

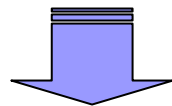
Architecture of ICT services for integrated logistics

Flavio Bonfatti
University of Modena & Reggio Emilia

The SEEM perspective

- ❑ Towards the Single European Electronic Market
 - ❑ A practical, bottom-up approach
 - ❑ On sectoral themes and a limited territory: business ecosystems
 - ❑ By constituting registries of (small-sized) enterprises
 - ❑ And offering simple and affordable services

- ❑ Opportunity: the Regional Telematic Plan
 - ❑ Focus on the logistic theme
 - ❑ And the territory of the **Emilia-Romagna Region**
 - ❑ Construction of a network of value-added services
 - ❑ Open to the participation of third parties
 - ❑ And linking the enterprise legacy systems



The **STIL** project (Integrated Digital Logistics)

The STIL project

□ Concept of Virtual Logistic District

- *" ... a space on the Web where demand and offer of logistic services can meet with no relevant operational and technological restraints ..."*
- An integrated view of the logistic systems located in the territory
- Interoperability of the information systems of the involved enterprises
- Thus, constitution of a **"virtual logistic district"** at the regional scale

□ The STIL consortium

- **Coordination:** Catholic University of Piacenza
- **Other universities:** Bologna, Modena & Reggio Emilia, Parma
- **Development agencies:** ASTER (BO), Democenter (MO)
- **Software houses:** Gruppo PRO (BO), Gruppo Sistema (FC), SATA (MO)
- **Consulting companies:** Harimann (PR), NICOM (PC)
- **Logistic operator:** Piacenza Intermodale (PC)

Identified needs /1

□ By user companies

✘ Monitoring the final delivery	5.0
✘ Keeping transport costs under control	5.0
✘ Strategic simulation	5.0
✘ Interoperability with hauliers	4.5
✘ Interoperability with suppliers	4.0
□ Control of truck arrival and departure	4.0
□ Tracking & tracing	4.0
✘ Aggregation of demand	3.0
✘ Search for the best operator	3.0
□ Support to custom operations	2.5
□ Services for large distribution systems	2.0
✘ Internal fleet planning	1.5
□ RFID e warehouse management	1.5
□ Infomobility and GIS	1.0



Identified needs /2

□ By 3G logistic operators

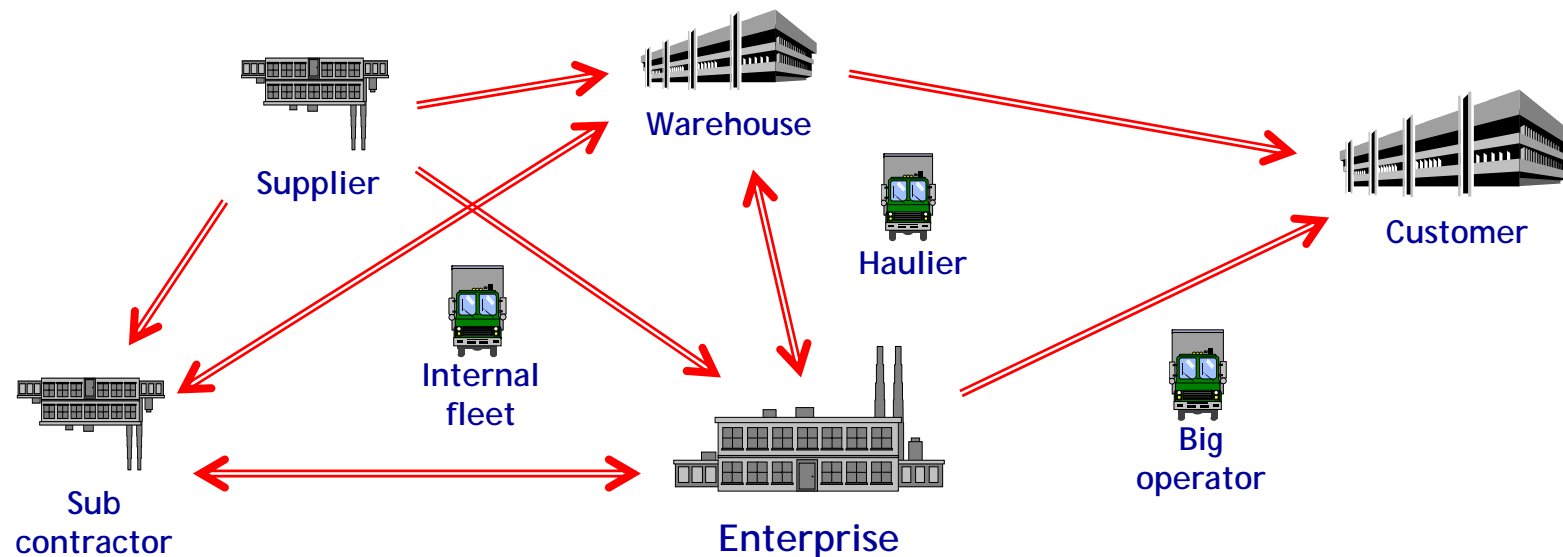
- ✘ Security in communication 5.0
- Control of incoming/outcoming trucks 5.0
- Control of incoming/outcoming goods 2.5
- ✘ Interoperability with hauliers 2.5
- Management of shared resources 2.5
- Tele-control of buildings and spaces 2.5
- ✘ Internal fleet planning 2.5
- Infomobility and GIS 2.5



