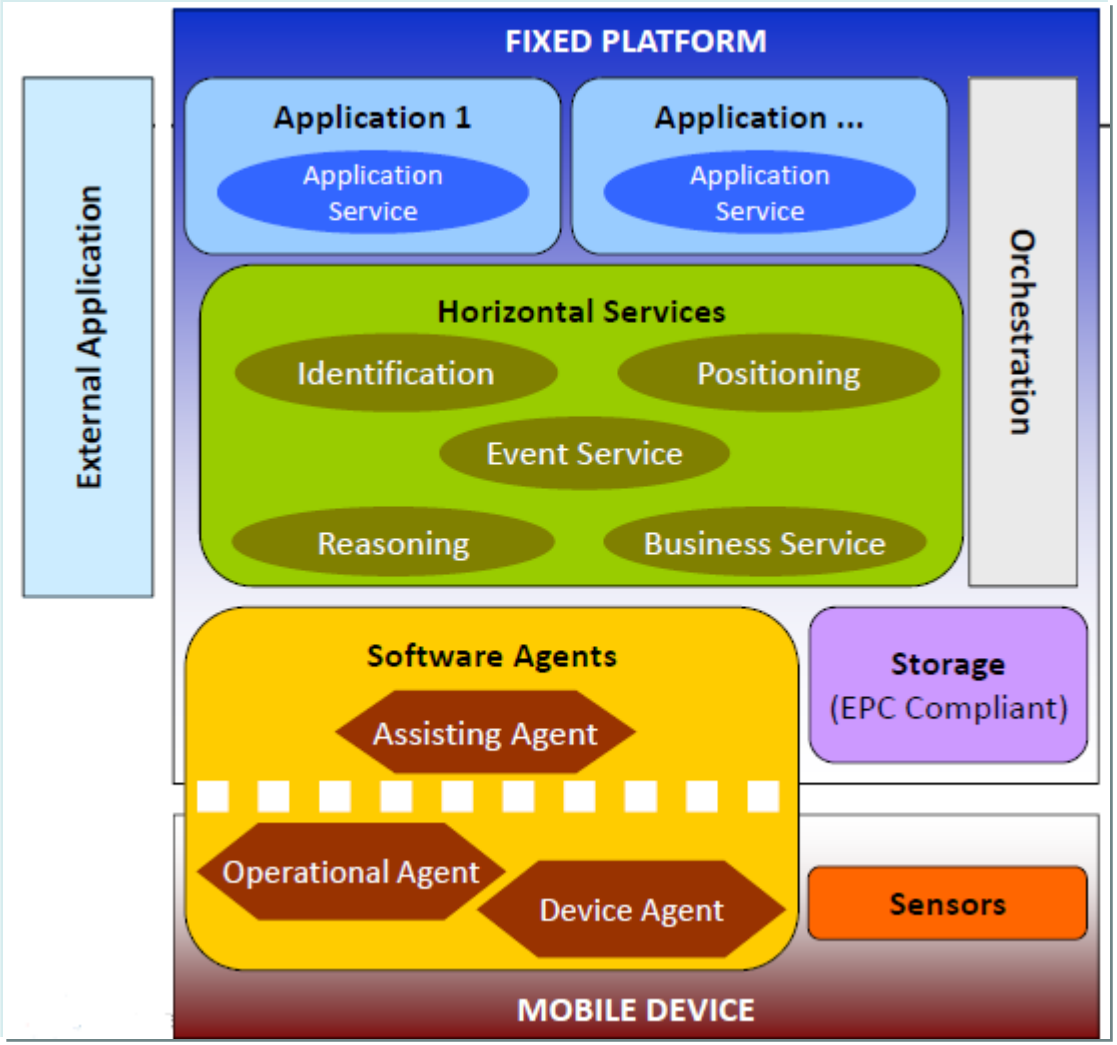
Basic	Self-identification	- Global identification provided by public domain services. - **Cargo is able to self-identify through a common infrastructure, accessible to field users, vehicles and back-office.** - Dynamically selected level of detail (package, pallet, container, ..).
	Context detection	- **Context determination** provided by public domain services. - Common infrastructure, providing context data (identification details, location, time) to authorized users.
	Access to services	- **Common infrastructure, providing access to services** to authorized users or systems interacting with the cargo.
Advanced	Status monitoring and registering	- **Status data are available in real time** through the service infrastructure. - Status data are contextualized and integrated with the other cargo information services.
	Independent behavior	- **Cargo is able to invoke services** and start processes autonomously in response to predefined events.
	Autonomous decisions	- **Cargo has decisions making capabilities** and is able to choose services to invoke according to circumstances.

