

Somos Atlánticos – I Workshop Nacional del Equipo de Apoyo al Plan de Acción del Atlántico

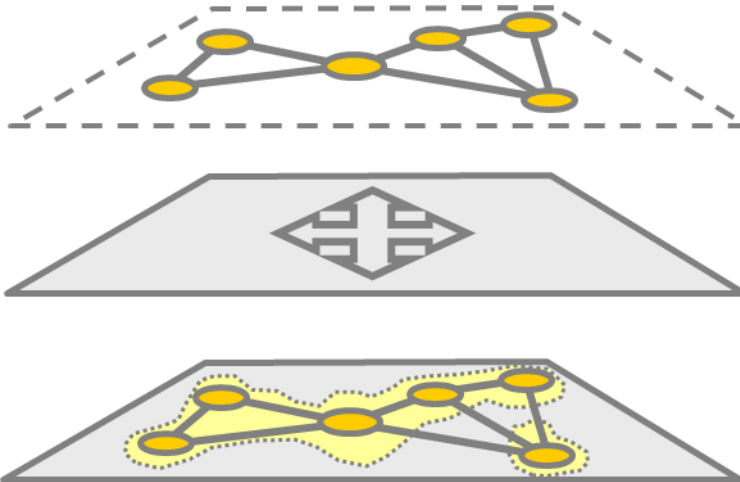
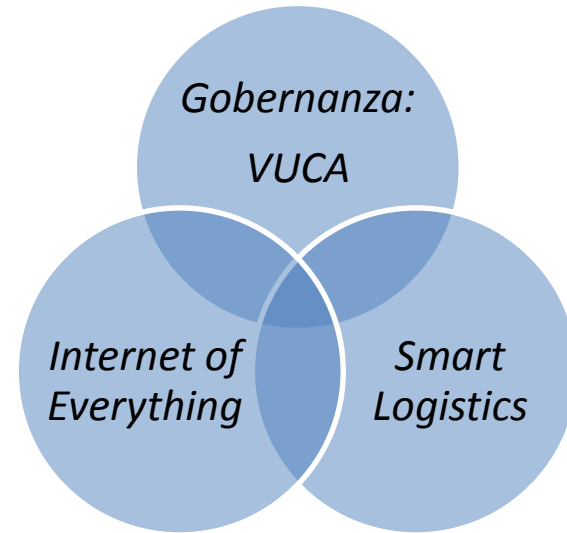
Sección 3.- Transporte y seguridad marítima

Sincromodalidad y Logística Inteligente

Dr. Miguel Angel Pesquera González
Profesor Titular
Universidad de Cantabria

Santander 25 de Marzo de 2015

- **Áreas de actividades:**
 - *Gobernanza: VUCA*
 - *Smart Logistics*
 - *Internet of Everything*



*Estrategia y Desarrollo
Investigación e innovación*

Sustainable Knowledge Platform for the European Maritime and Logistics Industry (SKEMA)

www.skematransport.eu/

www.eskema.eu

- FP7, DGTREN



Maritime Navigation and Information Services (MARNIS)

www.marnis.org

- FP6





Proyectos Plan Nacional I+D+i

COMODAL WEB 2.0 (2008-2011)

Knowledge network on Comodality & SSS.

www.comodalweb.org



PROJECT MAIN OBJECTIVE

Improvement of sea logistics co-modality (motorways of the sea). Port community Systems 2.0 design (E-Maritime, E-Services, Internet of Things). Their services are based on 3 principles ; port communities, technologies 2.0 and collaborative architecture

ECOMODAL-UMLANDPORT (2008-2011)

Project leaded by Cantabria University.

www.ecomodalumlandport.org



PROJECT MAIN OBJECTIVE

It's developing s simulator for multimodal transport chains from Hinterland to Umland of a Port. Environmental sustainability and co-modality was among the project objectives.

Proyectos Plan Regional I+D+i



SILE: SISTEMA LOGÍSTICO EFICIENTE (EFFICIENT LOGISTIC SYSTEM)

Development of an efficient management system for freight transport by road between port installations and near located companies.

PROJECT MAIN TASKS

- System development based on RFID technologies (Internet of Things).
- Improvement of eco-efficiency parameters of the process.



SIMA

RFID-based system for baggage and passengers management in regular line transportation by bus.

PROJECT MAIN OBJECTIVE

Development of a RFID-based system for automatic control of baggage in regular lines transport by bus.

PROJECT MAIN TASKS

- RFID solutions analysis for baggage and passengers transportation by road.
- Prototype development and real case test and analysis.



InnoTransMer ha desarrollado:

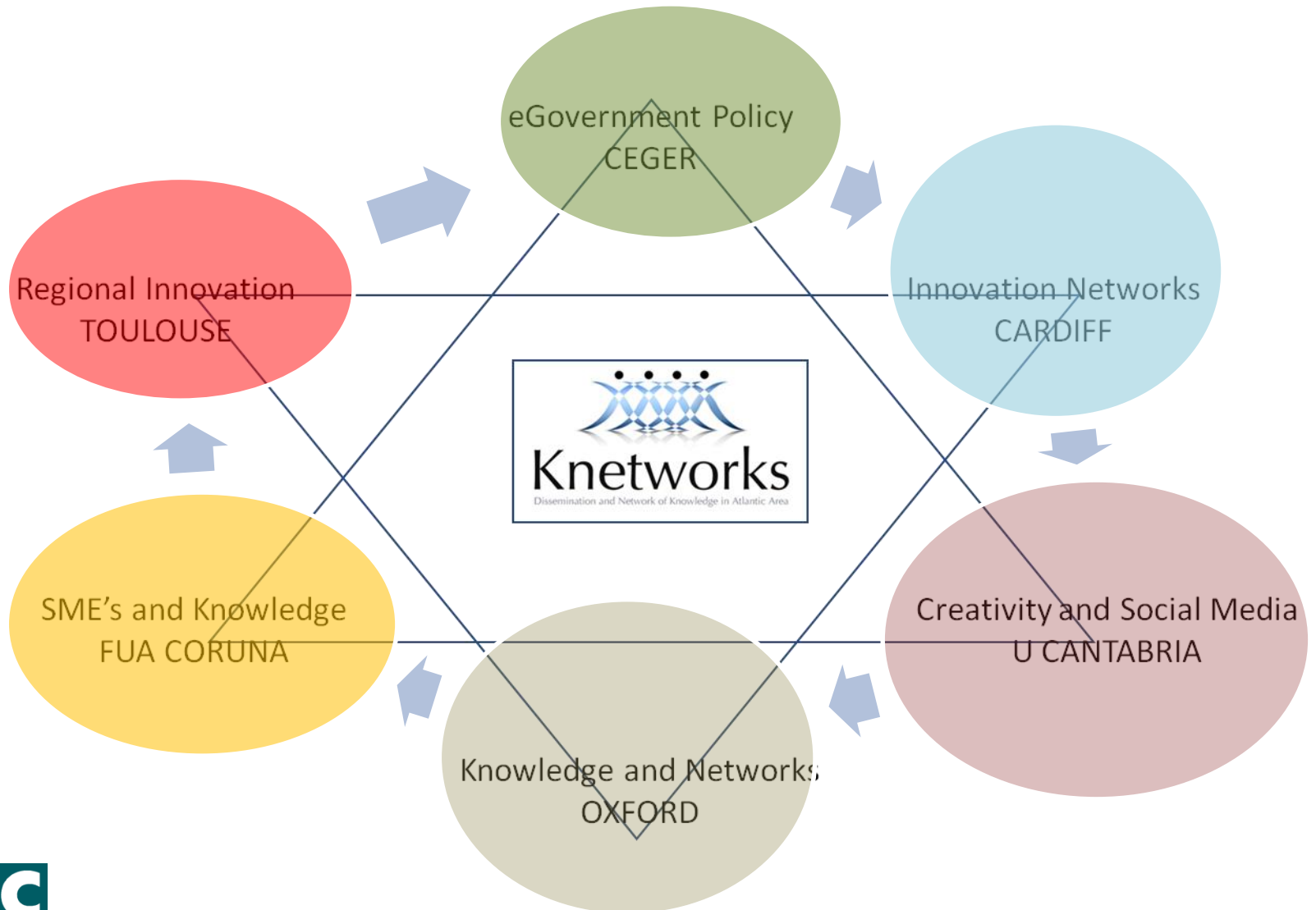
■ Proyecto

- Calculadora de **costes, consumos y emisiones** del transporte de mercancías por carretera por trayecto recorrido:
 - Costes de personal en función del tiempo de trayecto.
 - Consumo de combustible por trayecto.
 - Emisiones.
- Identifica rutas eficientes del transporte de mercancías por carretera y ayuda a las empresas a reducir costes/consumos/emisiones, identificando la ruta más eficiente por tipología de vehículo y carga.



Creación de una red para la promoción y desarrollo del Corredor Ferroviario Atlántico de Mercancías

Creación del European Knowledge Center (EKC) Desde las estrellas



Impacto Digital en las organizaciones

El 90% de los datos almacenados en el mundo se generó en los últimos dos años. De ellos, el 99% está ya digitalizado y más de la mitad habilitado para IP