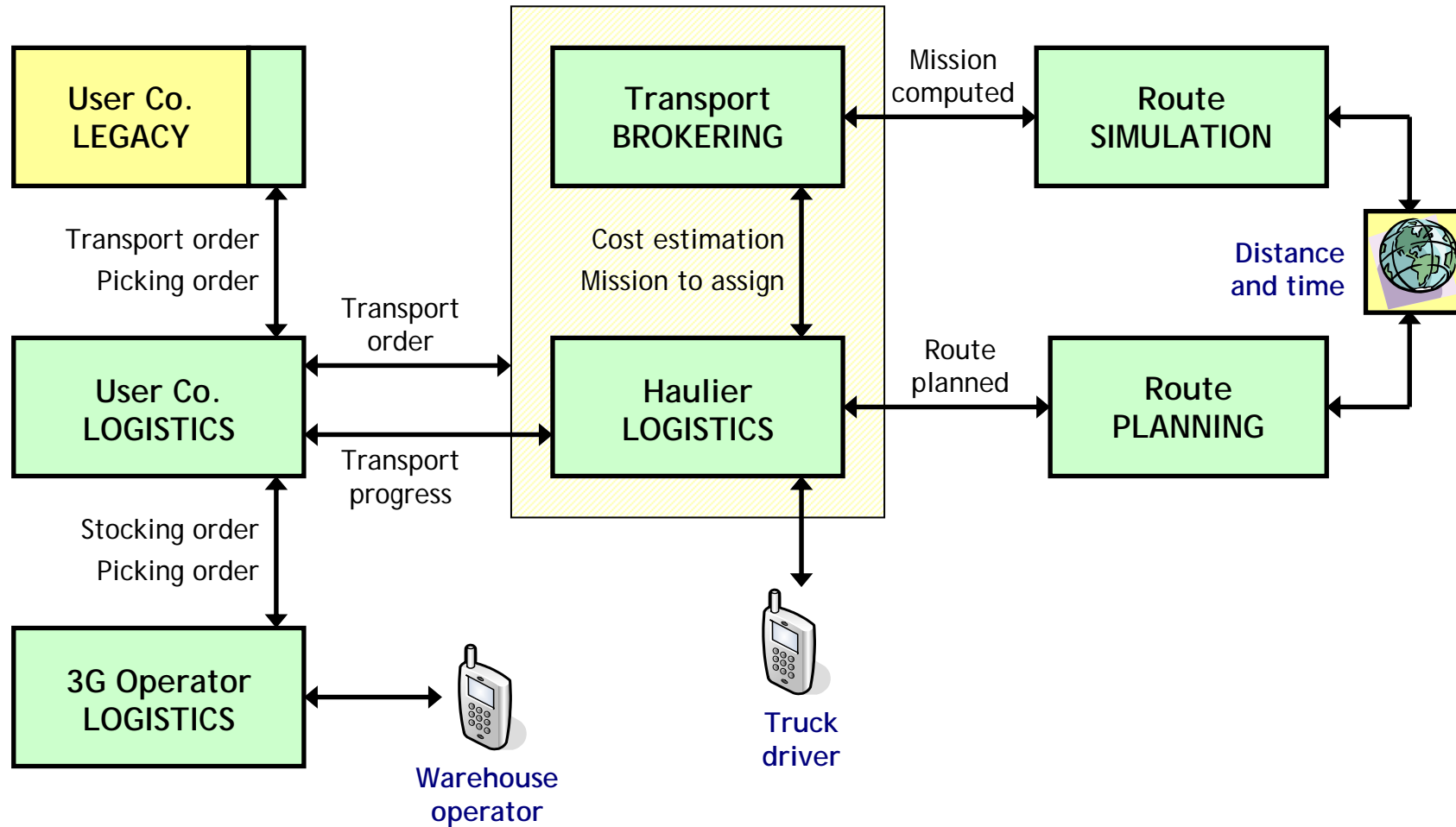
Communication problems

□ Materials flows \Leftrightarrow data flows

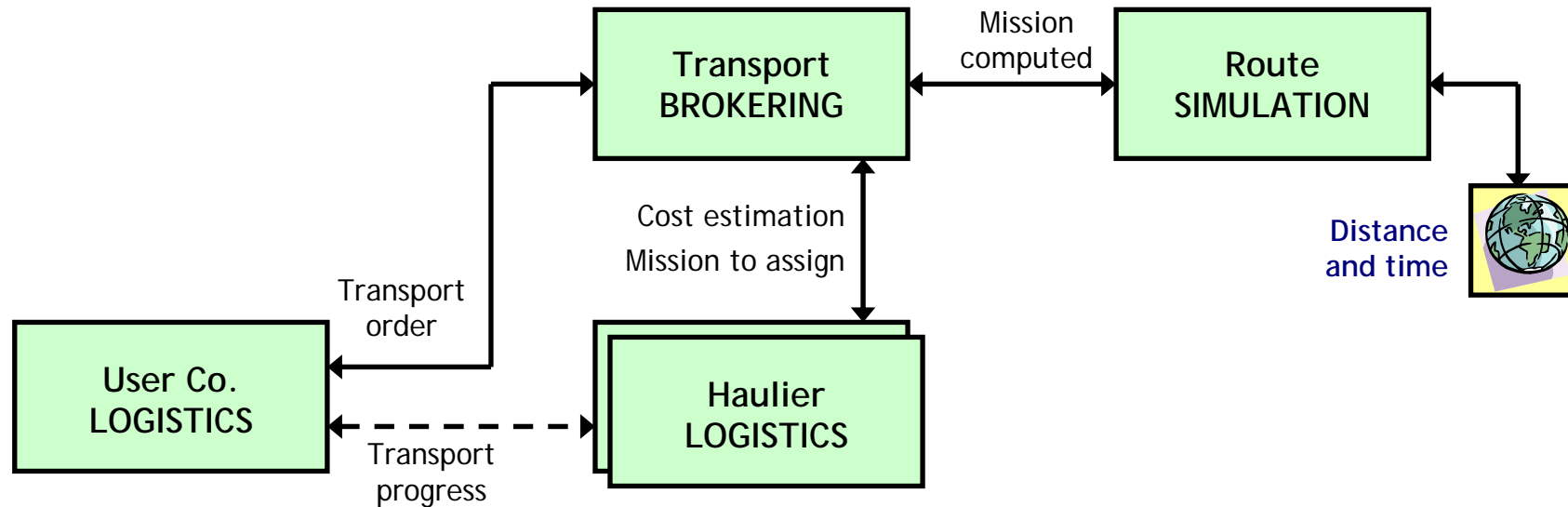
- Price lists, transport and stock conditions, constraints
- Requests for quotation, quotation, orders (for logistic services)
- Order progress, shipping notes, invoices, payments
- Etc.