Source: Euridice white paper

Demo

Let’s see how it works…

Euridice Integrated Platform

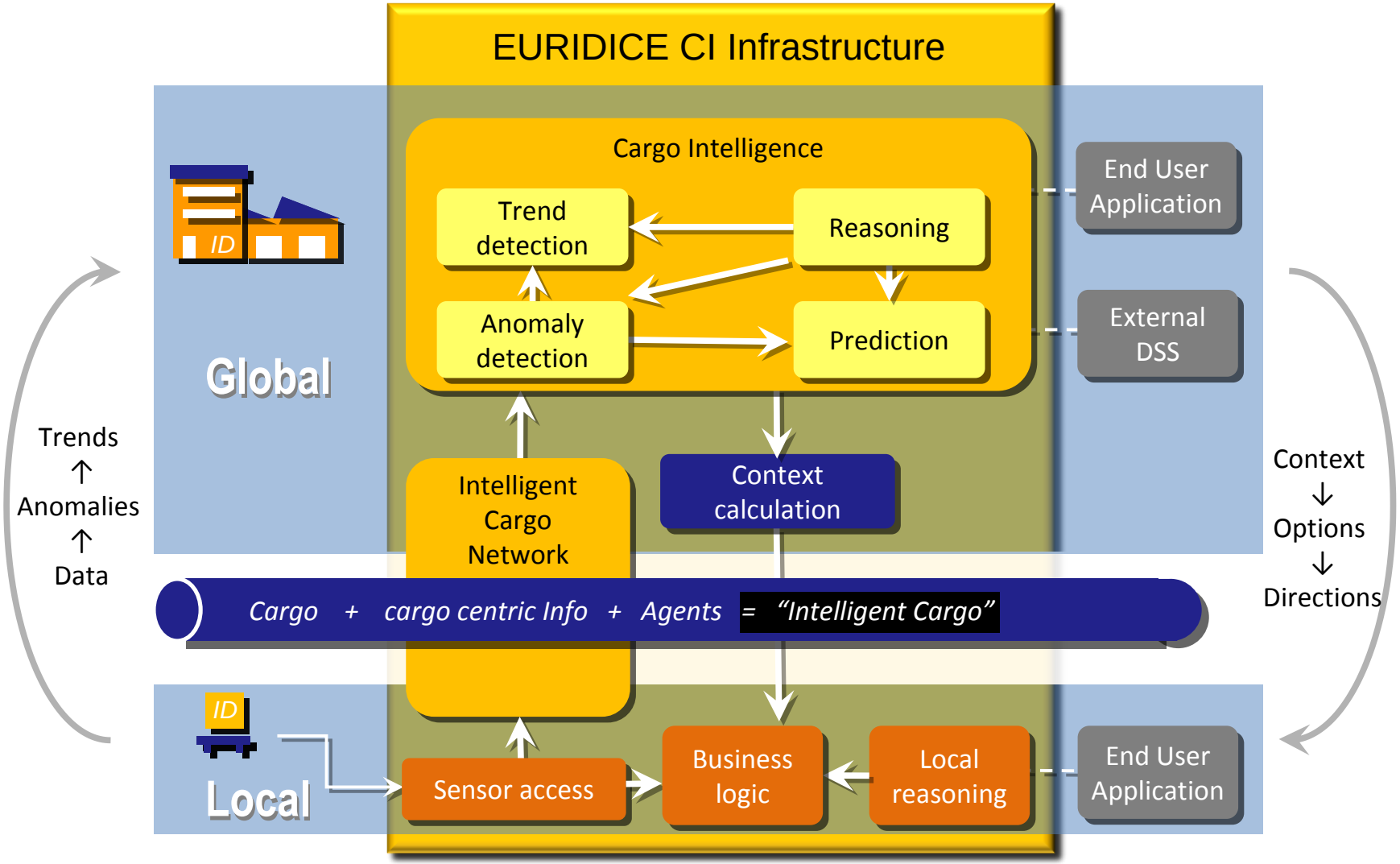


Fixed Platform:
Distributed set of nodes