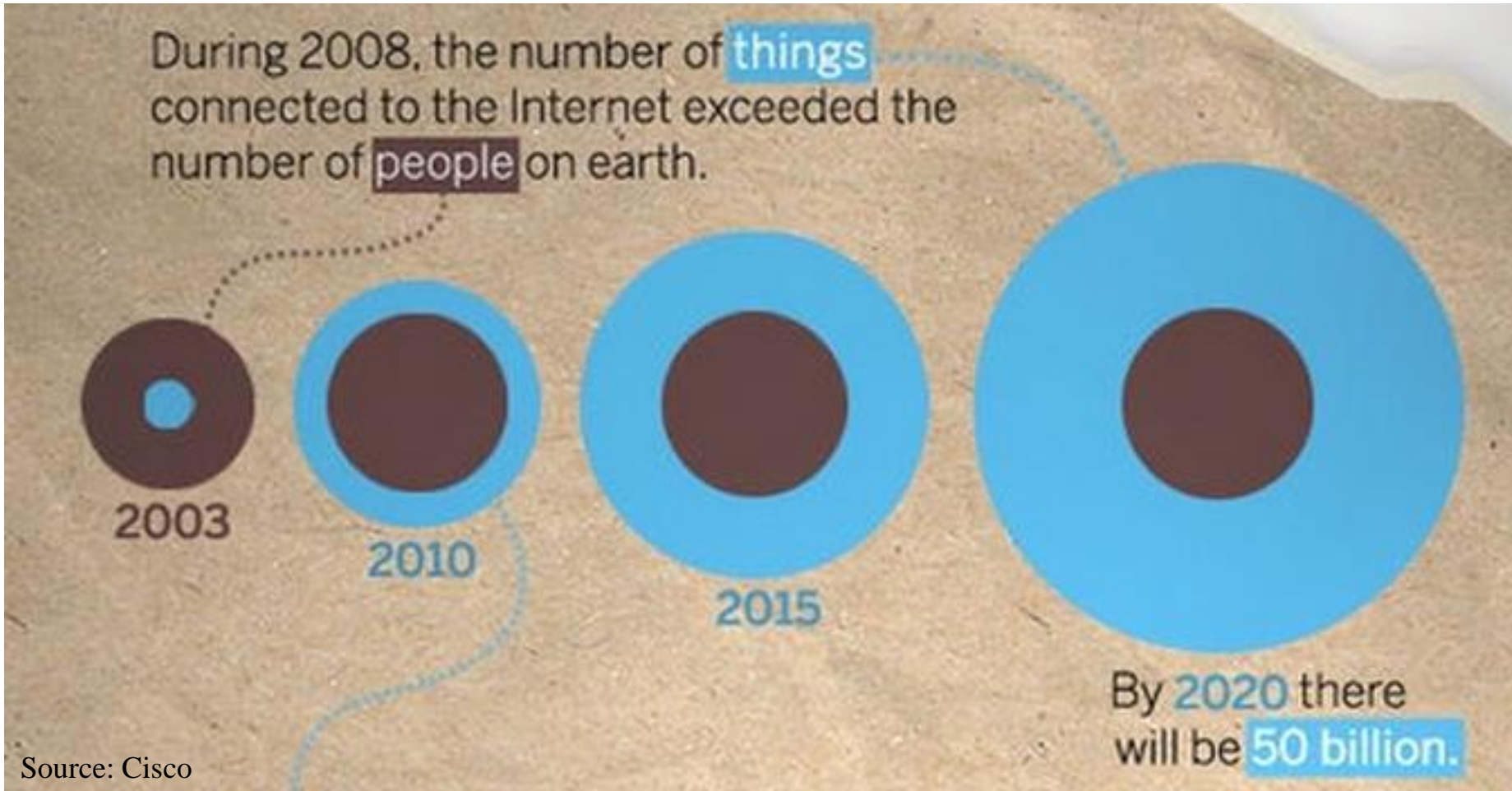
Reinventar
la empresa
en la era digital



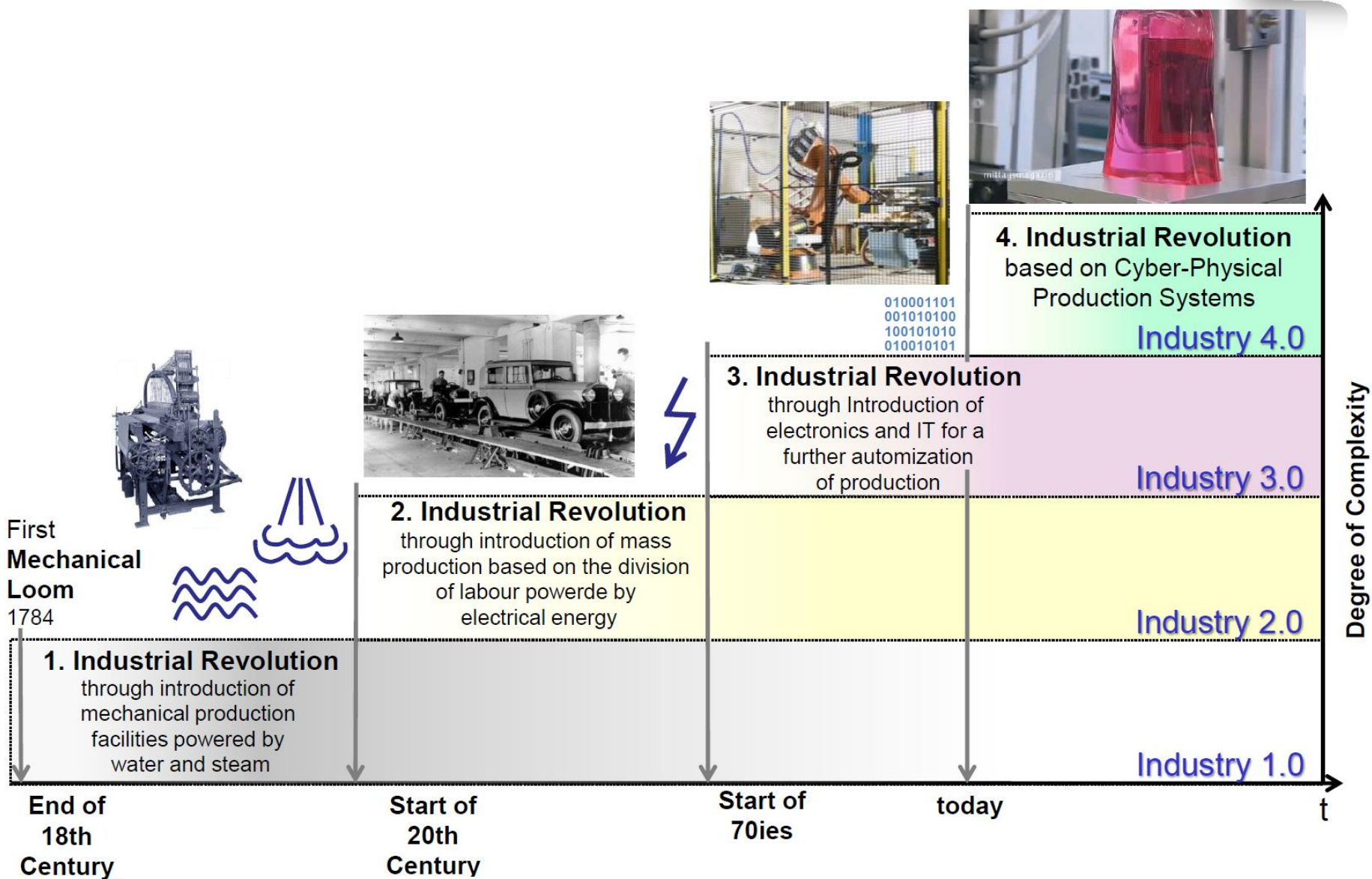
BBVA

OpenMind

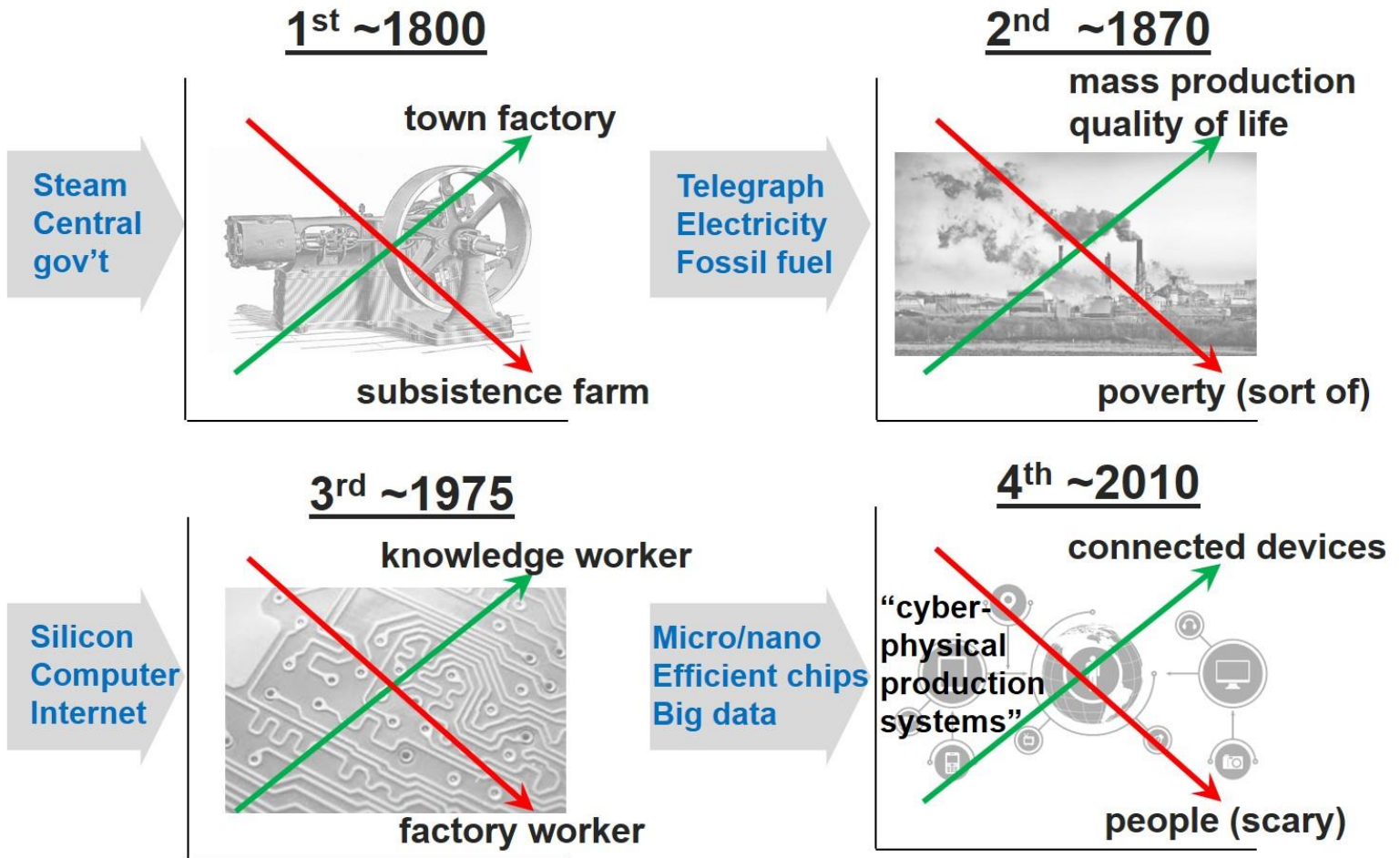
Un cambio fundamental hoy: Internet de los objetos (IoT)



