

QUADRANTE SERVIZI



SVILUPPI ICT



LE PIATTAFORME TELEMATICHE COME STRUMENTO DI EFFICIENZA PER
LE DIVERSE MODALITÀ DI TRASPORTO DELLE MERCI

QUADRANTE SERVIZI MILESTONE

EVOLUZIONE DEI SERVIZI

FONDAZIONE
1988



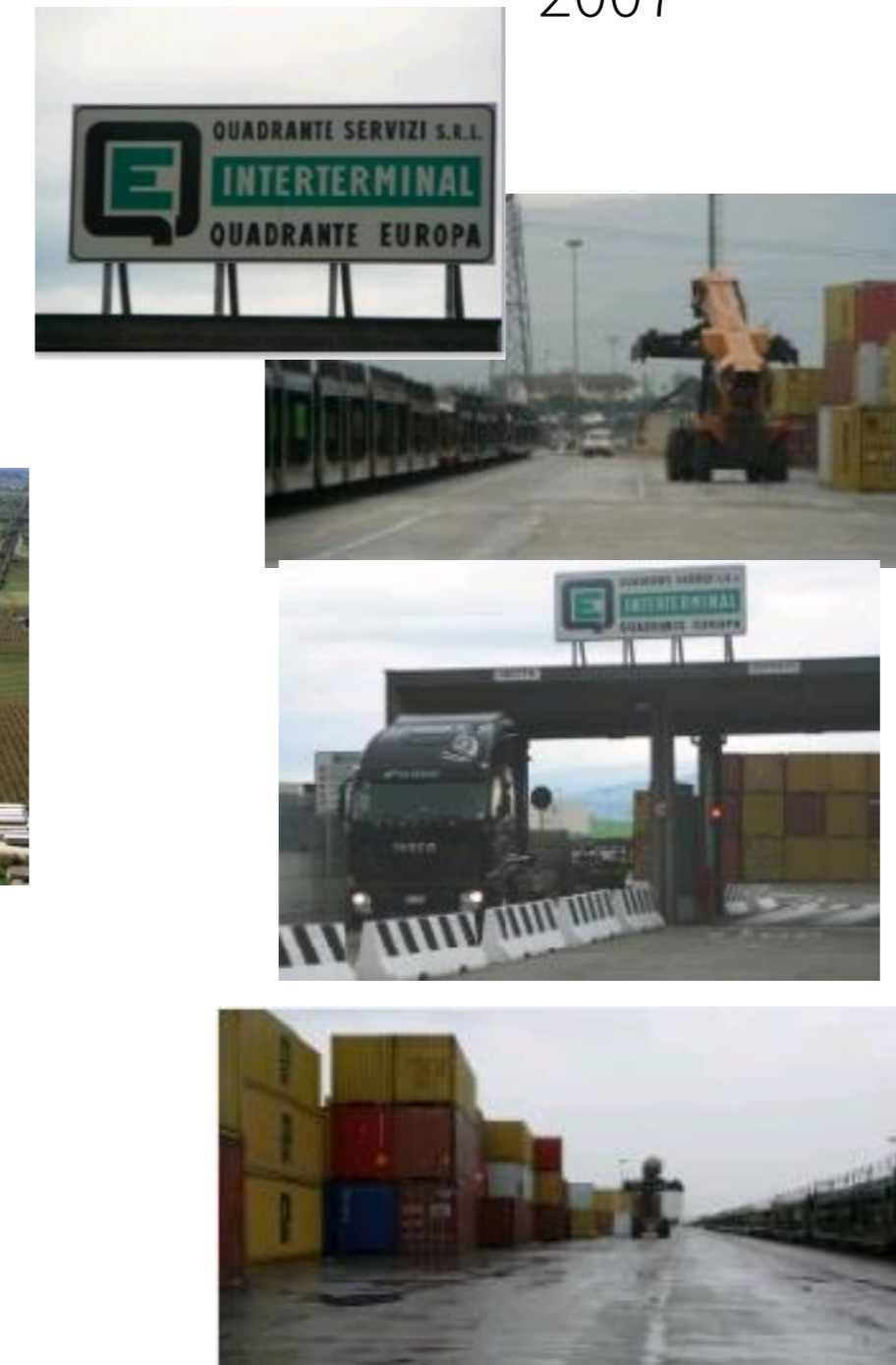
RETE TELEMATICA
1999



SERVIZI FERROVIARI
2002



SERVIZI TERMINALISTICI
2007



UIRNET
2012



WWW.QUADRANTESERVIZI.IT

QUADRANTE SERVIZI MILESTONE

EVOLUZIONE DEI SERVIZI

FONDAZIONE RILVE
2014



NUOVA SALA CED
2015



KERNEL DI LAVORO
COWORKING SUL
TRASPORTO
2016



.....

SVILUPPI VERSO IL 2020

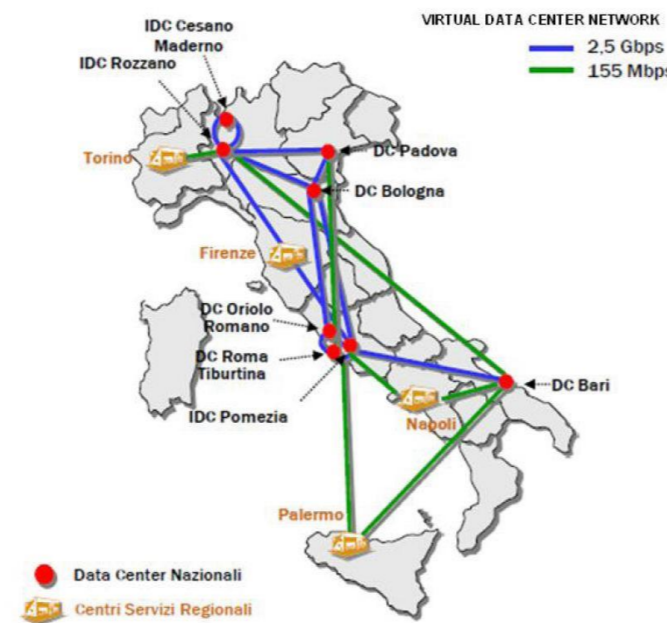
ESTENSIONE
RETE FIBRA
OTTICA



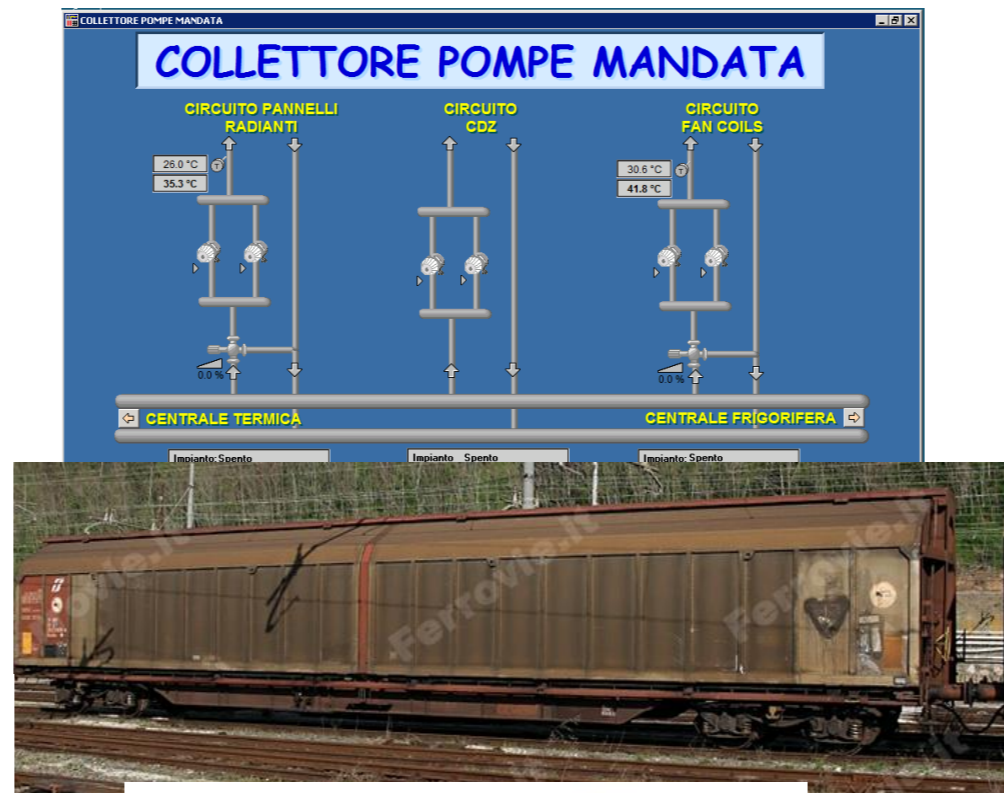
CREAZIONE
NAP



DATA CENTER E CENTRI SERVIZIO



IOT



BIG DATA

Webcam CE Webcam CE Webcam Nord Messaggio su PMV
Messaggio da TI Messaggio da TI

Traffico Europa in tempo reale

Meteo in tempo reale

Festività europee

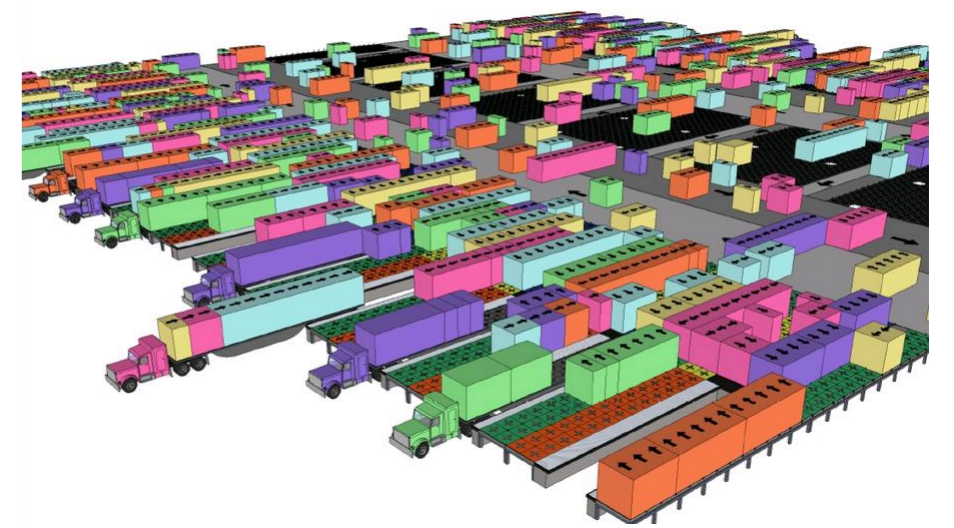
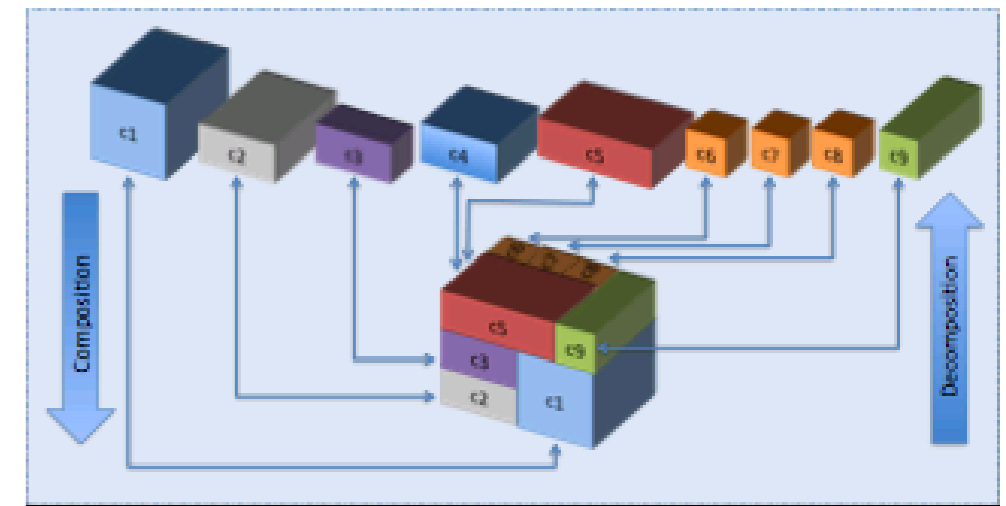
Notizie da Autostar per l'Italia