Where services, user applications, S/W agents and
system components are deployed

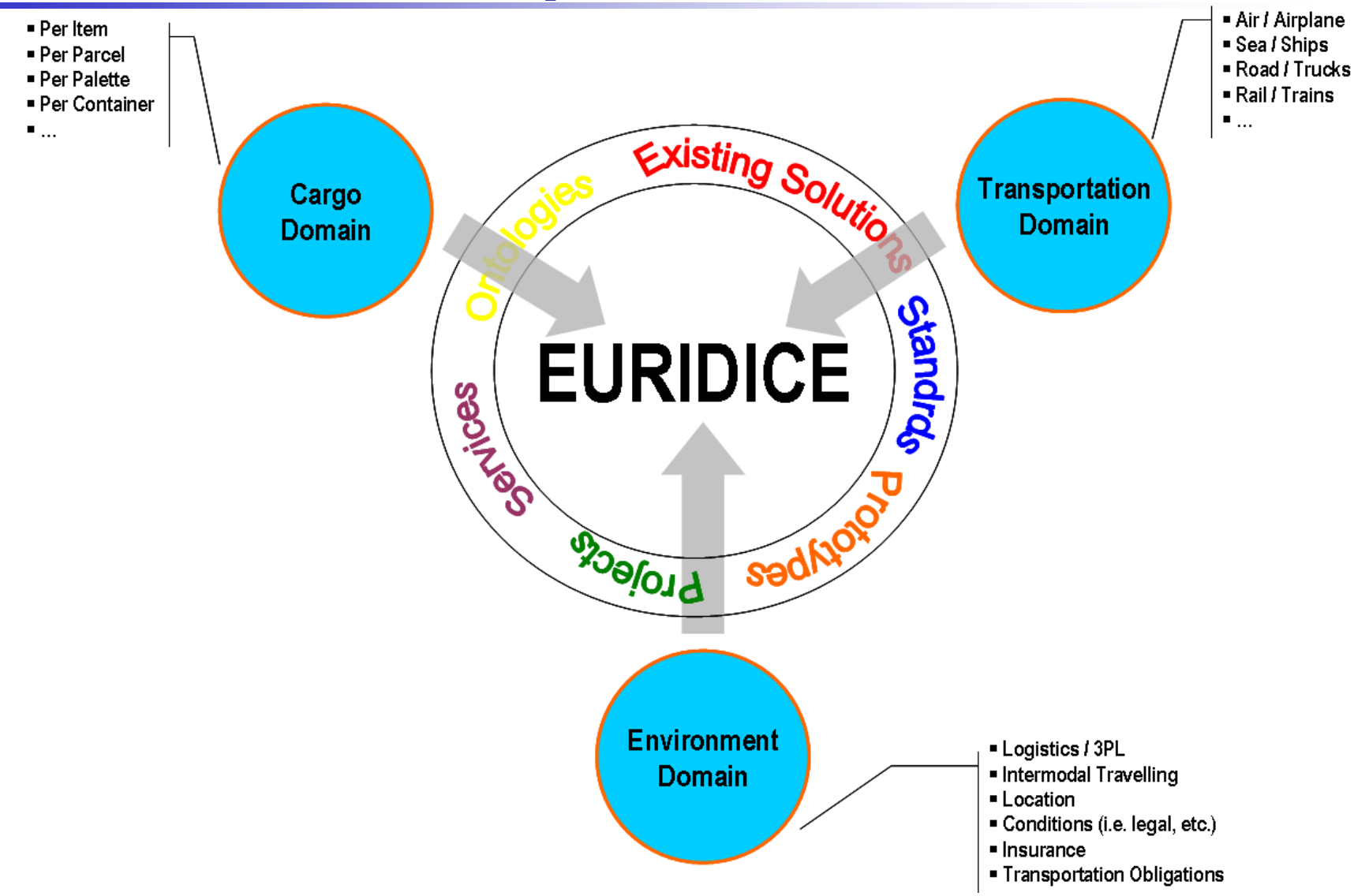
Mobile Devices:
Different types of devices are connected where mobile seervices are executes