Service architecture



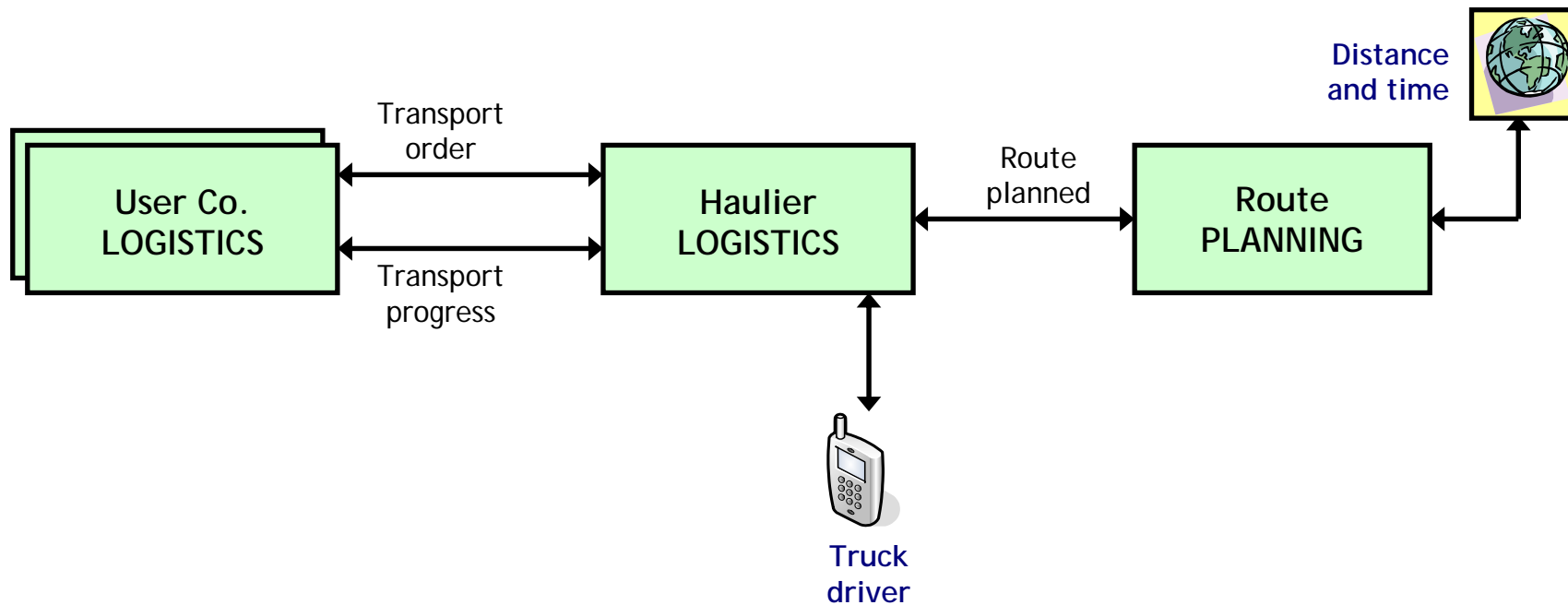
Scenario 1: the Broker



- ❑ One or more user companies ask the Broker for the **best transport solution** for its own orders