Scopri altre notizie

Convertitore di Valute

Stumenti VMI

PHYSICAL
INTERNET



TESI: CONVERGENZA DEI DUE MONDI

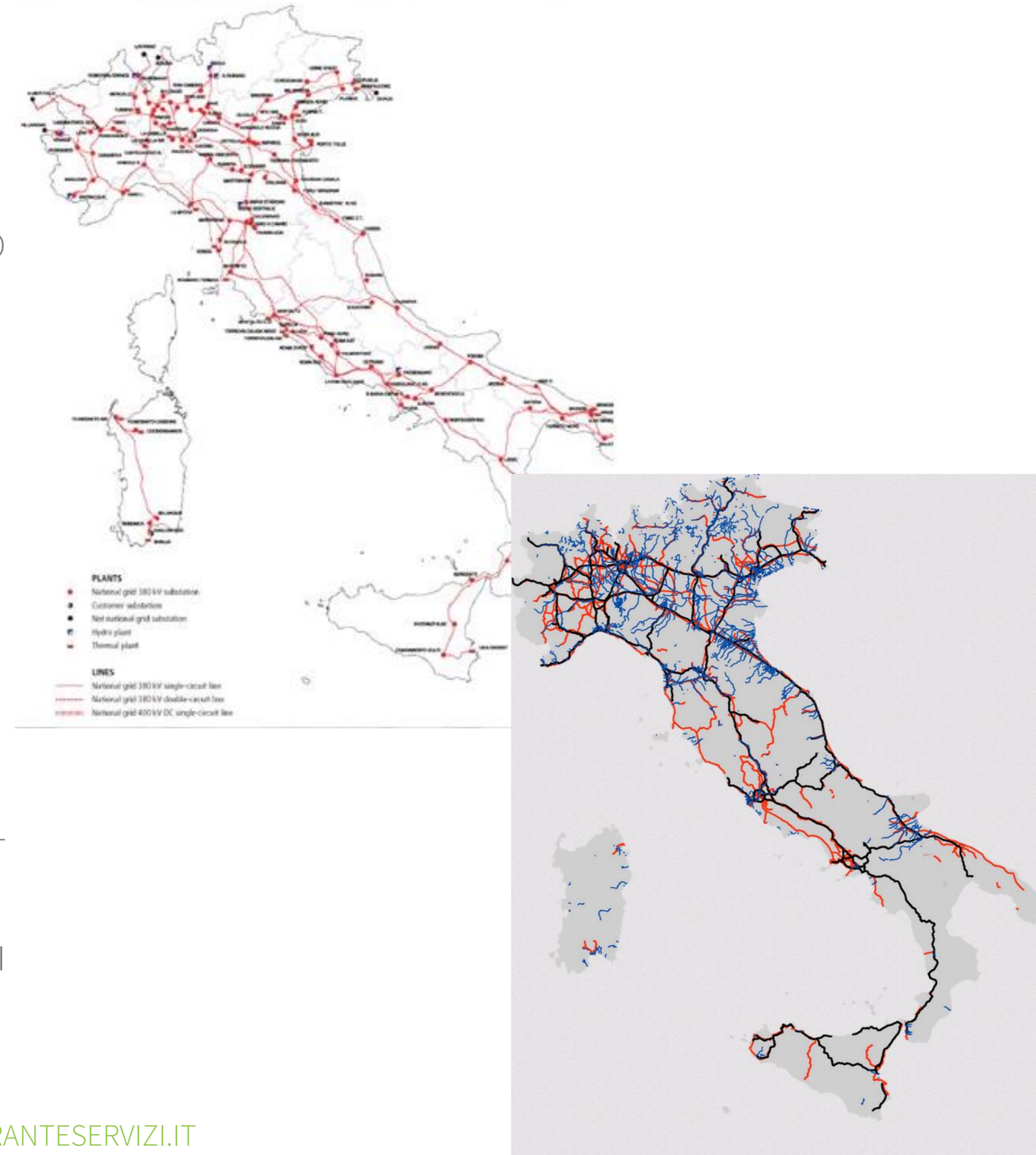
RETE DATI

LE RETI DATI HANNO MOLTE ANALOGIE CON LE RETI DI TRASPORTO

- LA RICERCA DELL'OTTIMIZZAZIONE (ES. ALGORITMO COMMESSE VIAGGIATORE)
- RETI A PACCHETTO
- RETI A COMMUTAZIONE DI CIRCUITO
- RETE ITALIANA E' «CALDERA CENTRICA»

RETE DI TRASPORTO

- LA RICERCA DI OTTIMIZZAZIONE NEI TRAGITTI MIGLIORI
- ATTUALE MODELLO SULLA LOGICA DEL VIAGGIO COMPLETO
- FUTURO DEL TRASPORTO E' INCENTRATO NON SUL VIAGGIO MA SUL PACCHETTO (COLLO) E SUGLI HUB DI SMISTAMENTO
- LA RETE ITALIANA HA DIVERSI HUB MA POCHI COLLEGAMENTI FERROVIARI

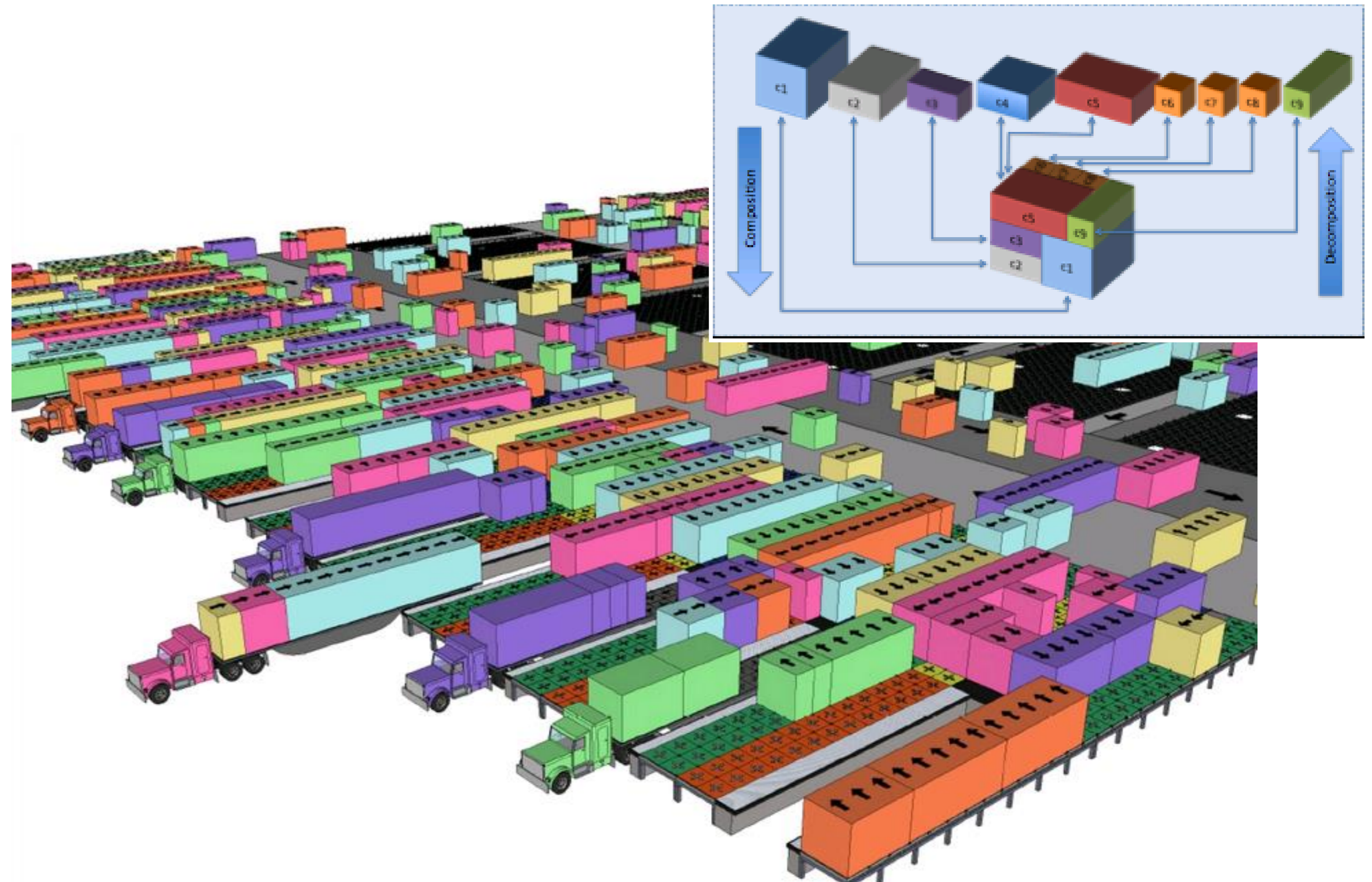


PHYSICAL INTERNET

Cos'è?

DEFINIZIONE

Nella logistica, Internet fisica è un sistema logistico globale aperto fondato sulla interconnettività fisica, digitale, e le operazioni, tramite incapsulamento, interfacce e protocolli. Internet fisica è destinato a sostituire modelli logistici attuali (target 2050)



<http://physicalinternetinitiative.org/>

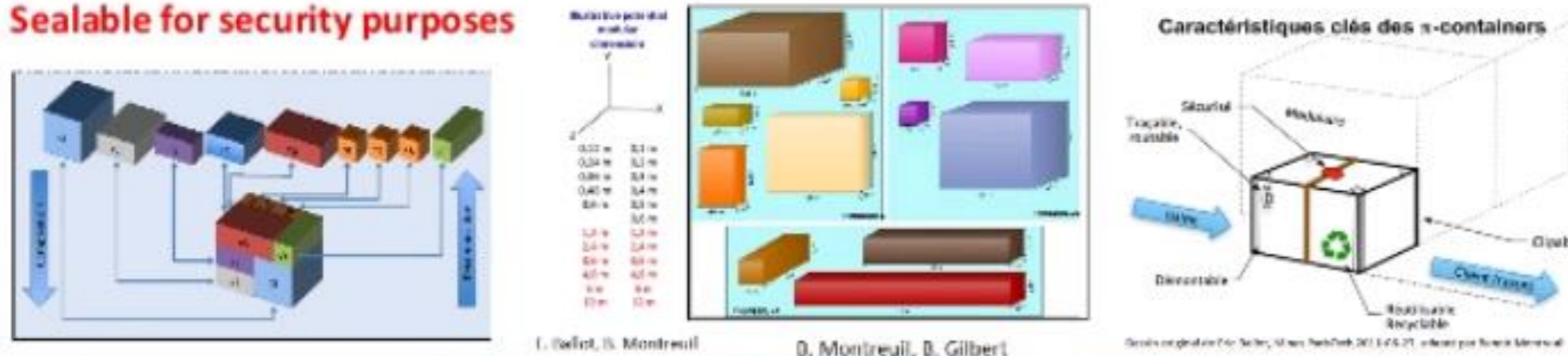
PHYSICAL INTERNET

Cos'è?