Source: Margherita Forcolin, ECITL Conference 2011

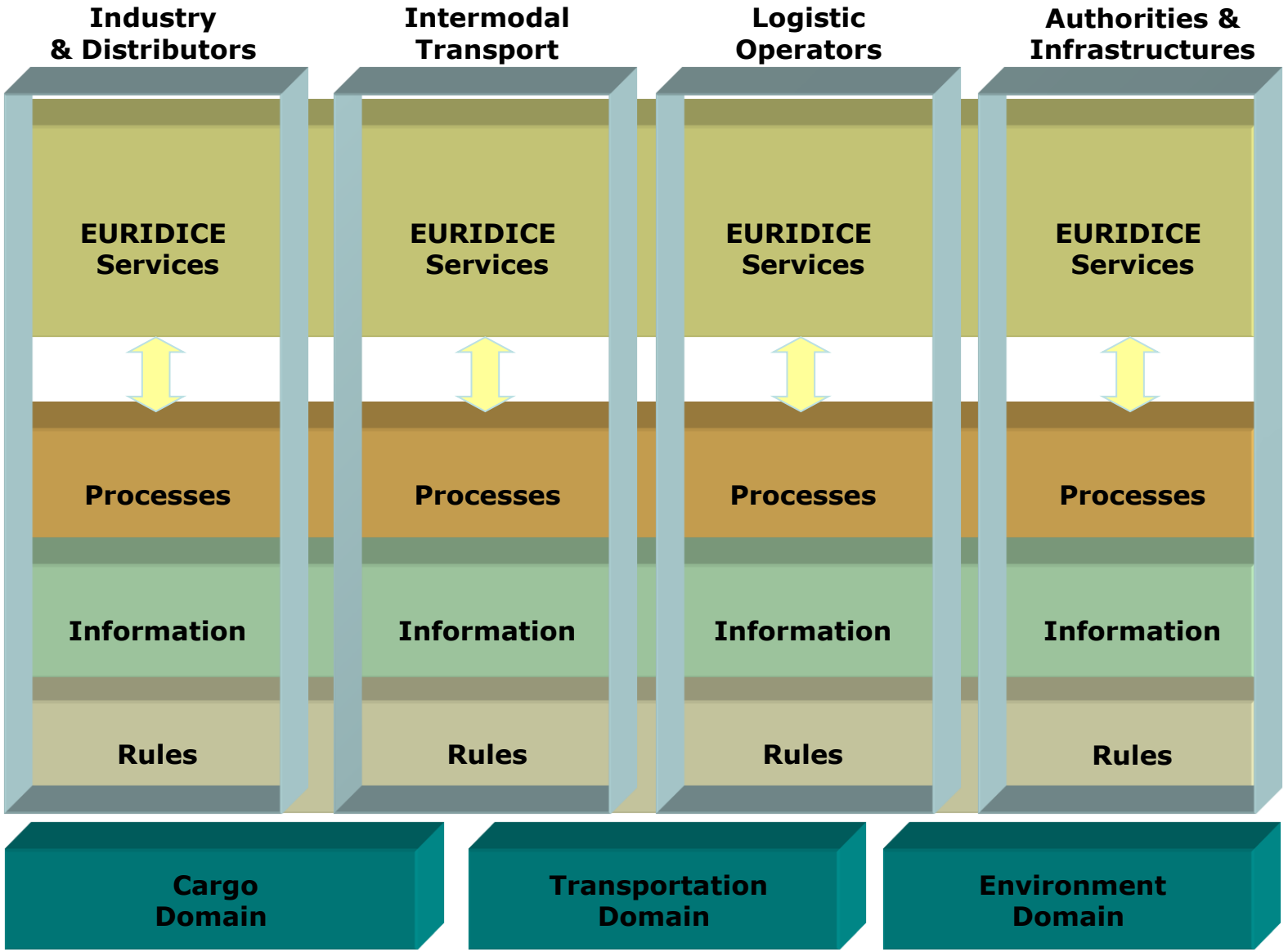
Local and Central Intelligence