Hacia la cuarta Revolución Industrial



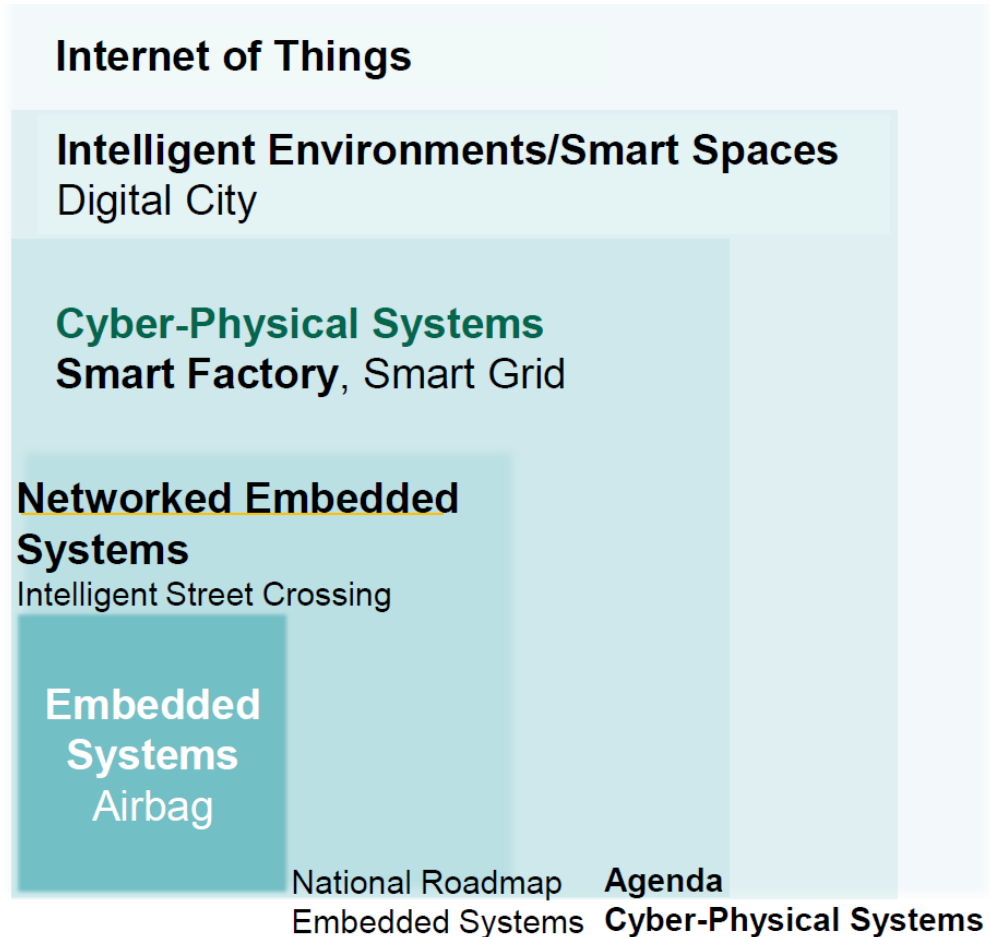
Hacia la Cuarta Revolución: Interacción humanos -máquina



Source: Multiple, ECNMAG

500 M€ for 3 Years
National Program:
250 M€ Funding of
Ministry for Research and
Ministry for Economics

Evolution from
Embedded Systems
to Cyber-Physical
Systems



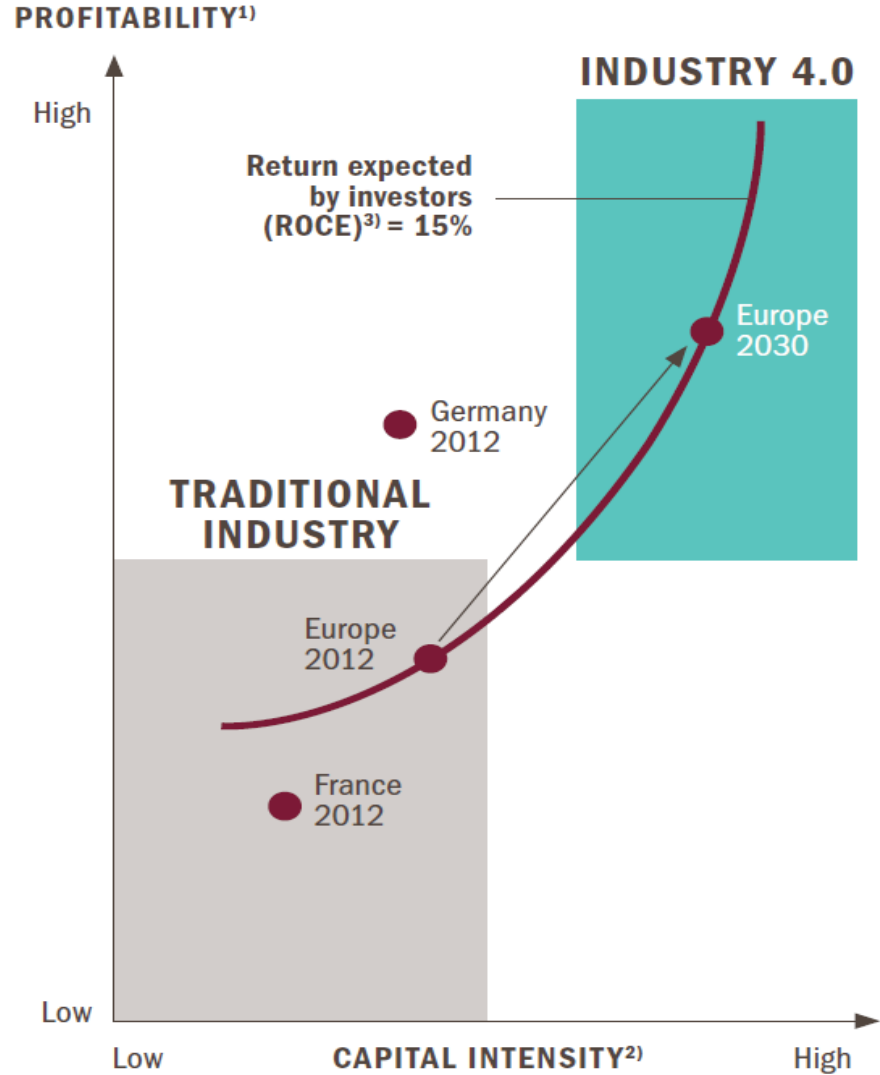
Plataforma de Aplicaciones



INDUSTRY 4.0

The new industrial revolution
How Europe will succeed

Roland Berger
Strategy Consultants

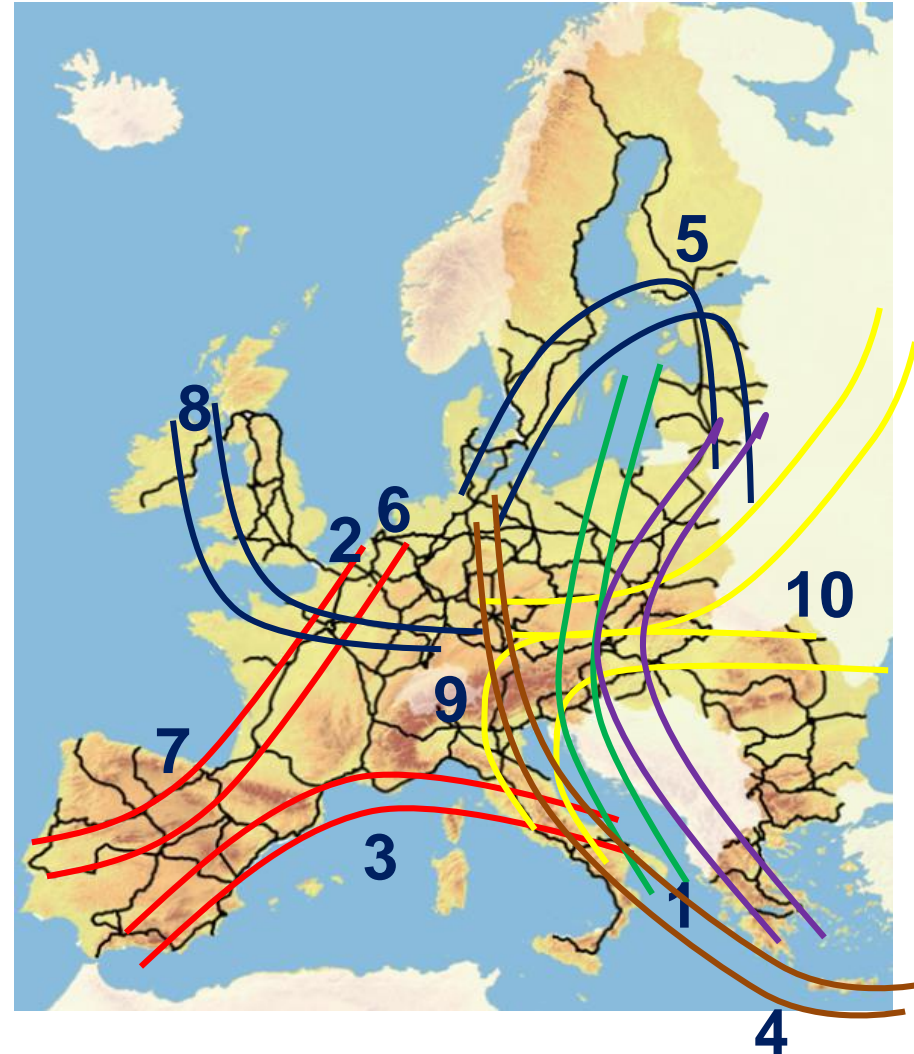


TEN-T Core Network (ITS)