Physical internet manifest

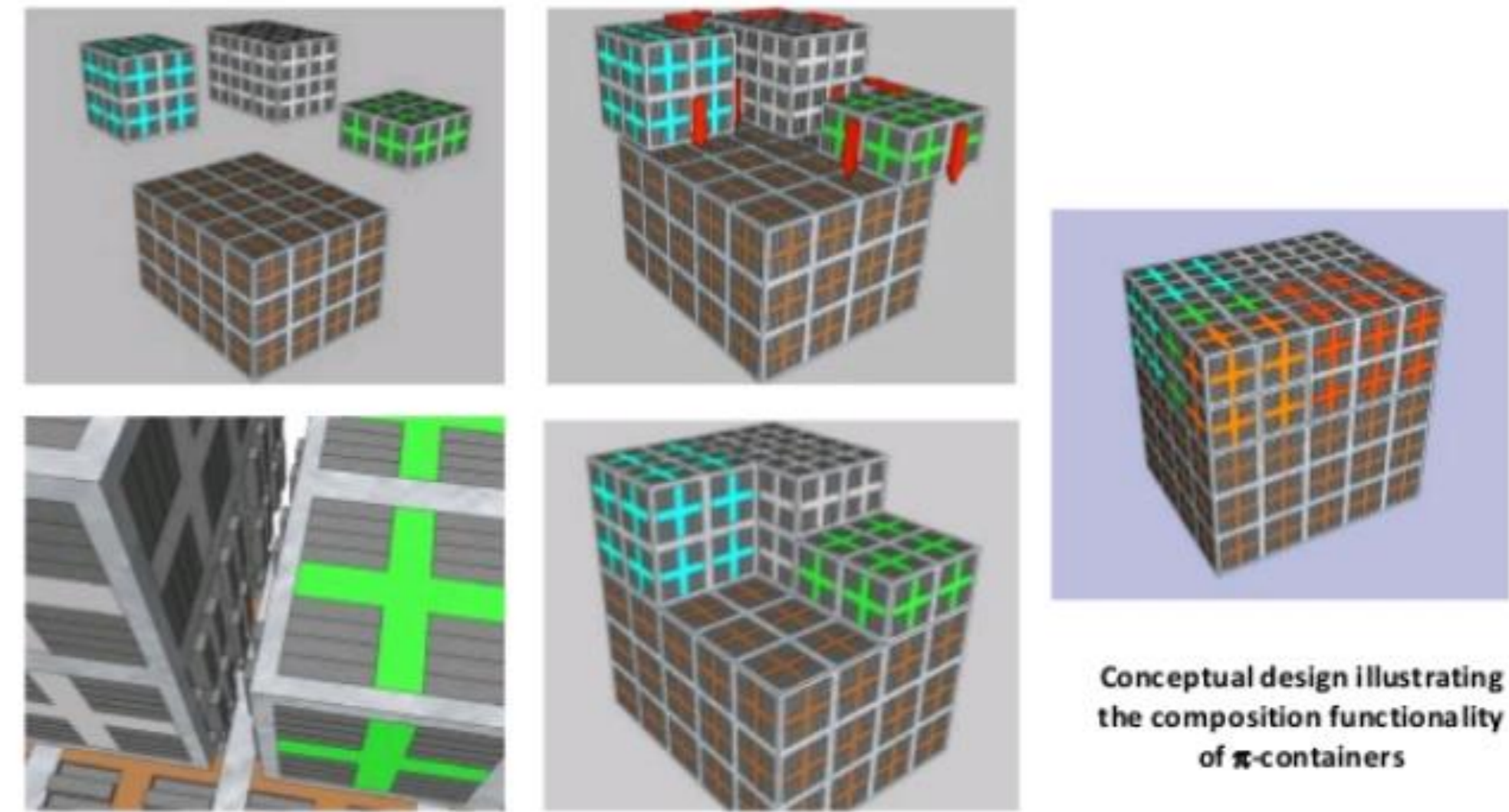
Physical encapsulation of goods in π -containers Modular, ecofriendly, smart & standardized worldwide

- Merchandise is unitized as content of a π -container and is not dealt with explicitly by PI
- Modular dimensions from cargo container sizes down to tiny sizes
- **Conceived to be easily flowed through various transport, handling & storage modes & means**
- Easy to handle, store, transport, snap, interlock, load, unload, construct and dismantle, compose and decompose
- Light, made of environment friendly materials, with minimal off-service footprint
- **Smart tag enabled, with sensors if necessary: proper identification, routing and maintaining**
- Various usage-adapted structural grades
- Conditioning capabilities as necessary (e.g. temperature)
- **Sealable for security purposes**



Physical internet manifest

Physically encapsulation of goods in π -containers Easy to compose into composite containers, then to decompose



Conceptual design by Benoit Montreuil and Marie-Anne Côté
CIRRELT, Université Laval, Québec, Canada, 2012

The illustrated π -container design has a strictly conceptual and functional purpose: it has no prescriptive technical design and engineering intent

Physical Internet
Efficient Sustainable Logistics

Physical Internet Manifesto, version 1.11.1
Professor Benoit Montreuil, CIRRELT, Université Laval
Québec, 2012-11-28, 27/76

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Québec, 2012-11-28, 29/76

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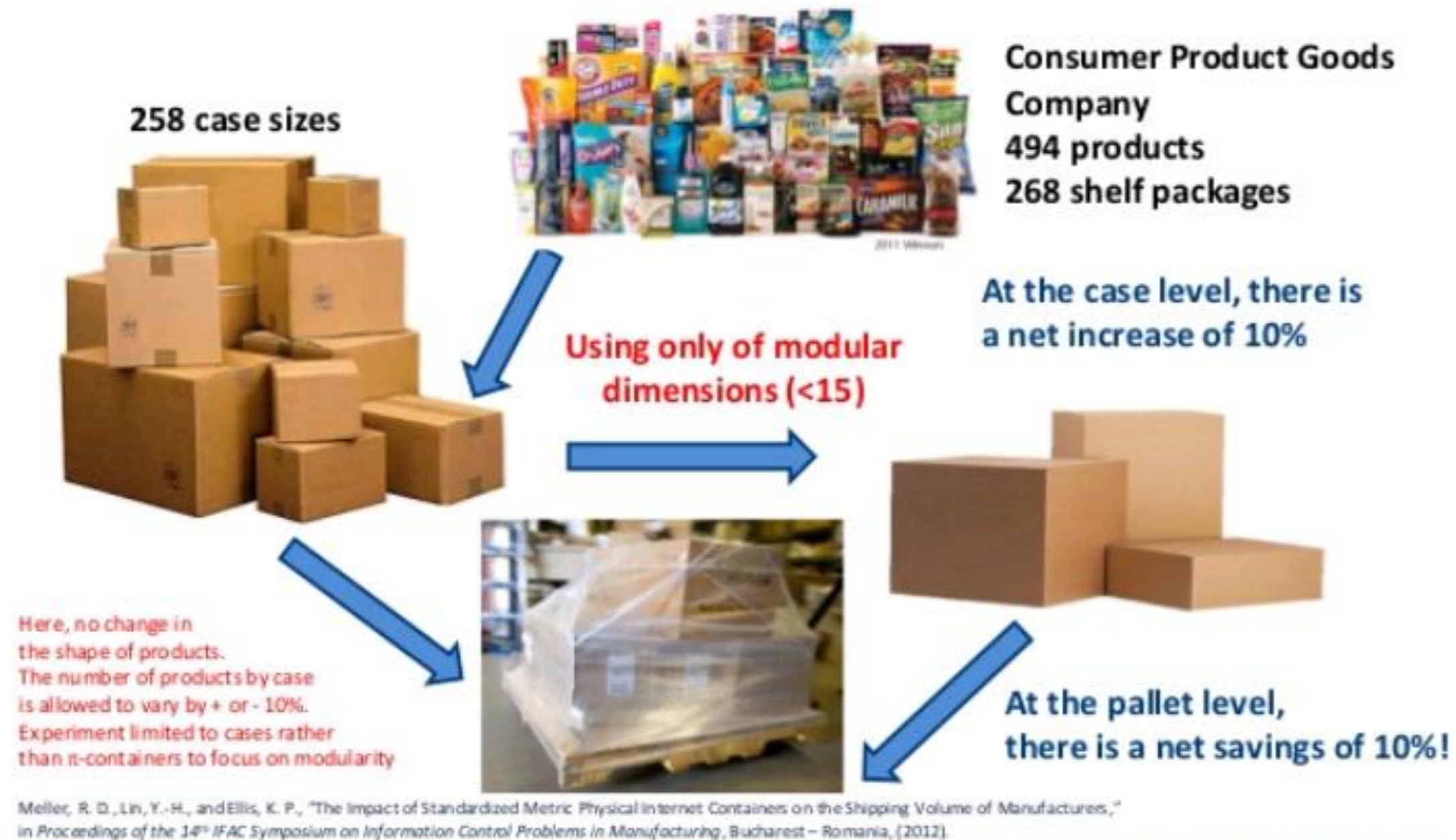
PHYSICAL INTERNET

Cos'è?

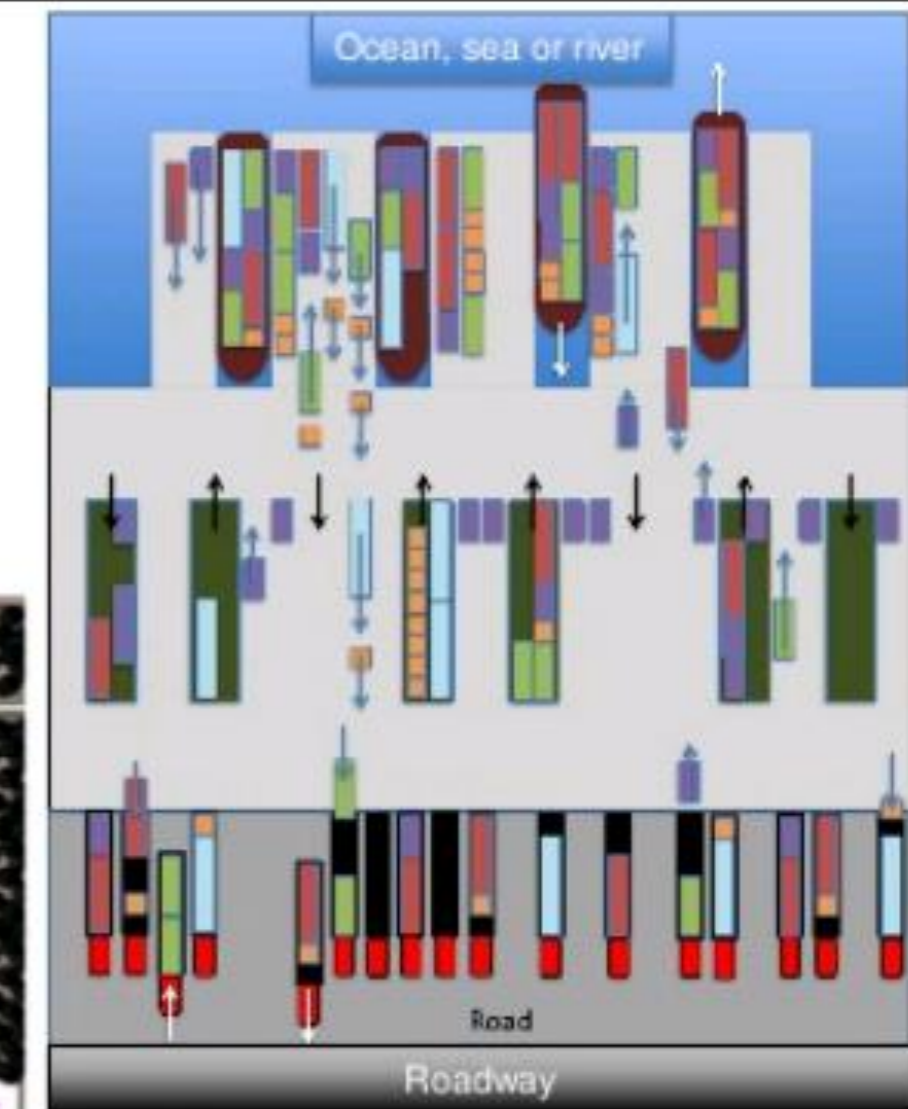
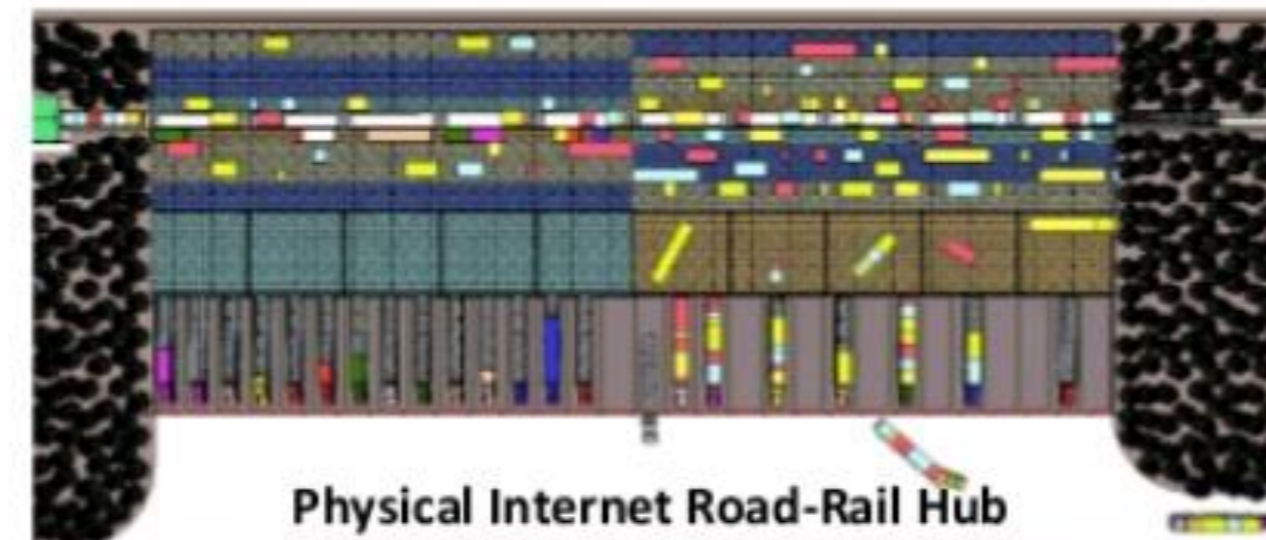
Physical internet manifest