Domain taxonomy for context awareness



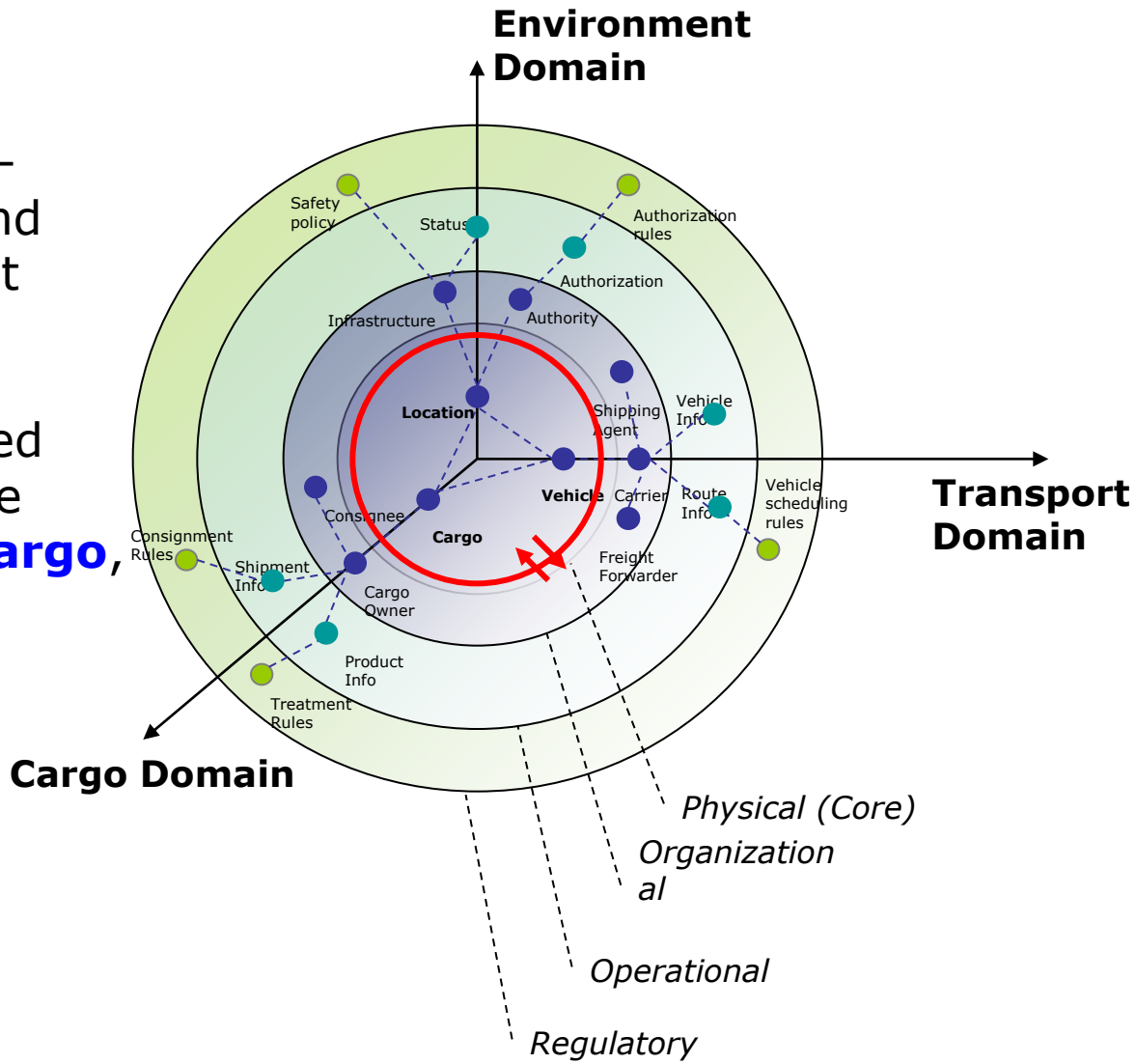
Euridice Context model structure



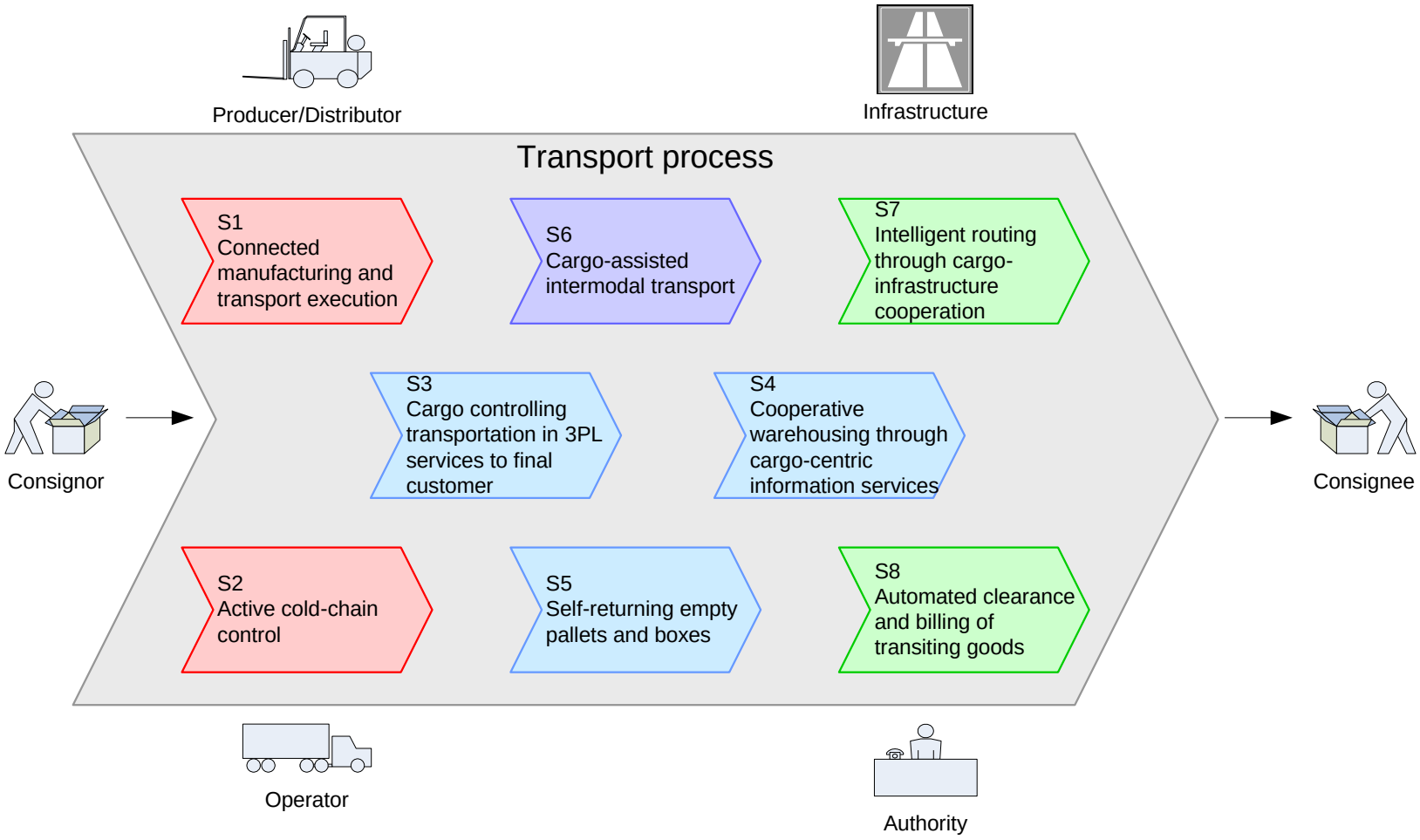
Euridice Context model function

Allows access to cargo-related information (and services) from different domains and actors.