- **ITS (Intelligent Transport System)**
 - Permite la gestión del tráfico
 - Dentro y entre modos de transporte
 - Para operaciones de transporte multimodal
 - Facilitar conexiones integradas entre transporte a nivel de EU, regional y local
- **ITS para puertos, vias navegables y shipping**
 - VTMIS (Vessel Traffic Monitoring & Information Systems)
 - RIS (River Information Systems)
 - e-Maritime

TEN-T: 2014-2020 Multimodal Corridors

TEN-T	Project / Corridor
TEN-T 15	Projects 1 to 14
TEN-T 25	Projects 15 to 20
TEN-T 27	Projects 21 to 30
MC1	Baltic - Adriatic
MC2	Warsaw - Berlin - Rotterdam
MC3	Mediterranean : Lisbon - Rome
MC4	Hamburg – Rostock - Cyprus
MC5	Helsinki - Valetta
MC6	Genoa - Rotterdam
MC7	Atlantic : Lisbon - Strasbourg
MC8	Dublin – London – Paris - Brussels
MC9	Amsterdam – Lyon – Marseille
MC10	Strasbourg - Danube

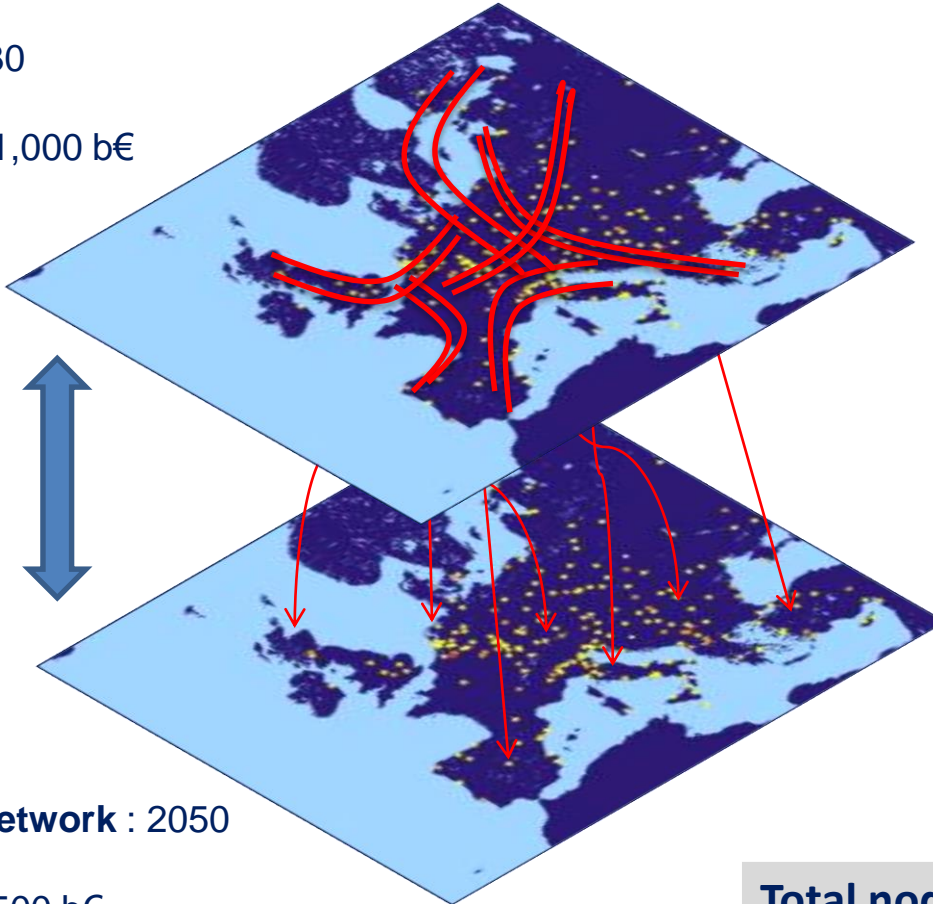


TEN-T Core Networks and Multimodal Corridors



European Transport network 2-layer model

Core Network : 2030
33% EU surface
Estimated budget : 1,000 b€



Comprehensive Network : 2050
67% EU surface
Estimated budget : 500 b€

Core Nodes	Q
Cities	83
Ports	87
Airports	37
Cross borders	23
total	230

Comp Nodes	Q
Cities	tbd
Ports	tbd
Airports	tbd
Cross borders	tbd
total aprox.	tbd