Physical internet manifest

The spatial impact of modular encapsulation



Multimodal logistics centers designed for the Physical Internet, enabling seamless, fast, cheap, safe, reliable, distributed, & multimodal transport and deployment of π -containers across the Physical Internet



References

- Montreuil, B., P.D. Miller, E. Balot (2010) Towards a physical internet: the impact on logistics facilities and material handling a systems design and innovation, in Progress in Material Handling Research 2010, Edited by K. Que et al., Material Handling Industry of America, 23 p.
- Balot, E., B. Montreuil & G. Thériault (2012) Functional Design of Physical Internet Facilities: A Road-Rail Hub, in Progress in Material Handling Research 2012, Edited by B. Montreuil et al., Material Handling Industry of America, 34 p.

 **Physical Internet**
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Professor Benoit Montreuil, CIRRELT, Université Laval
Québec, 2012-11-28, 37/76

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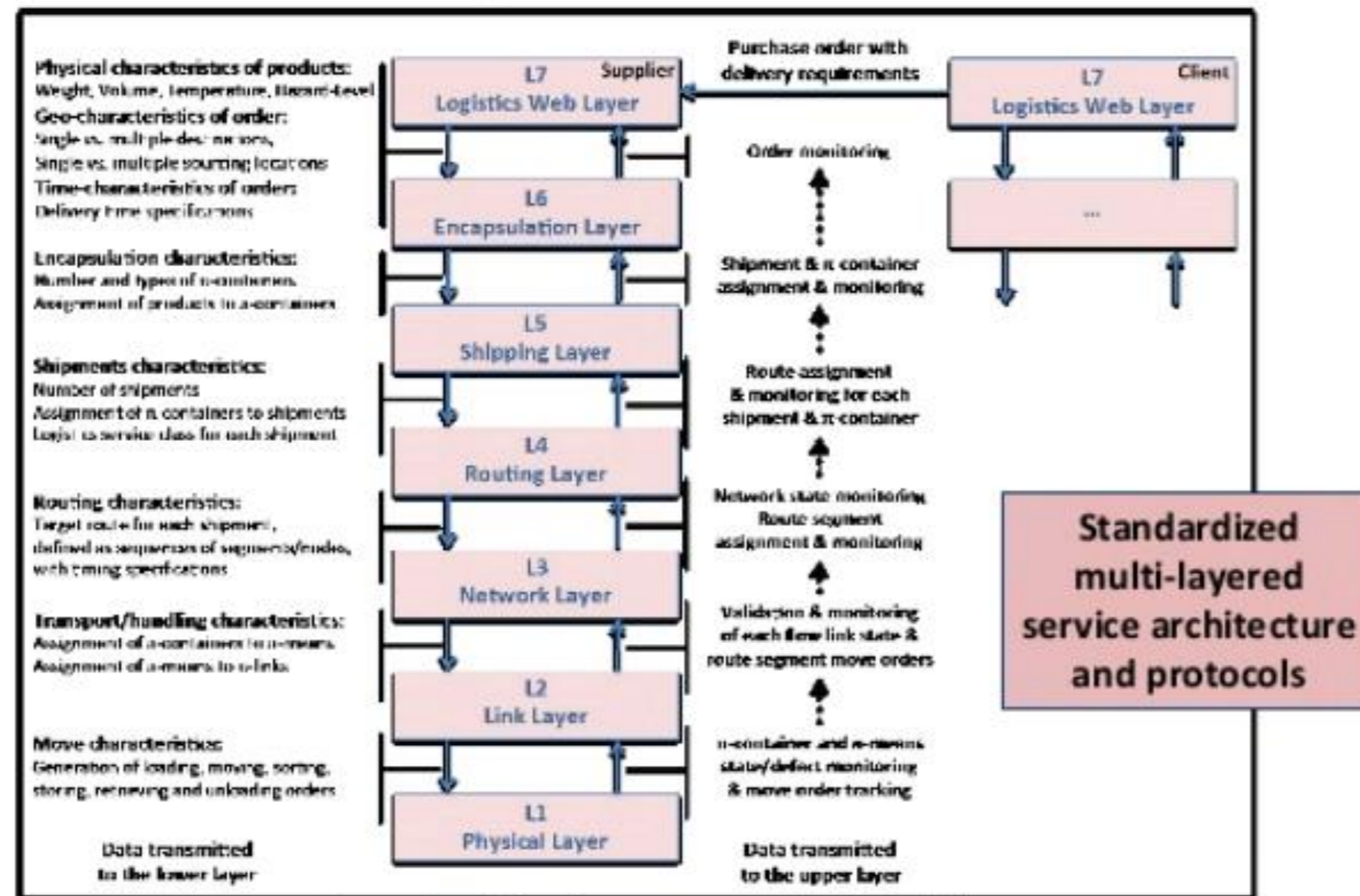
PHYSICAL INTERNET

Cos'è?

Physical internet manifest

Physical internet manifest

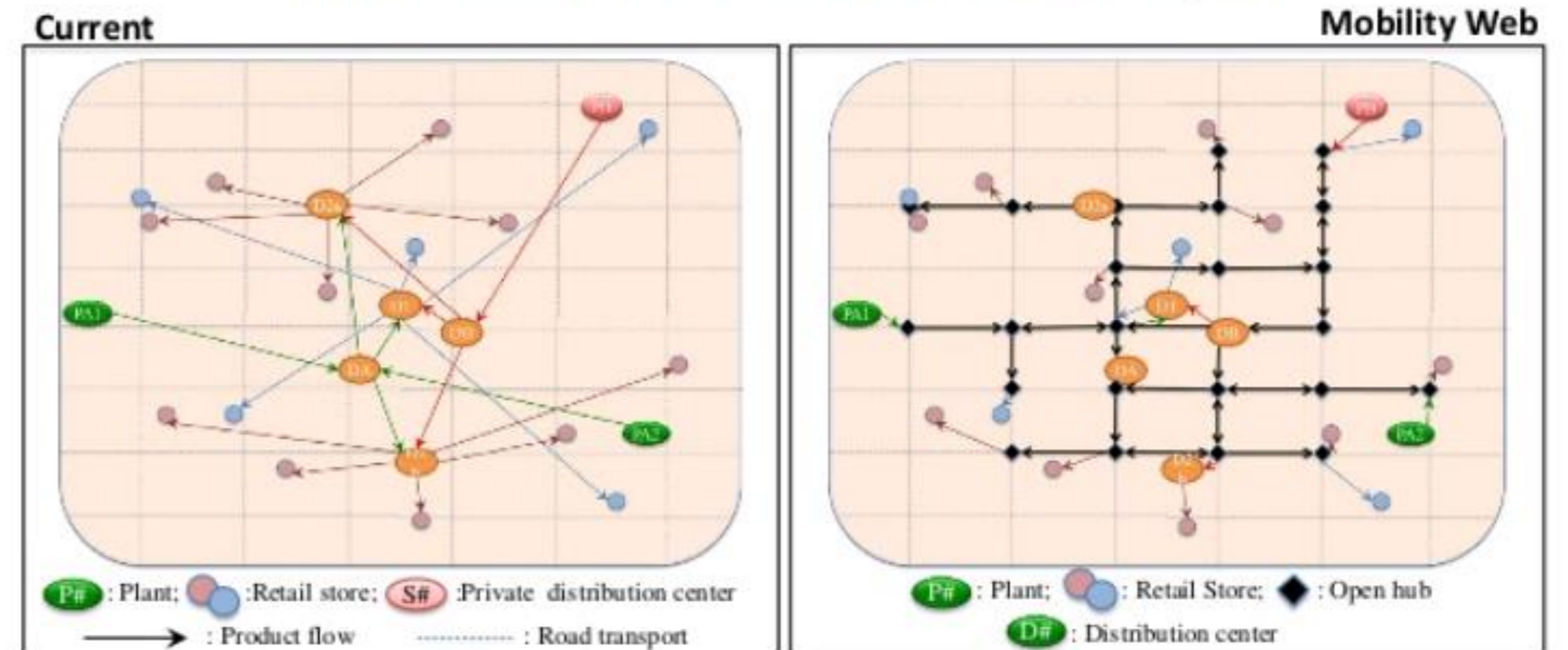
Standard Logistics Service Protocols



Open Logistics Interconnection Model

Montreuil B., E. Babin & F. Fortemps (2012). An Open Logistics Interconnection Model for the Physical Internet, Proceedings of INCOM 2012 Symposium, Bucharest, Romania, 2012/05/23-25.