Information is organized around a core structure identifying **physical cargo**, **vehicle** and **location**.



Pilot Scenarios



Source: Euridice white paper

Initial trial results

- **% of error-free identifications reduced to**

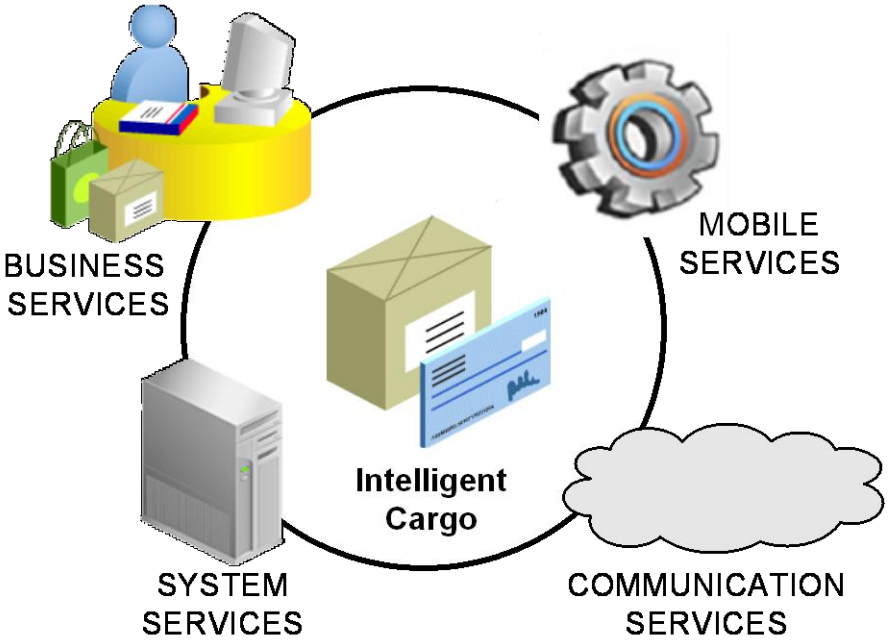
Status change (e.g. cargo arrived, loaded etc)	Pilot number	Time needed without IC	Time needed with IC	Time reduction with respect to the actual situation
	Pilot 7	8 hours	8 seconds	99,97%
	Pilot 3	5 hours	1 minute	99,67%
	Pilot 1	More than 1 hour	5 minutes	92,75%