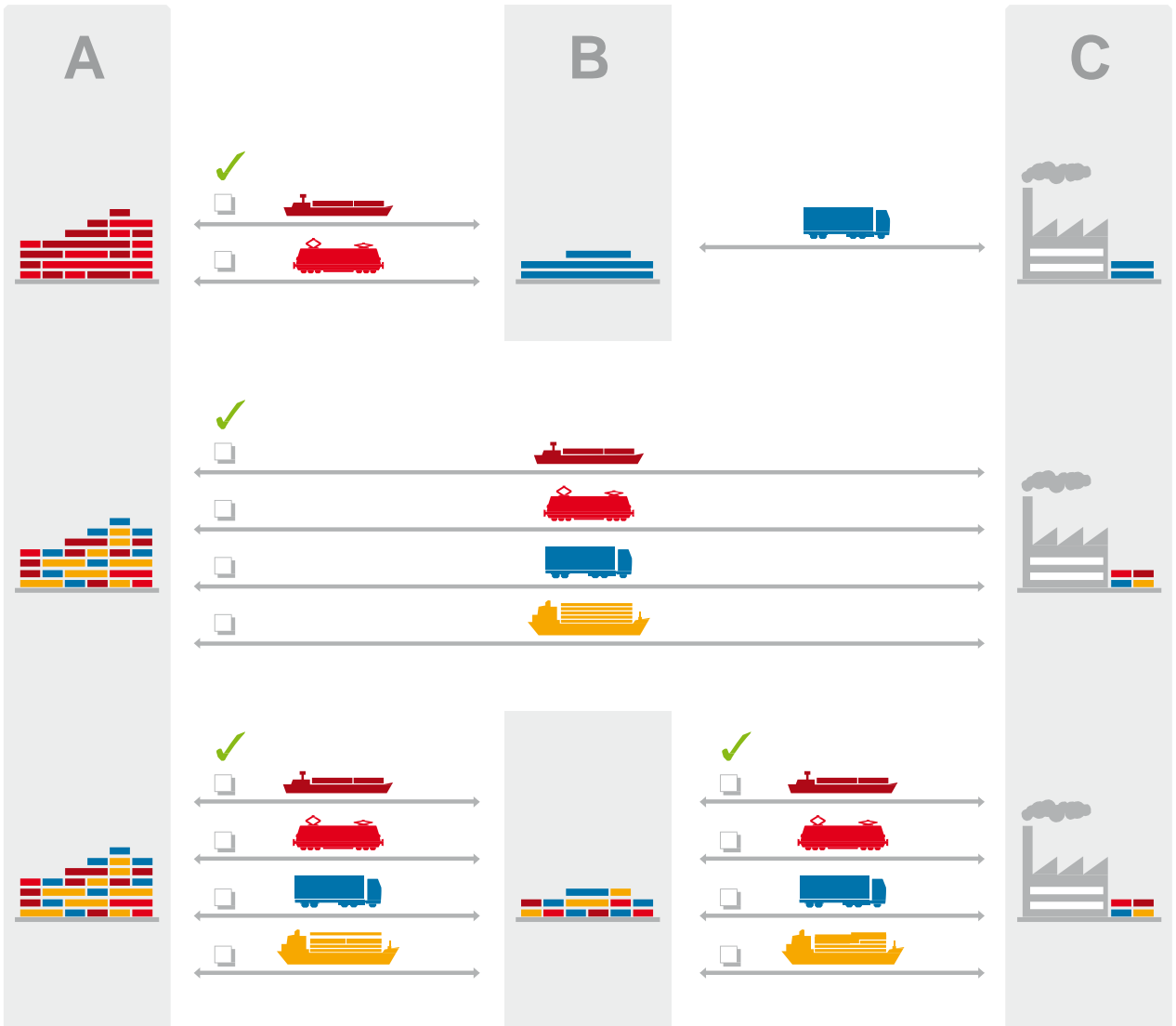
Total nodes estimated 1,000

2010	2015	2020	2025	2030	2035	2040	2045	2050	2055
	TENT Plan 2014-2020			CORE Network				Comprehensive Network	

Intermodal, Comodal and Synchronomodal

Intermodal

From A to B by inland shipping or rail and from B to C - 'the last mile' - by truck.



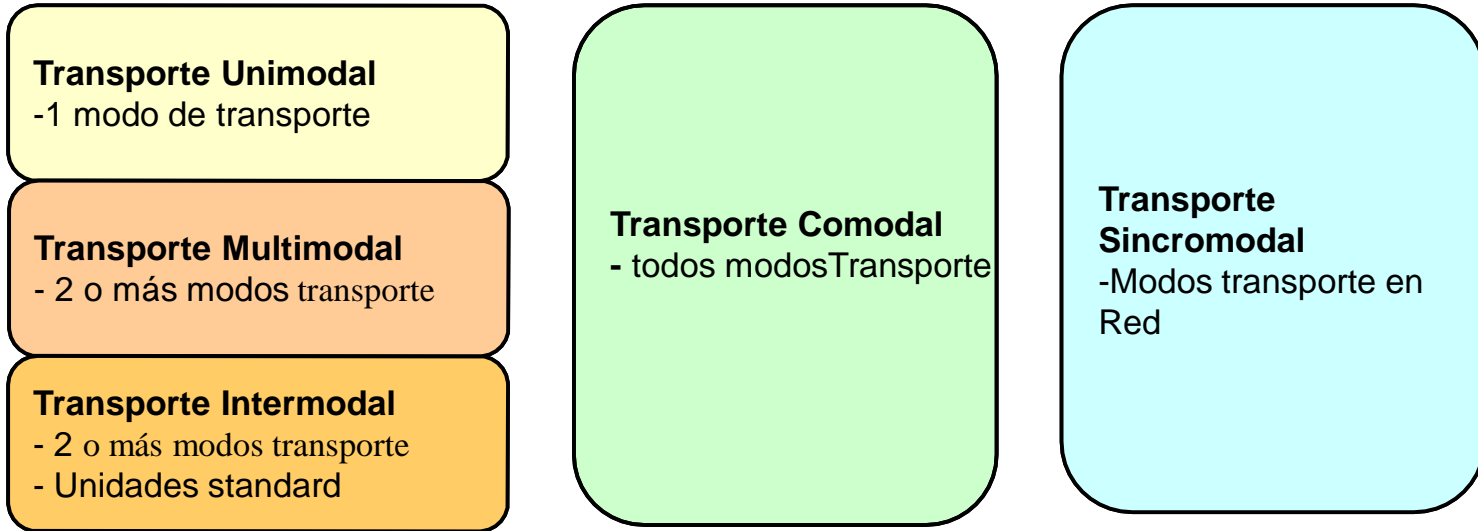
Co-modal

In A, the shipper has the choice between inland shipping, rail, feeder and road.

Synchronomodal

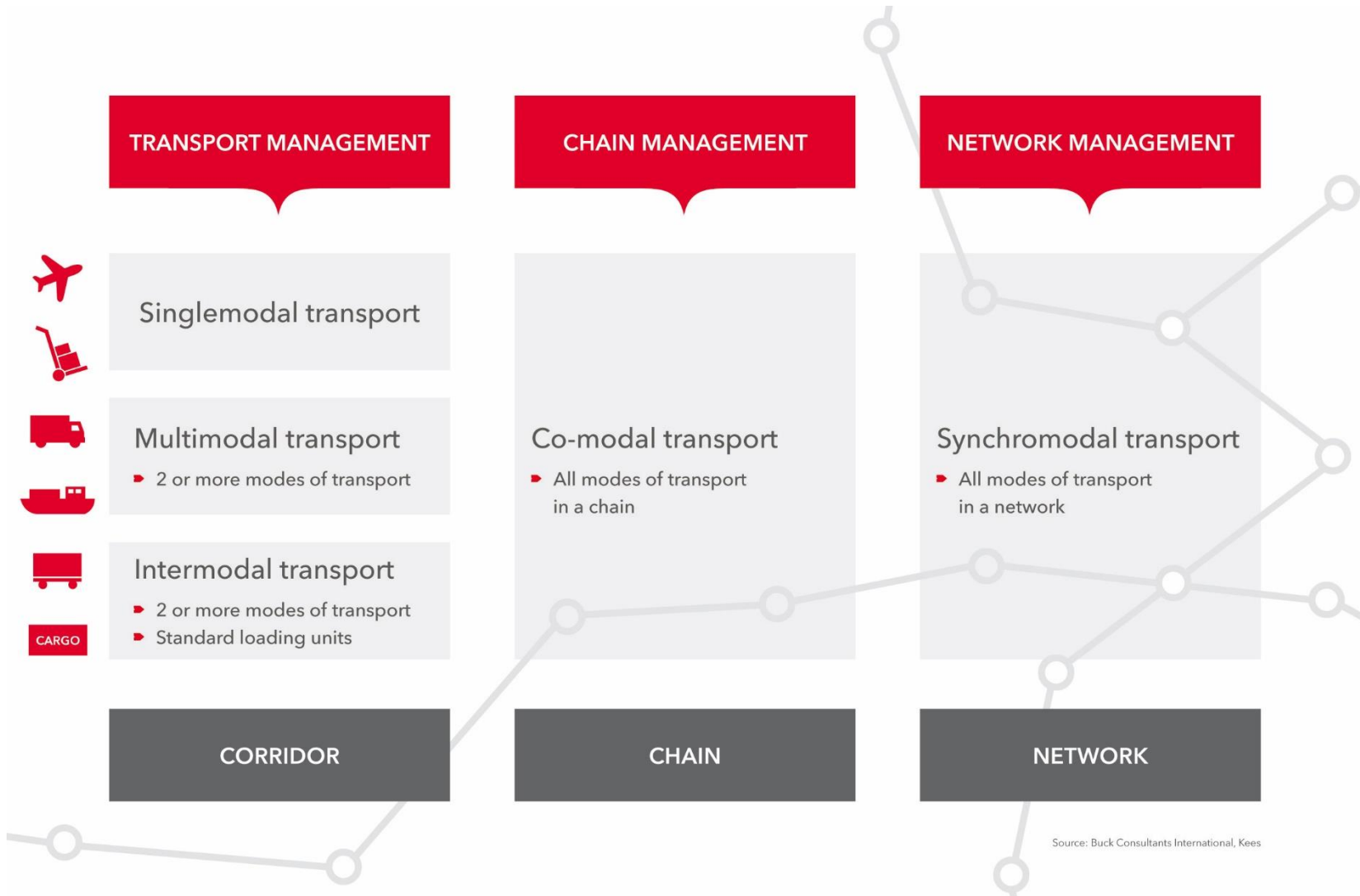
Optimally flexible and sustainable system: a choice of different modes of transport in A, but also in B and, in the case of return cargo, in C.