The Impact of Exploiting a Mobility Web Here limited to unimodal road transport



Travelled distance: **-27%**
 Fuel Consumption: **-19%**
 Average delivery time: **+2%**
 Maximum delivery time: **-36%**

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Québec, 2012-11-28, 40/76

Physical Internet
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Québec, 2012-11-28, 53/76

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PHYSICAL INTERNET

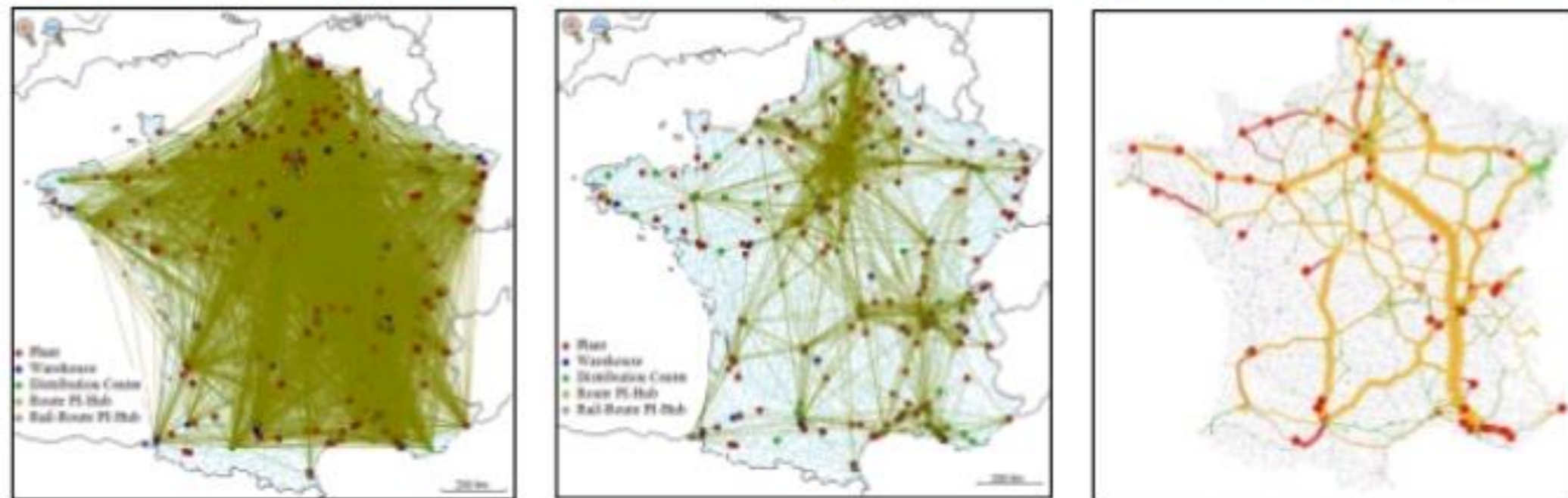
Cos'è?

Physical internet manifest

Exploiting a Physical Internet Enabled Bimodal Mobility Web for the Consumer Goods Industry in France

Road and rail transport seamlessly integrated into the PI backbone network

Simulation based on product distribution flow to two top retailers in France, from their 100 top suppliers



Current flows

Physical Internet flows

Physical Internet traffic

Preliminary results using existing infrastructures, facilities, demand patterns and service levels

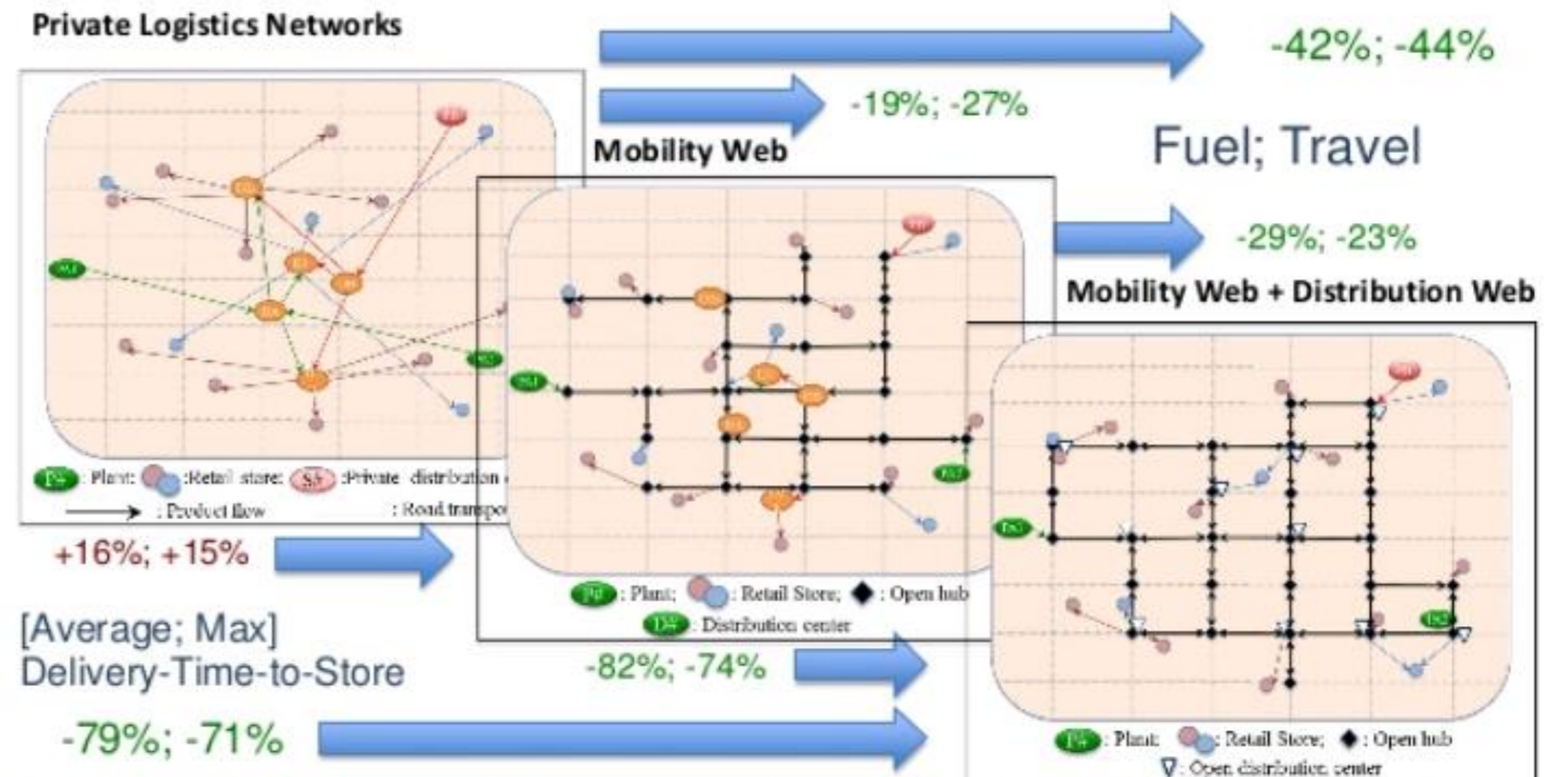
Economical: From 4% to 26% overall cost saving

Environmental: About 3 times better in terms of greenhouse gas emissions, by combining road-to-rail modal transfer and more efficient road transport

Baillet É., B. Montreuil, R. Gardon (2012), Simulation de l'Internet Physique: contribution à la mesure des enjeux et à sa définition, PREDIT Research Report, France, June 2012, 96 p.

Physical internet manifest

The Impact of Exploiting a Logistics Web Integrating Mobility and Distribution Webs



<http://physicalinternetinitiative.org/>

CASO DI STUDIO

LA MODELIZZAZIONE DELLA INTERNET FISICA SI APPOGGIA SU STUDI CHE PREVEDONO UNA EFFICIENZA RISPETTO AGLI ATTUALI MODELLI OLTRE IL 30%

Simulation of the Physical Internet Contribution in Solving Logistics Problems: Application on Retail Industry in France

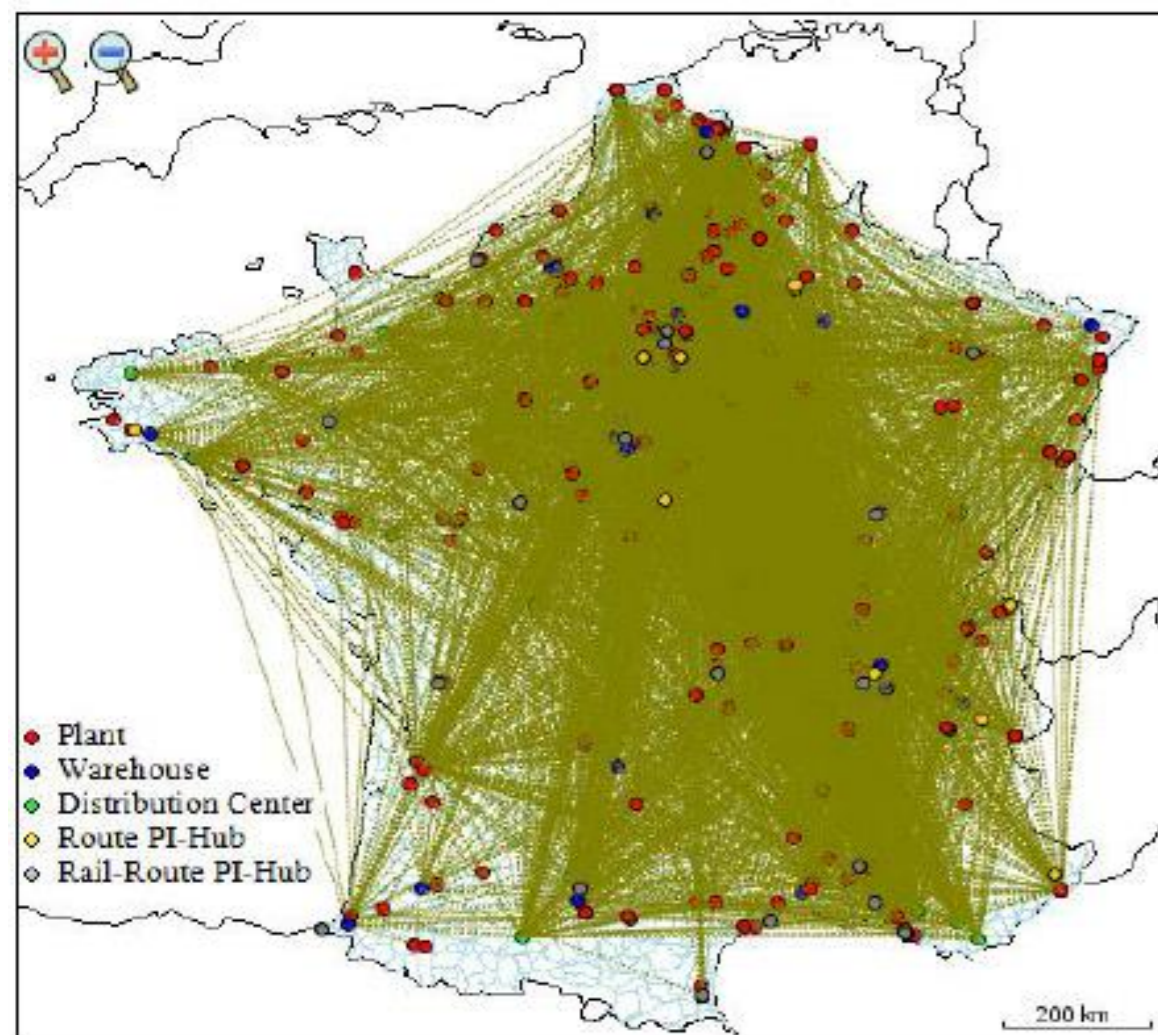
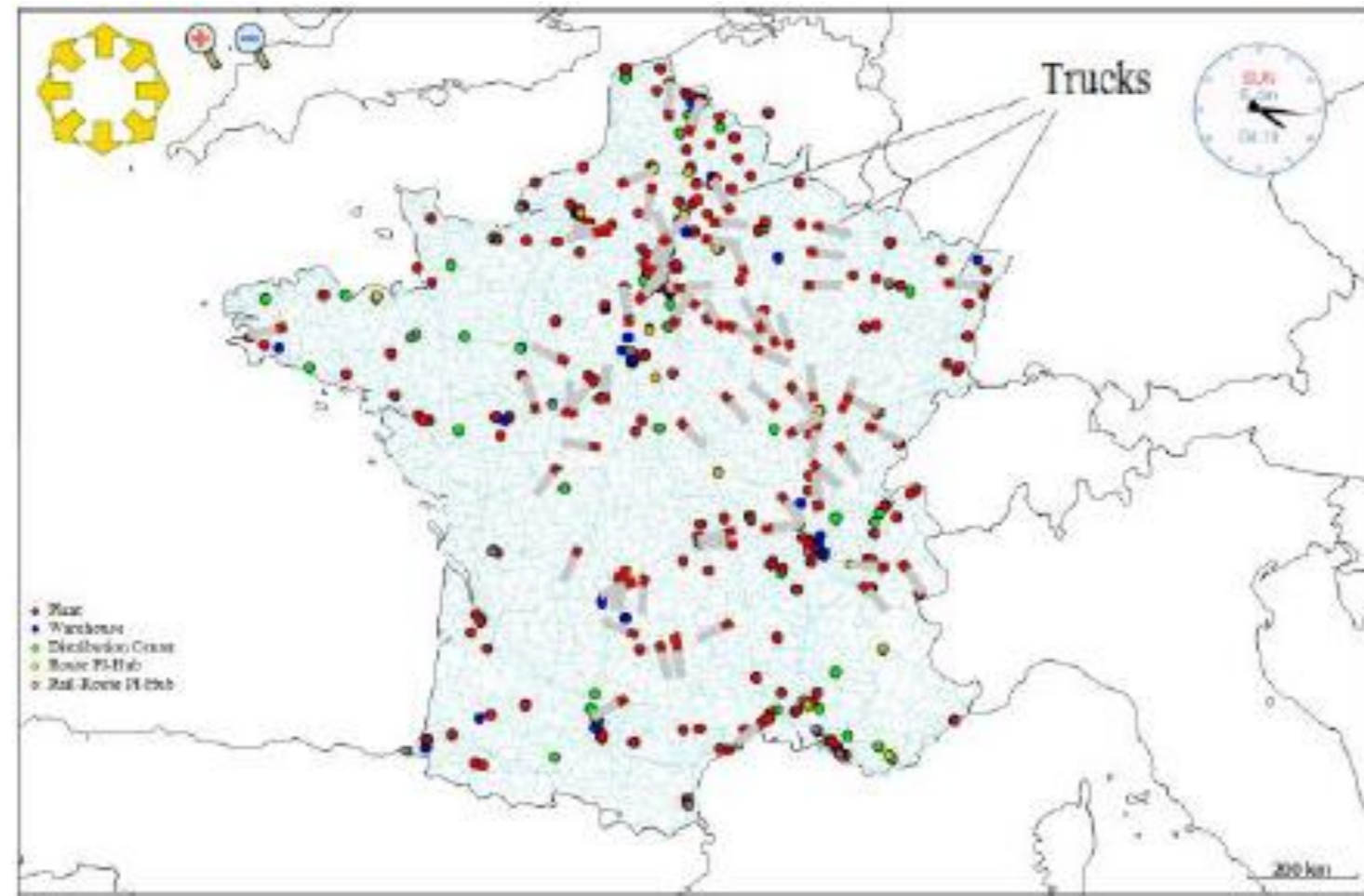