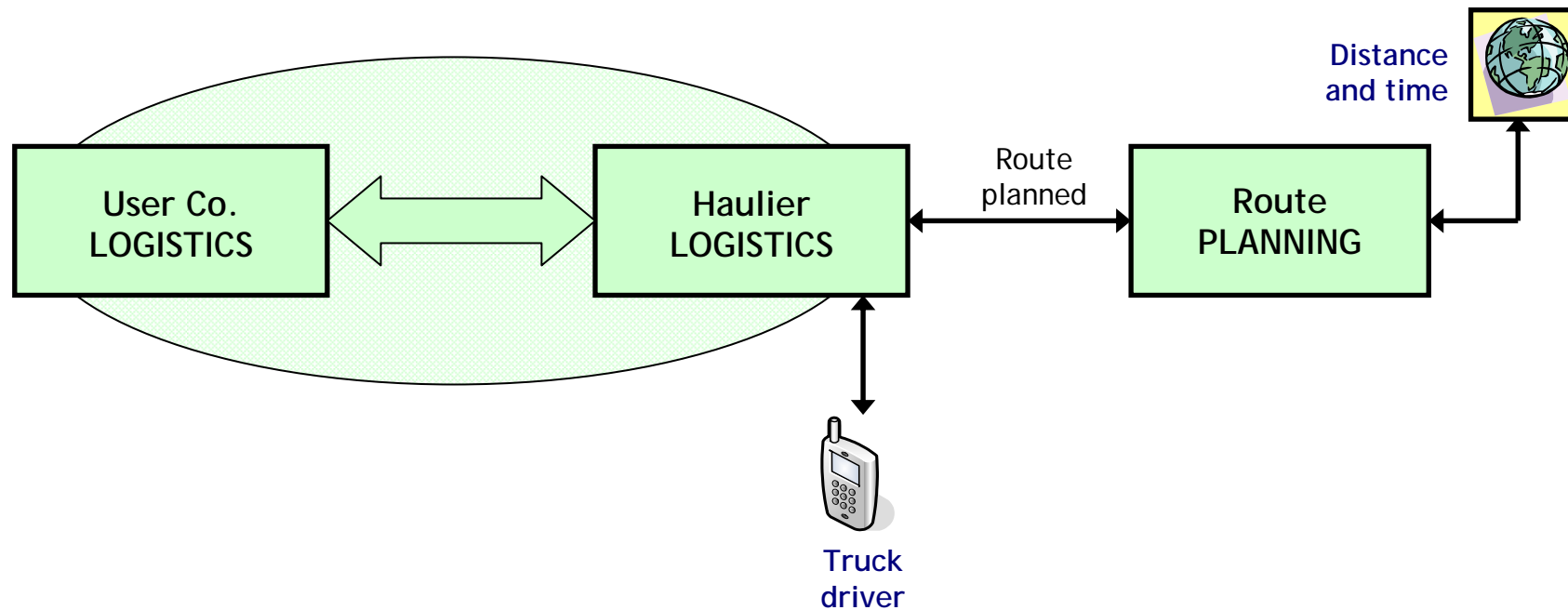
Scenario 2: the Haulier

- One or more user companies **send directly** their transport orders to selected hauliers

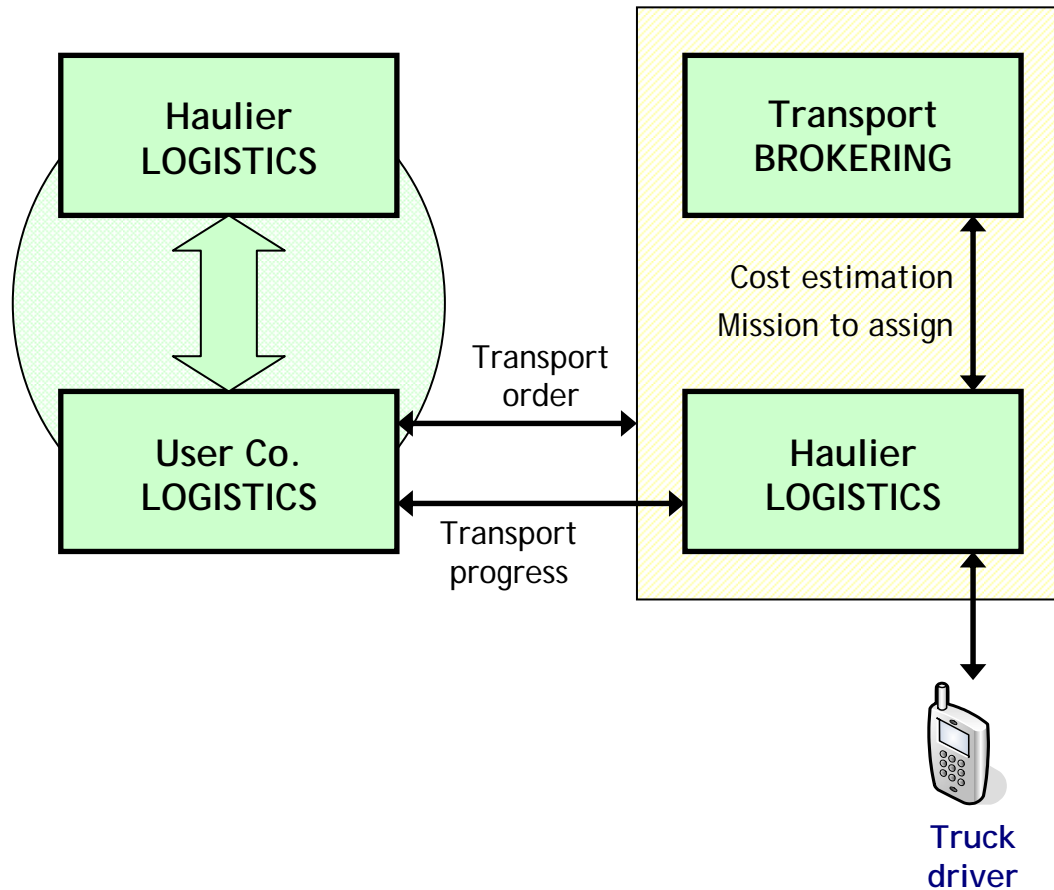


Scenario 3: internal fleet mgt

- The manufactures is provided with its own fleet
 - It manages the fleet by integrating two logistic functions
 - The User Co. logistics and the haulier logistics