Intermodal, Comodal and Sincromodal



<i>corridor</i>	<i>chain</i>	<i>network</i>
<i>transportmanagement</i>	<i>chainmanagement</i>	<i>networkdirector</i>

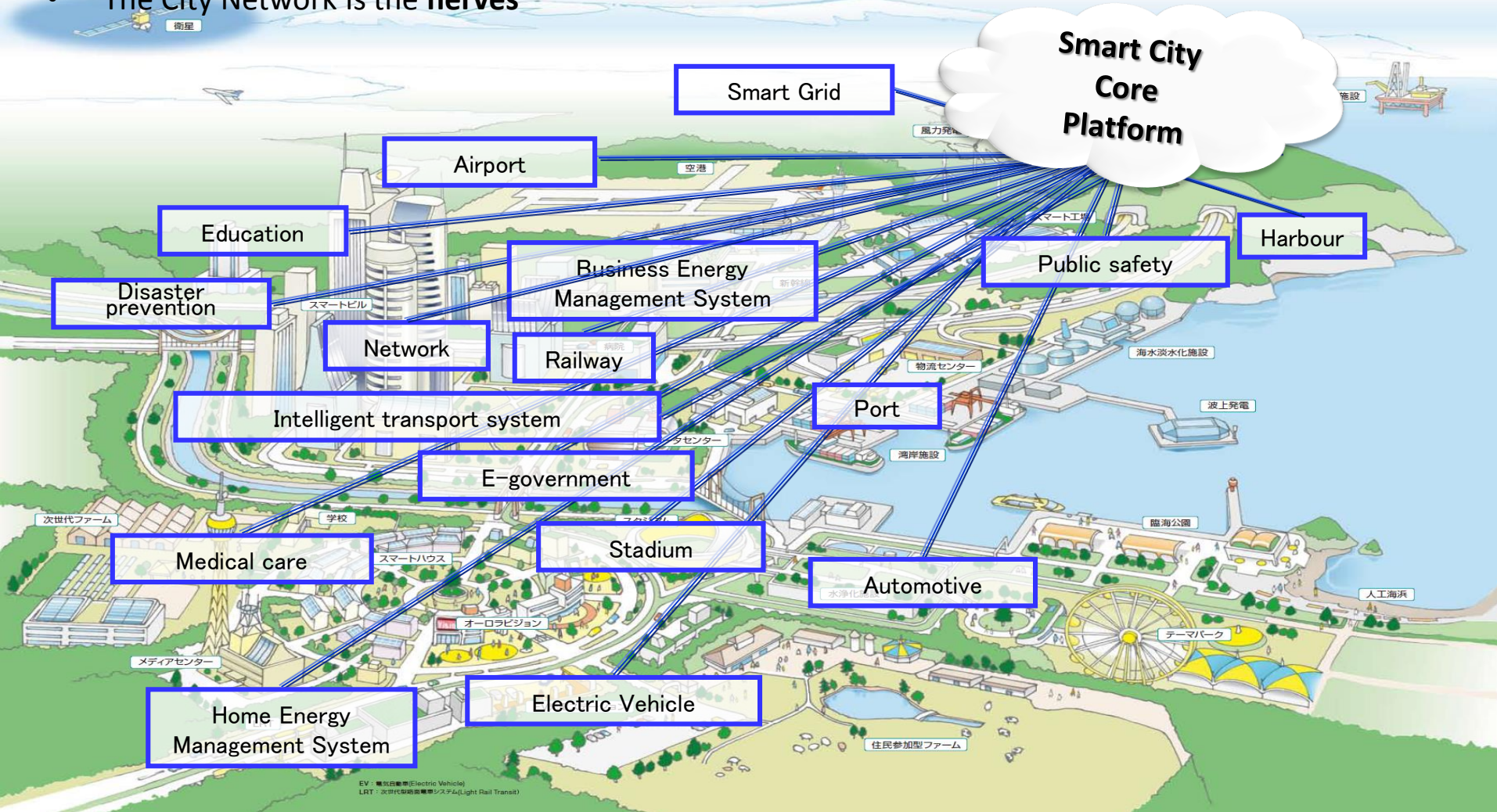
Hacia la Sincromodalidad



Source: Buck Consultants International, Kees

Vision sobre Smart City/ IoT

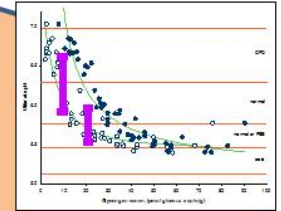
- The Core Platform is the **brain** of “Smart City”
- The City Network is the **nerves**



EV : 電気自動車 (Electric Vehicle)
LRT : 次世代鉄道輸送システム (Light Rail Transit)