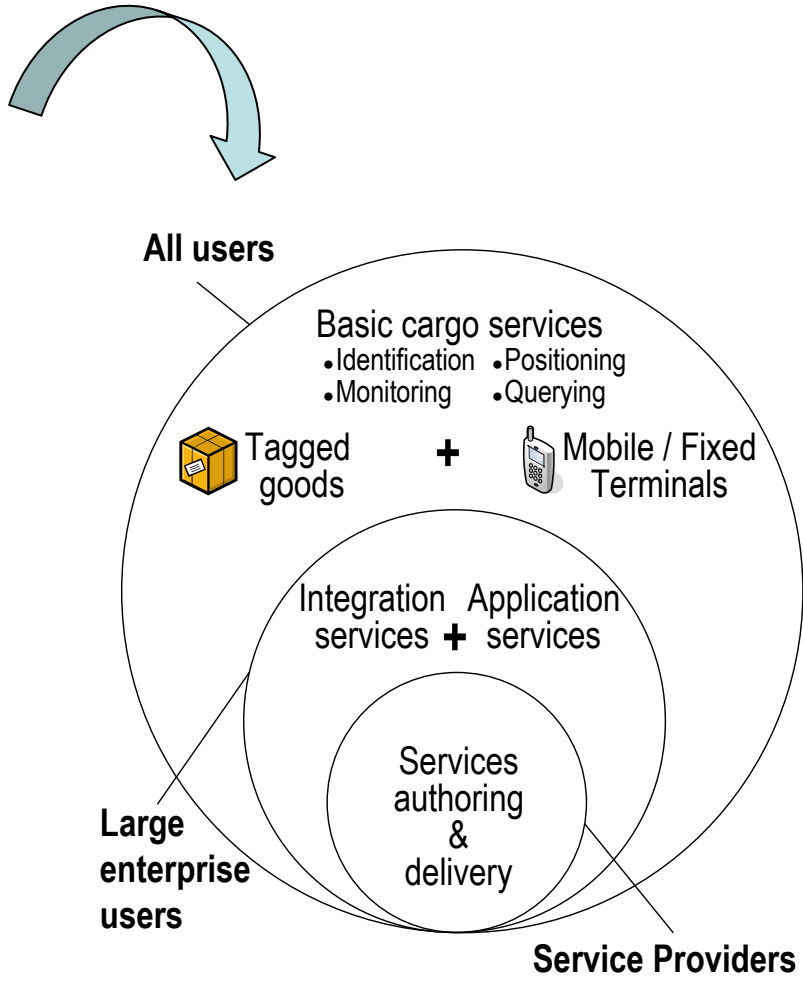
- **Average time for notification in case of deviation from normal conditions** reduced from hours to minutes

Average notification time in case of deviation from established conditions	Pilot number	Time needed without IC	Time needed with IC	Time reduction with respect to the actual situation
	Pilot 3	About 6 hours	1 minute	99,72%
	Pilot 2	45 minutes	5 minutes	88,89%
	Pilot 5	1 hour and half	12 minutes	86,89%

- **Estimated time of arrival:** % of accurancy increased from 90% to almost 100%

EURIDICE Services Platform





Source: Euridice white paper

EURIDICE added value

- Infrastructure for **Micro Services** (simple and tageted) development,
- in an **easy, flexible and open way**,
- from **entrepreneurs and existing service providers**

Source: Exploitation Workshop , Munich, May 2011

Services - Examples

- Route optimization.
- Track &Tracing.
- Automated proof of delivery.
- Automated clearance.

Source: Exploitation Workshop , Munich, May 2011

Future business

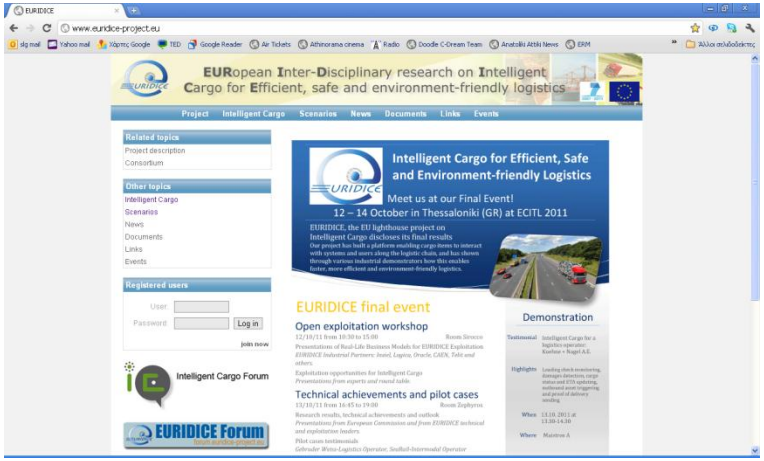
- Business applications to secure mobility cloud
- Business Services to mobile users
- Rich Logistic services to logistic parties
- Software deployment for Business clients
- Operational and Billing services for clients
- Data collection and information distribution
- Full or partial outsourcing mobile services

Source: Exploitation Workshop , Munich, May 2011

Join us

www.euridice-project.eu

http://www.intelligentcargo.eu/



Intelligent Cargo Forum

EURIDICE Forum
forum.euridice-project.eu

Learning Portal

Thank you for your attention

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