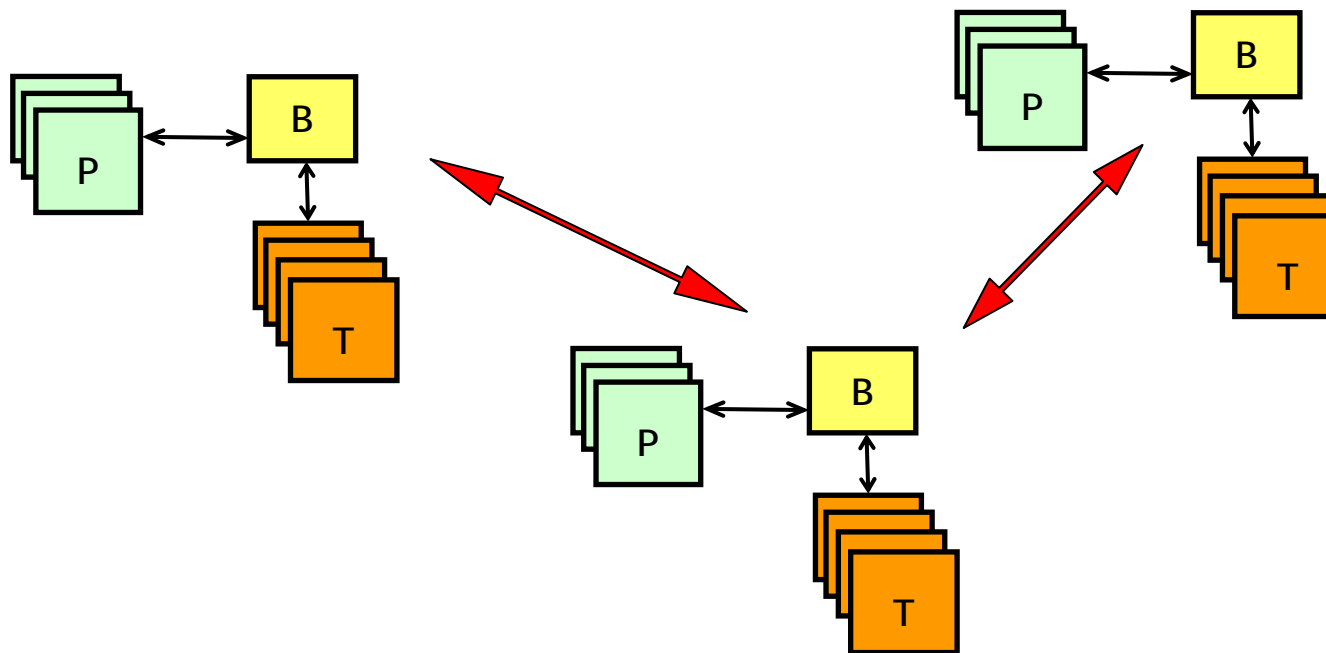
Scenario 4: transport outsourcing



- The logistic operator assigns missions to other hauliers
 - It manages this relation with two logistic functions
 - Behaving as a haulier with respect to customers
 - Behaving as a user with respect to sub contractors

A wider perspective

- Network of virtual logistic districts
 - With **sectoral/regional/modal** specialisations
 - And the possibility to offer complex services to the users of each of the network nodes
 - Thanks to the services provided by them as a whole



Final remarks

- ❑ The STIL services are prototyped
 - ❑ Tested in several pilots of different projects
 - ❑ In collaboration with the Emilia-Romagna region
 - ❑ And with the participation of several companies

- ❑ Development directions
 - ❑ Implementing the **Business Ecosystem** concept
 - ❑ Operating the virtual logistic district as a **Living Lab**
 - ❑ Promoting the deployment of the **Broker** function
 - ❑ (which is meeting increasing interest at user companies)