Figure 5 : Flow of goods in the existing mobility web

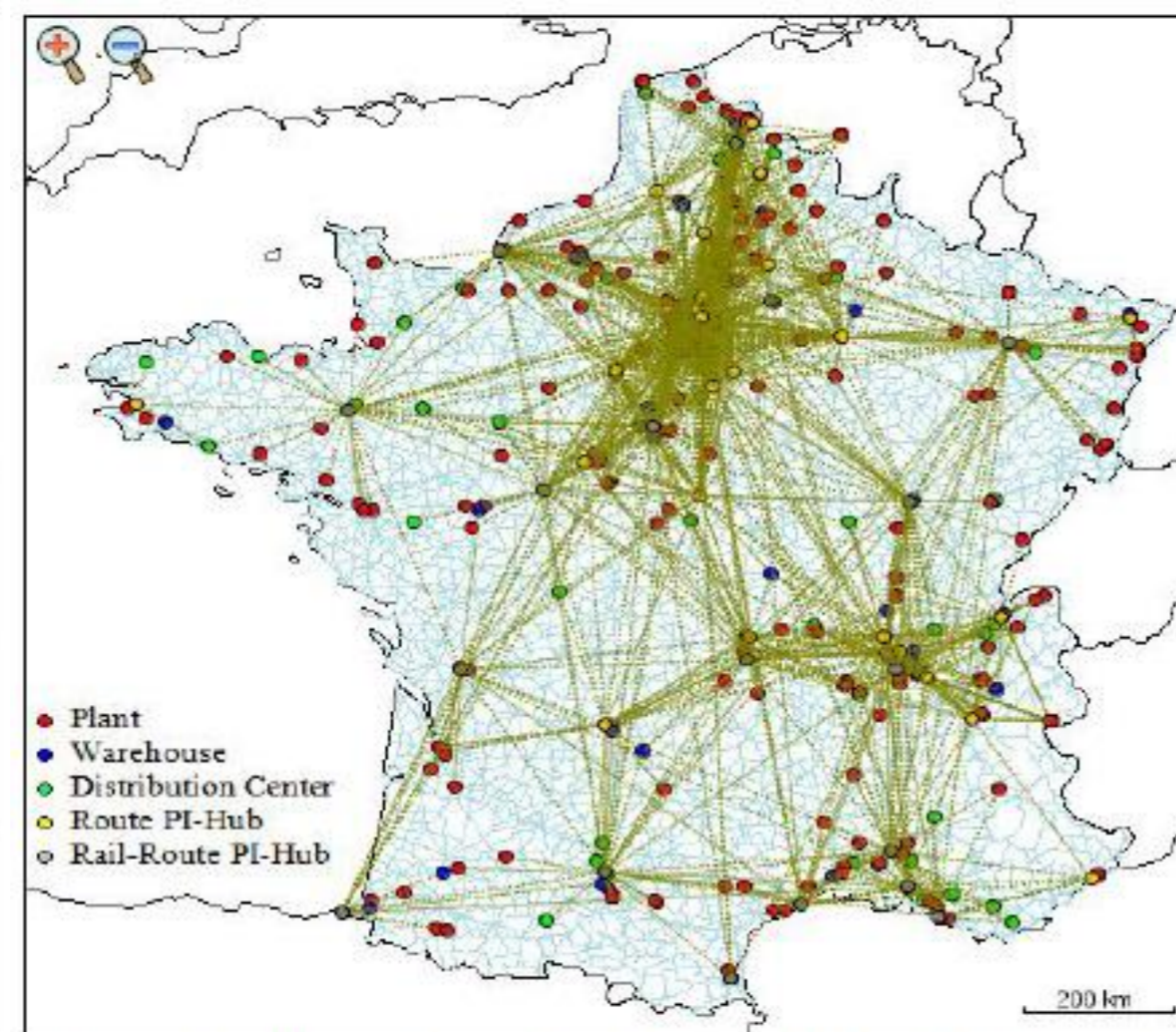


Figure 6 : Flow of goods in a π -enabled mobility web

EFFICIENZA

ANALOGIA CON L'EFFICIENZA INTRADOTTO DALLA COMMUTAZIONE A PACCHETTO NELLE RETI INTERNET RISPETTO ALLA COMMUTAZIONE DI CIRCUITO.

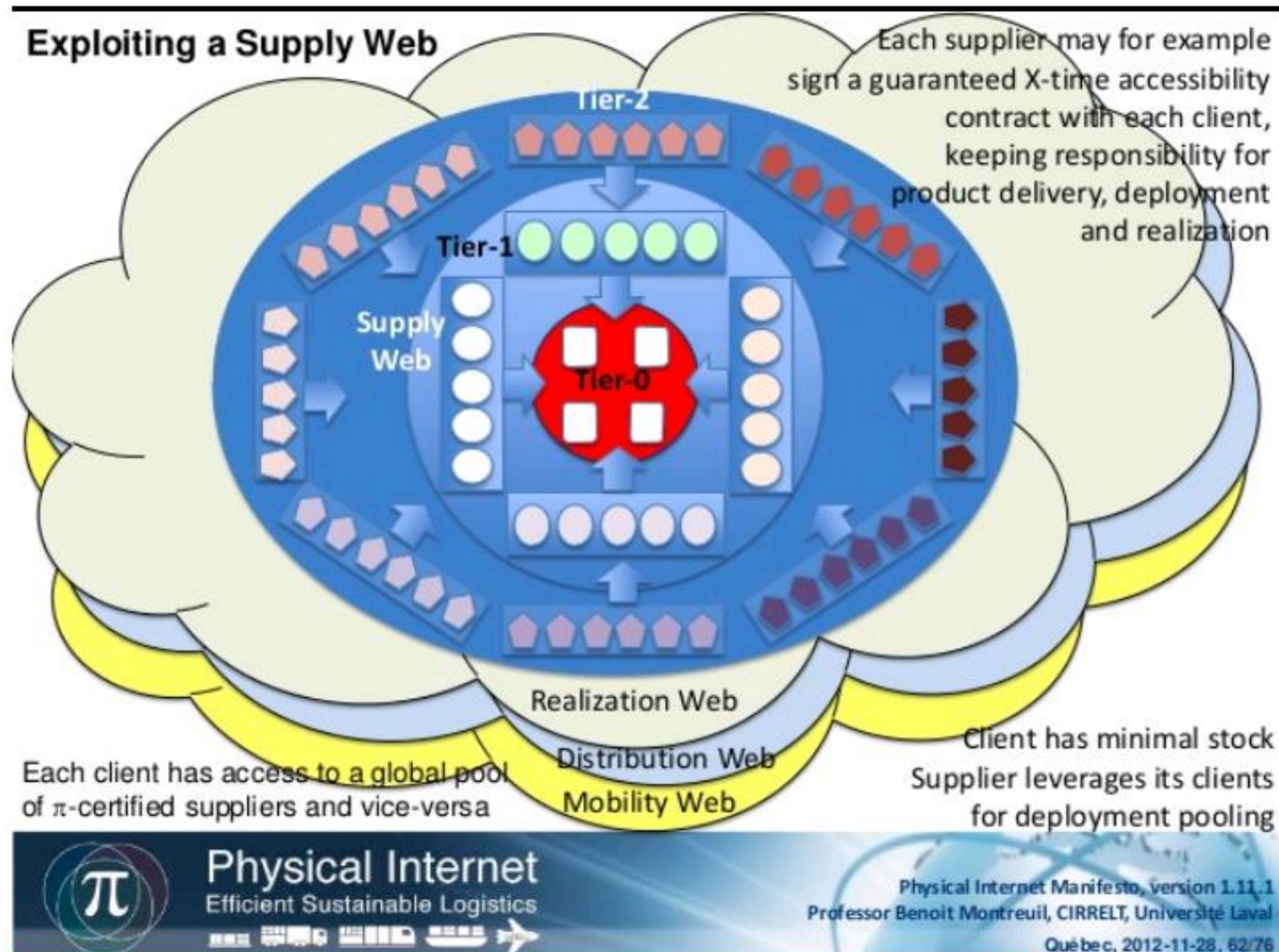
ANALOGIA TRASPORTO – RETI DATI

NON PIU' VIAGGI VUOTI/CIRCUITI INUTILIZZATI

PHYSICAL INTERNET

Cos'è?

Physical internet manifest



Physical internet manifest

Physical Internet Implementation Progressive Deployment, Cohabitation and Certification

- **A smooth transition starting with rethinking and retrofitting phases, then moving toward more transformative phases**
- **The Physical Internet can constitute itself progressively through the multi-level certification of:**
 - Protocols
 - Containers
 - Handling and storage technologies, distribution centers, production centers, train stations, ports, multimodal hubs
 - Information systems (e.g. reservation, smart labels, portals)
 - Urban zones and regions, inter-country borders

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Québec, 2012-11-28, 72/76

<http://physicalinternetinitiative.org/>

MODULUSHCA

Cos'è?