Logistics Intelligence



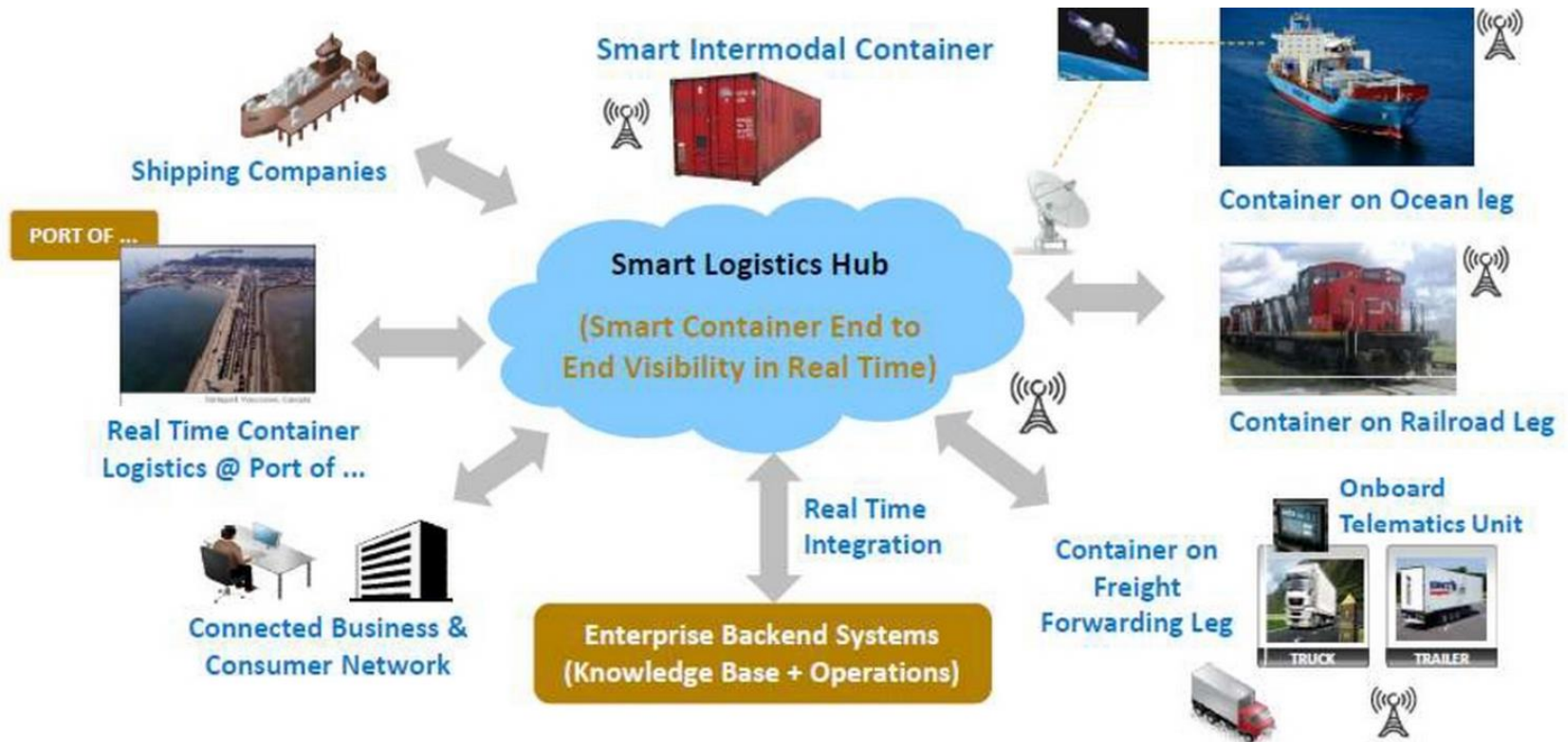
Logistics Connectivity



Real-time Virtualization

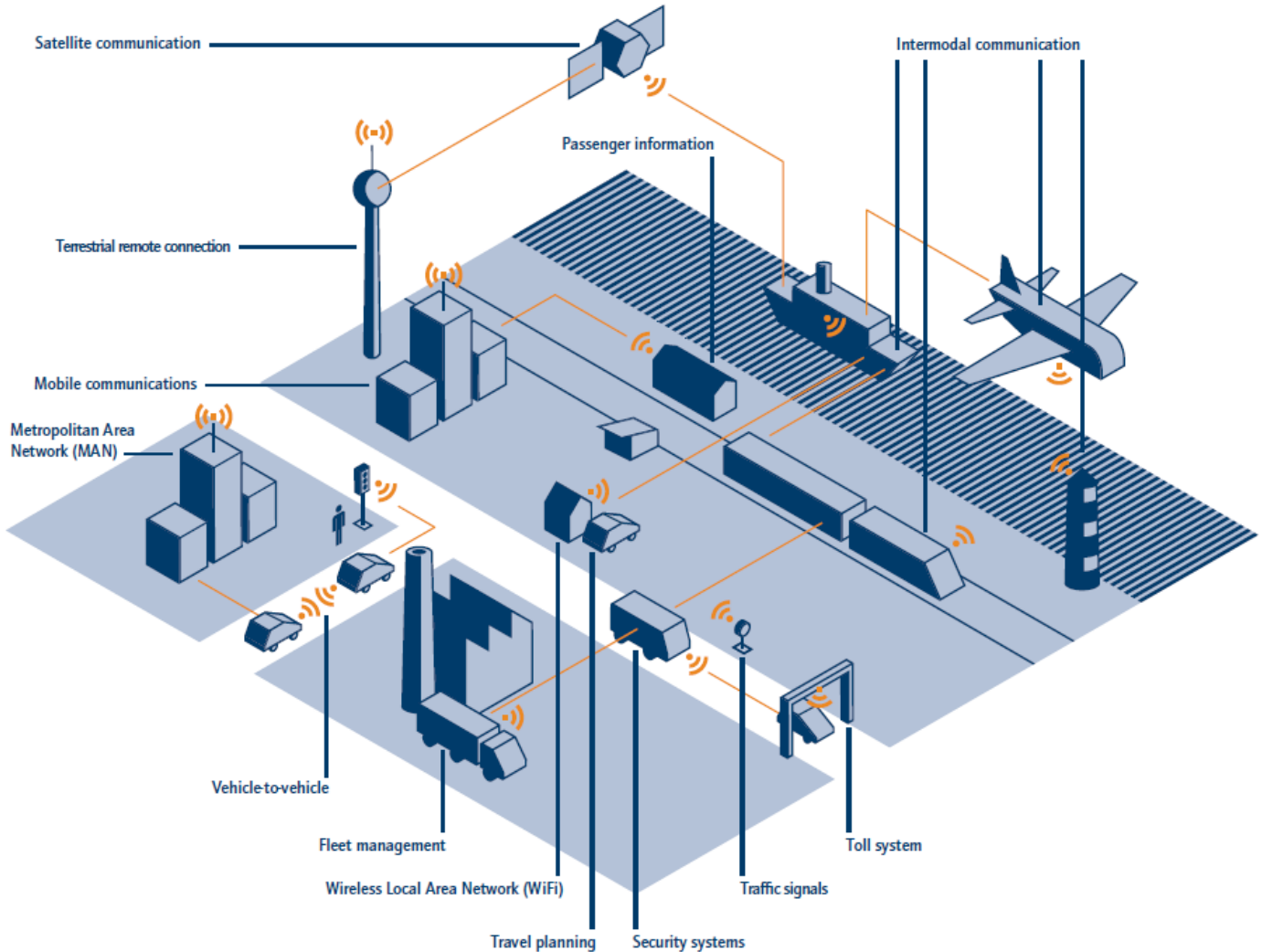


Ejemplo: Logística inteligente en intermodal



CYBER-PHYSICAL SYSTEMS

Fusionando el mundo Físico con el Virtual

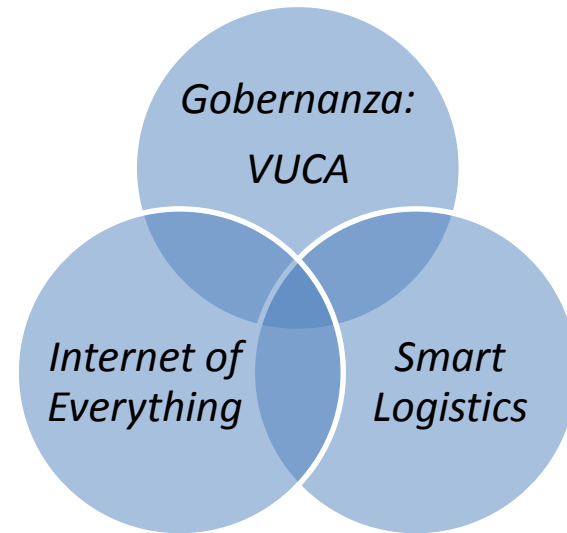


> Cyber-Physical Systems

Driving force for innovation in
mobility, health, energy and production

acatech (Ed.)

Socio de Confianza para la Estrategia y Desarrollo de Investigación e Innovación en Logística y Transportes



@mapesquera
@pdcastro