The image shows a screenshot of the Modulushca website. At the top, there is a navigation bar with the following menu items: HOME, THE PROJECT (with a dropdown arrow), DEMO AREA (with a dropdown arrow), PROJECT UP-TO-DATE (with a dropdown arrow), CONSORTIUM, FINAL CONFERENCE, and CONTACT. The main content area features a large blue banner with the text "DO YOU WANT TO KNOW MORE ABOUT THE PHYSICAL INTERNET CONCEPT?". Below this text is a description: "Whatch this TEDx video with the presentation done by Benoit Montreuil and learn how to help businesses and value creation networks perform better in our fast moving world." To the right of the text is a video player showing a TEDx talk by Benoit Montreuil at a TEDx event in Bucharest. The video player includes a play button and navigation arrows. The website header also includes the Modulushca logo, the project title "MODULAR LOGISTICS UNITS IN SHARED CO-MODAL NETWORKS", and logos for the Seventh Framework Programme and the European Union, along with social media icons for Twitter, YouTube, Facebook, and LinkedIn.

<http://www.modulushca.eu/>

PHYSICAL INTERNET

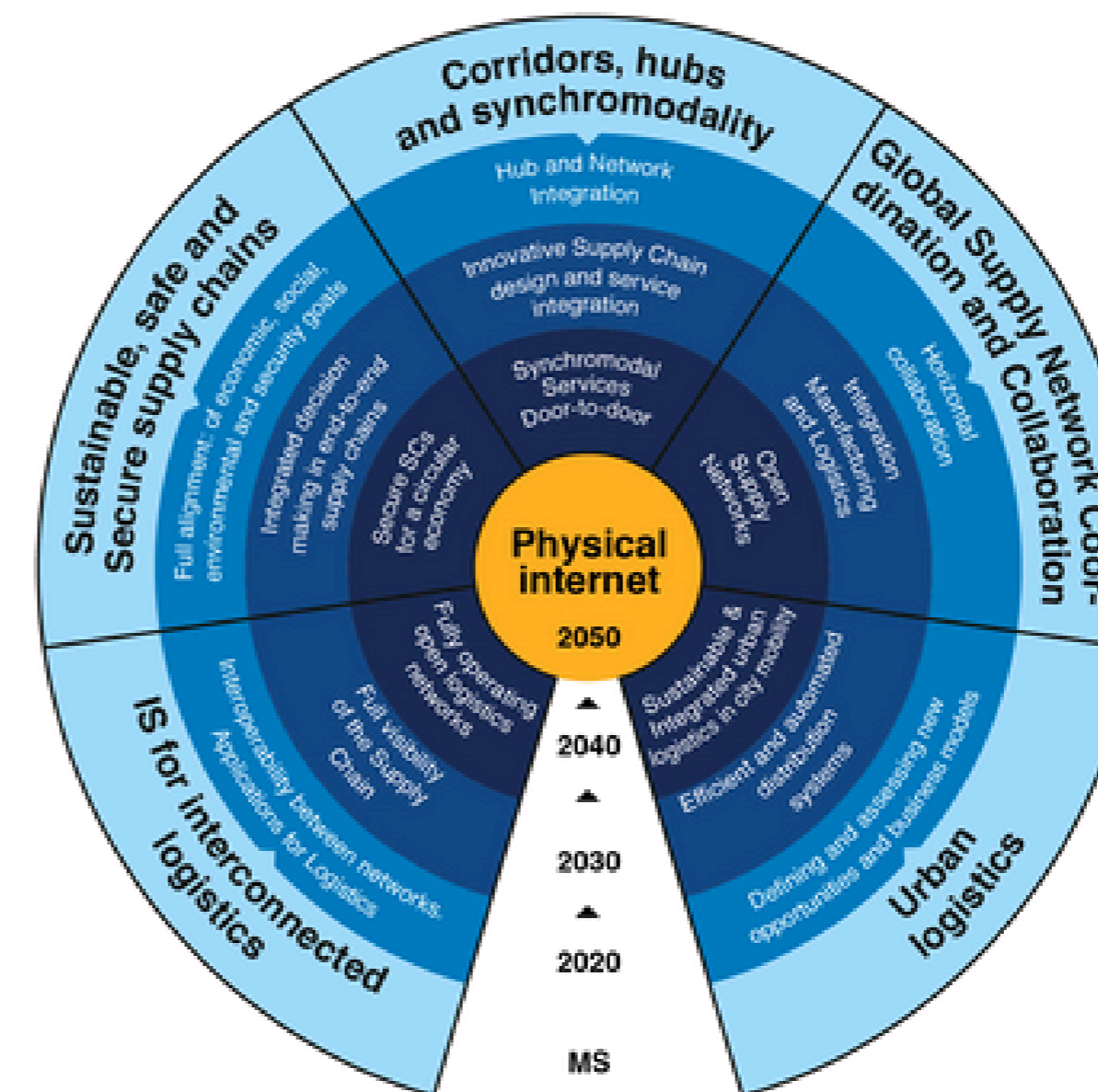
ETP-Alice

The European Technology Platform ALICE is set-up to develop a comprehensive strategy for research, innovation and market deployment of logistics and supply chain management innovation in Europe.

The platform will support and assist the implementation of the EU Program for research: Horizon 2020.

ALICE is based on the recognition of the need for an overarching view on logistics and supply chain planning and control, in which shippers and logistics service providers closely collaborate to reach efficient logistics and supply chain operations.

[> read more](#)



[Click to zoom](#)

[Watch video Physical Internet](#)

PHYSICAL INTERNET

EVENTI



6th European Transport Research Conference

MOVING FORWARD:

Innovative Solutions for Tomorrow's Mobility

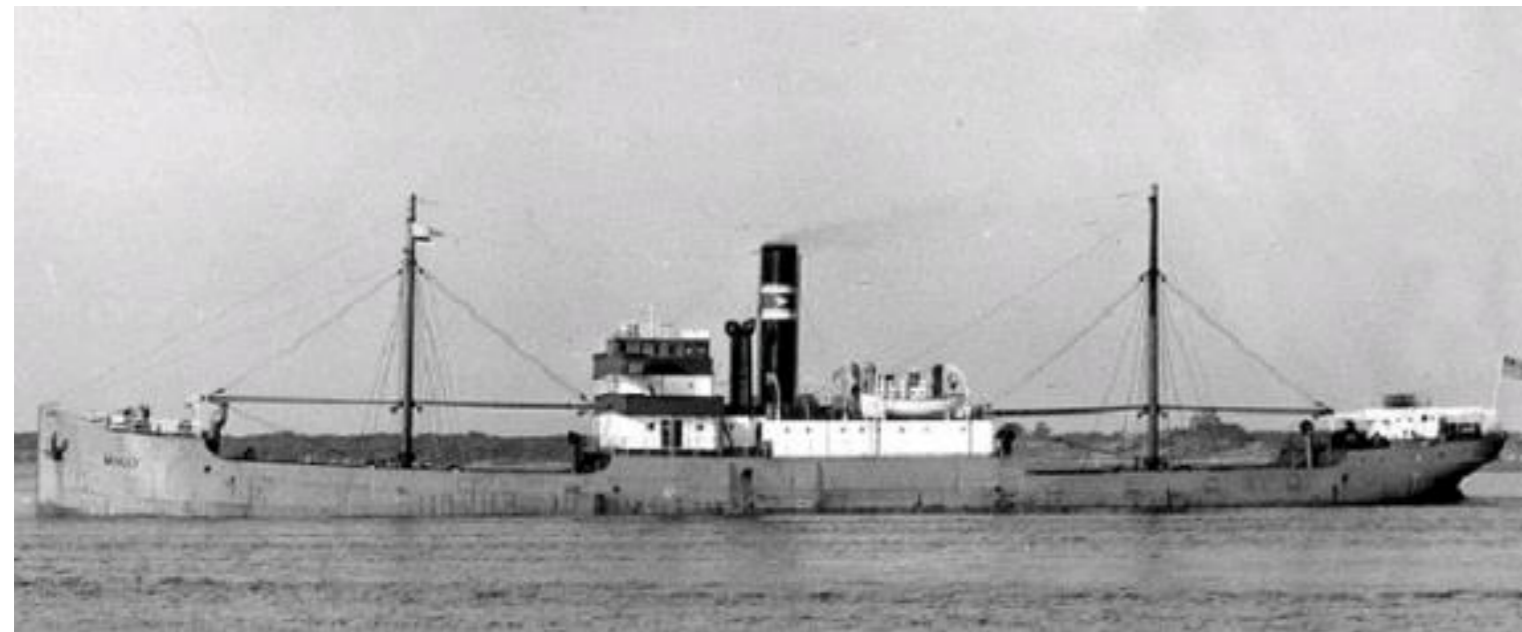
PGE Narodowy, Warsaw, Poland - 18-21 April 2016

COUNTDOWN TO TRA2016

03	03	17	40	45
weeks	days	hours	minutes	seconds

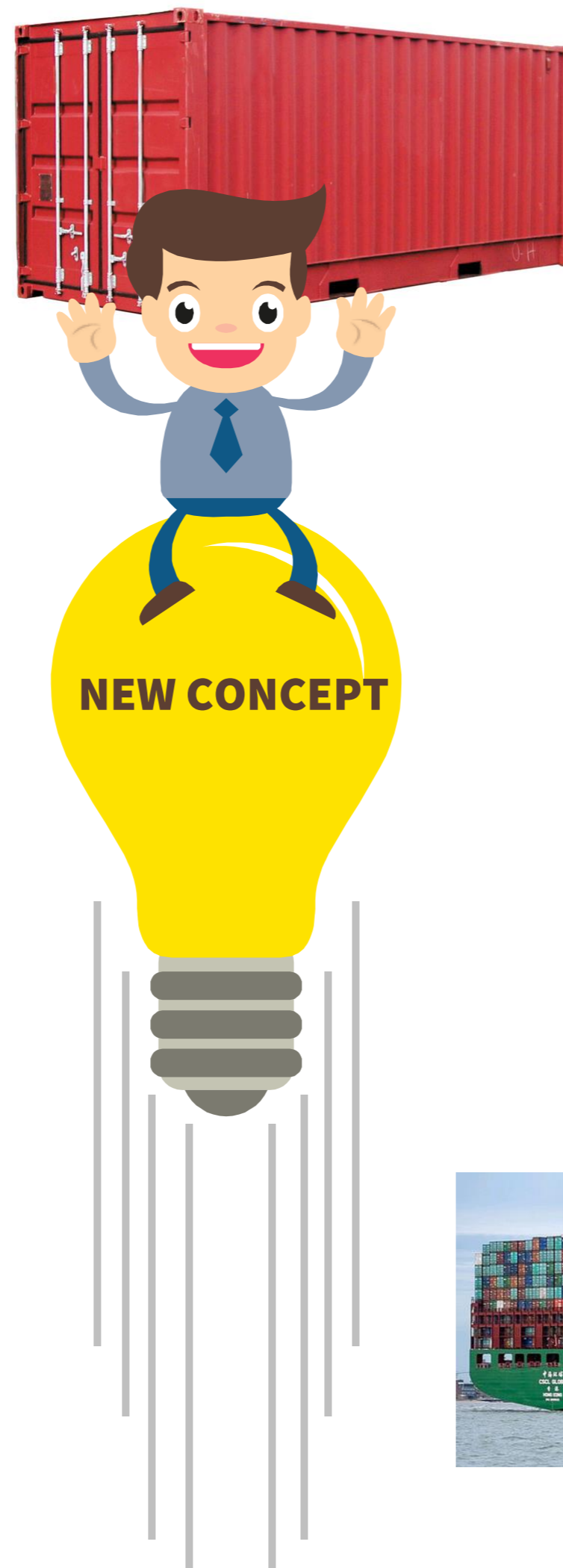


APPLYING NEW CONCEPT

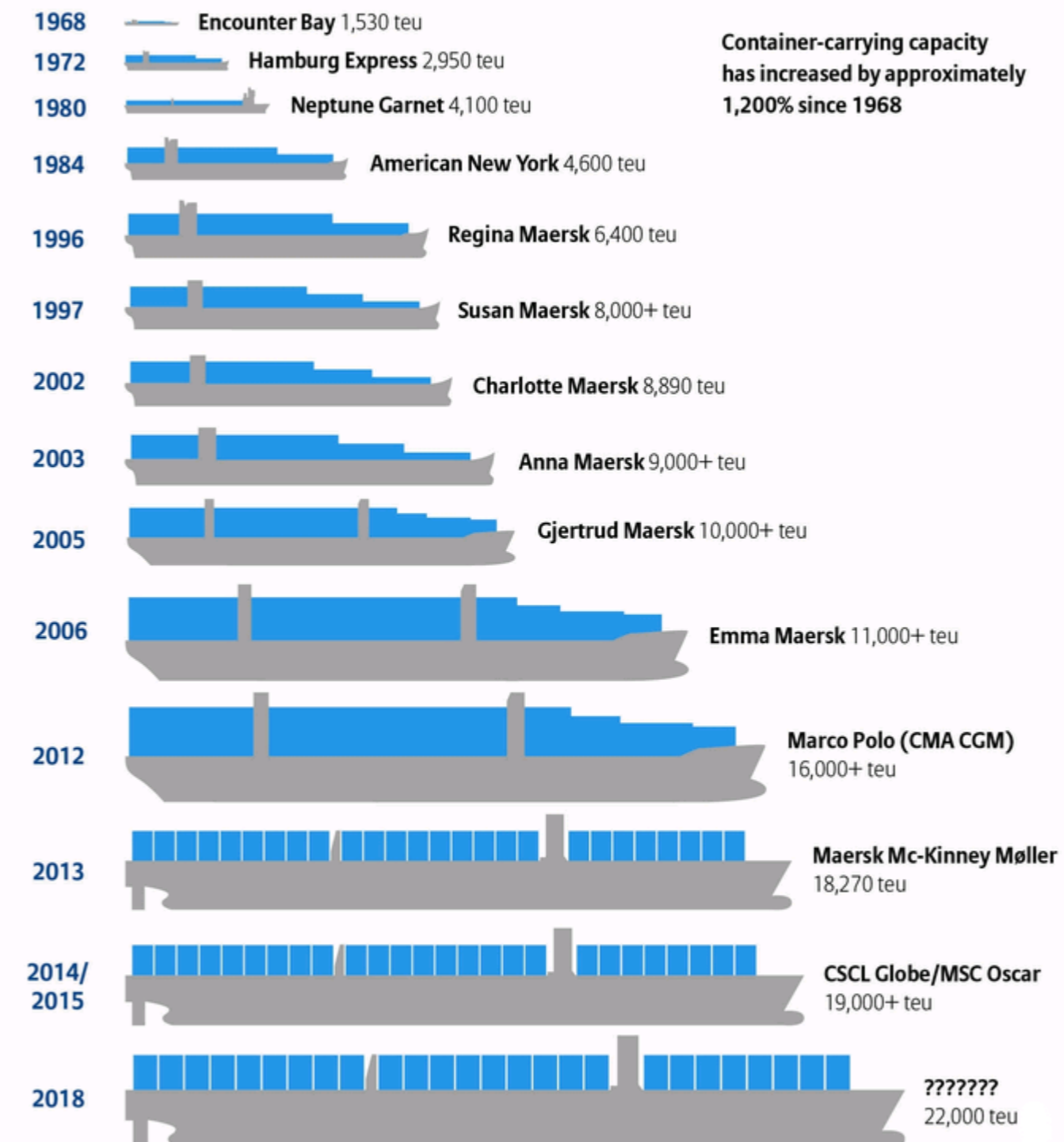


LO STANDARD IMPOSTO SUI TRAFFICI MARITTIMI NEGLI ANNI 70 HA PERMESSO ENORMI ECONOMIE E I VECCHI MODELLI SEMBRANO LONTANI SECOLI

LO STESSO POTRA' ACCADERE CON LO STANDARD DELLE UNITA' DI TRASPORTO IN DISCUSSIONE CON LA PHYSICAL INTERNET



50 years of Container Ship Growth



Container-carrying capacity has increased by approximately 1,200% since 1968

Graphic: Allianz Global Corporate & Specialty. Approximate ship capacity data: Container-transportation.com



INFRASTRUTTURA TECNOLOGICA

ANNI DI SVILUPPO
TECNOLOGICO NEUTRALE CON
AZIENDE, OPERATORI E ENTI A
LIVELLO NAZIONALE

LABORATORIO

UN CENTRO LOGISTICO CHE
POSSA ATTIRARE RISORSE PER
APRIRE UN DIBATTITO IN ITALIA
SUL TEMA DELL'INTERNET
FISICA



QUADRANTE SERVIZI LA VISIONE

KNOW HOW

UNA CONOSCENZA FONDATA
SUL LAVORO QUOTIDIANO
SULL'ESPERIENZA DI 28 ANNI DI
PRESENZA IN OGNI FASE DI
SVILUPPO

SPAZI ATTREZZATI

SALE SERVER – SALE NAP PER
OPERATORI DI
TELECOMUNICAZIONI E DI
COWORKING PER CREARE UN
PRIMO NUCLEO ITALIANO DI
RICERCA

PERCHE' CI CREDIAMO ?



CONVERGENZA

RETE INTERNET

INDISPENSABILE PER OGNI NUOVO SVILUPPO NEL SETTORE TRASPORTO SIA ULTIMO MIGLIO CHE PRECEDENTE



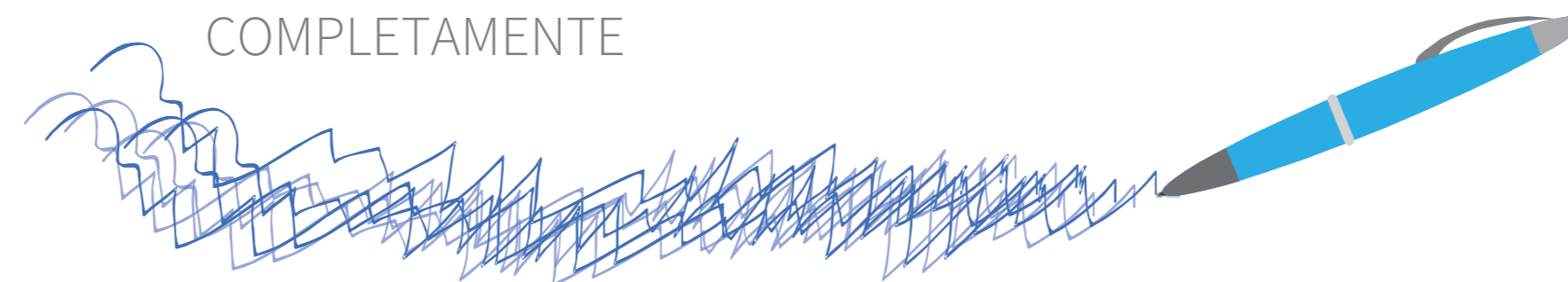
PHYSICAL INTERNET

INDISPENSABILE PER UN FUTURO PIU' SOSTENIBILE E VOLANO PER LA NUOVA ECONOMIA



ESEMPIO

SOTTO GLI OCCHI DI TUTTI E' L'E-COMMERCE E IL SUO FUTURO CHE ANCORA NON E' STATO SCRITTO COMPLETAMENTE

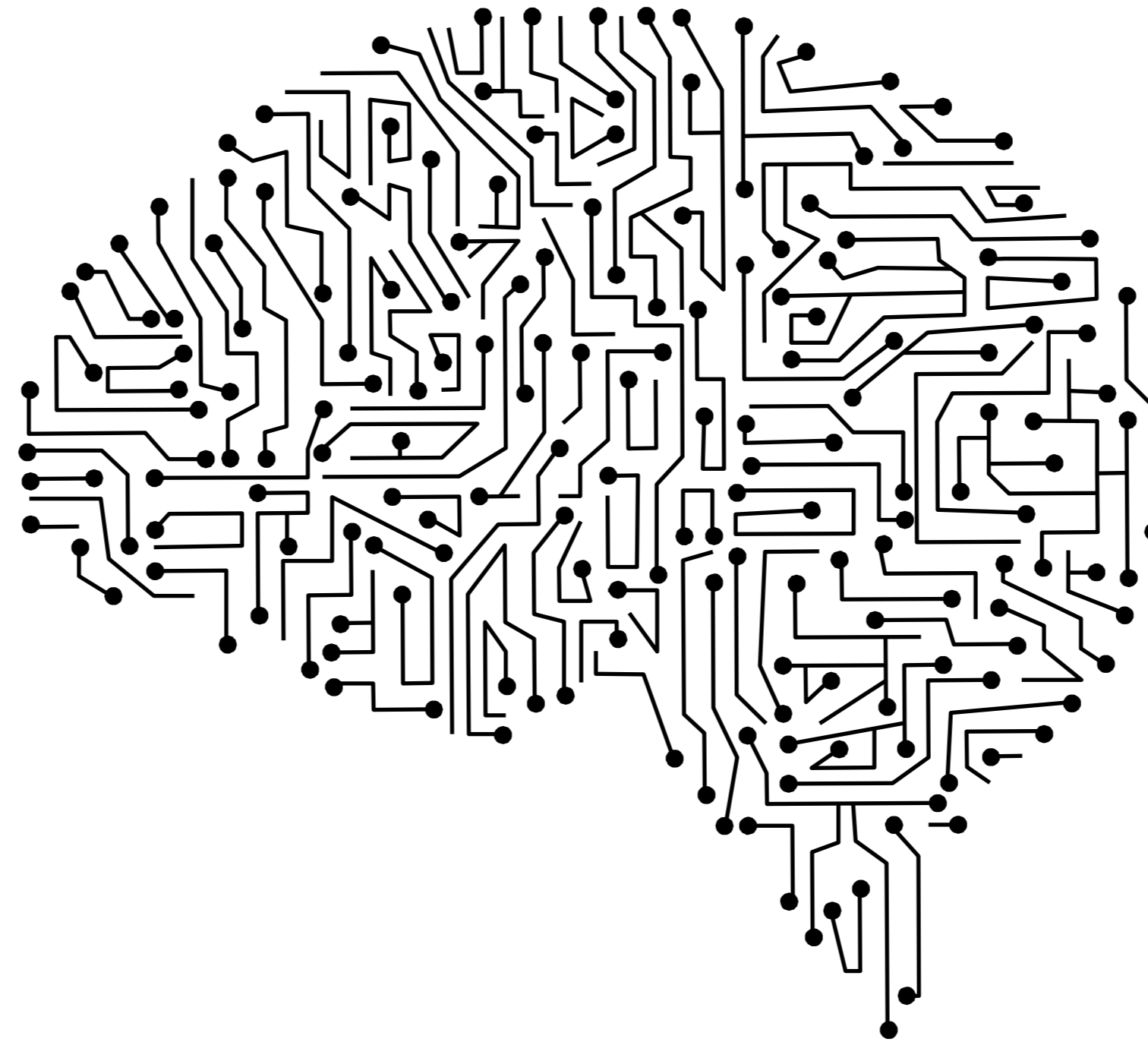


ULTIMO MIGLIO

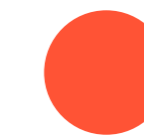


QUADRANTE EUROPA E' SPECILIZZATO NELLA LOGISTICA INDUSTRIALE E VERSO LA GRANDE DISTRIBUZIONE SOPRATTUTTO NELLA DIRETTIVA CON IL NORD EUROPA

LA LOGISTICA DELL'ULTIMO MIGLIO STA VIVENDO PROFONDI CAMBIAMENTI E CON ALTISSIMA VELOCITA'



SHARED ECONOMY



LOCKER



PUNTI DI RITIRO



APP PER SMARTPHONE



FRAMEWORK PER LA
CONSEGNA

GRAZIE DELL'ATTENZIONE

