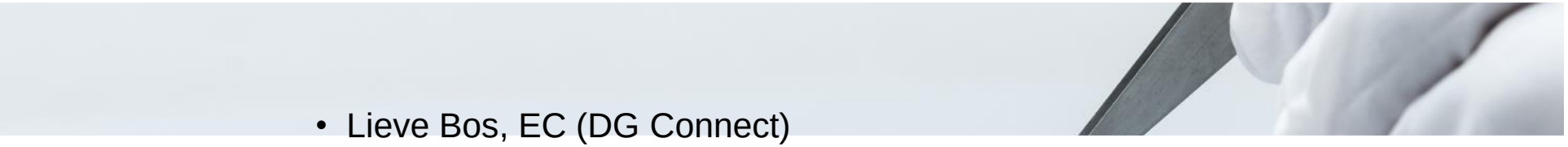
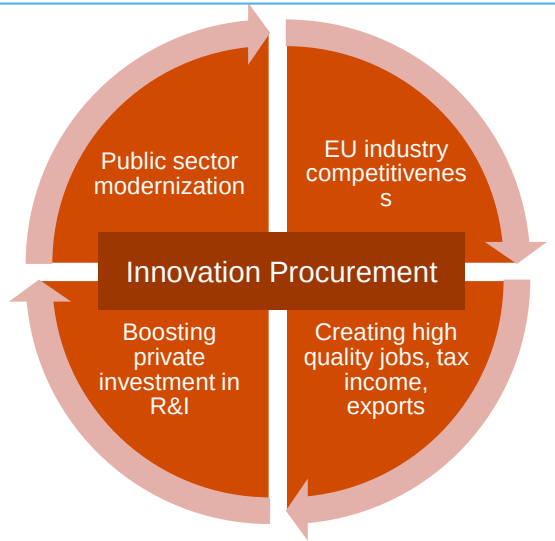
Innovation Procurement
Why bother about this?

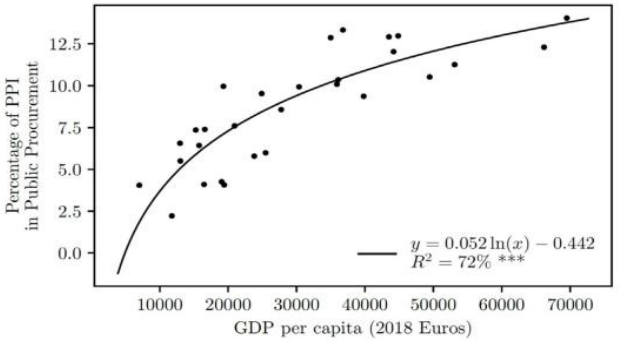


- Lieve Bos, EC (DG Connect)

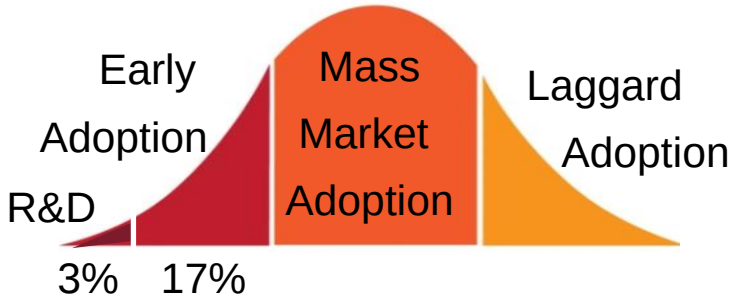
Strategic importance of innovation procurement

Many societal challenges unsolvable
via public procurement of ‘existing’ solutions.
Public procurement of R&D / innovative solutions needed.





Studies: Innovation procurement essential for economic growth.
Direct relation between innovation procurement investments
and growth of GDP per capita.



Healthy economies worldwide spend minimum:
20% of public procurement on innovation procurement.
Today EU average is ~10%.

ICT
is key catalyzer

Healthy economies worldwide spend minimum:
10% of public proc (or 60% of innov proc) on ‘ICT-enabled’ solutions.
Today EU average is ~3,5% of public proc (or ~40% of innov proc)

Key trends and EU position in the world

* Data on Europe: from previous benchmarking

How well are we leveraging innovation procurement as a driver for economic growth?

25% Innov proc

South Korea

- 5% of PP / 0,63% GDP -> R&D
- 20% of PP / 2,5% of GDP -> PPI
- Faster adoption of innovative ICTs

Dependence of economy on PP

- PP = 12,5% of GDP

20% Innov proc

United States

- 3% of PP / 0,26% GDP -> R&D
- Faster adoption of innovative solutions,
- including ICTs, as in EU

Dependence of economy on PP

– PP = 10,8% of GDP

~10% Innov proc*

Europe

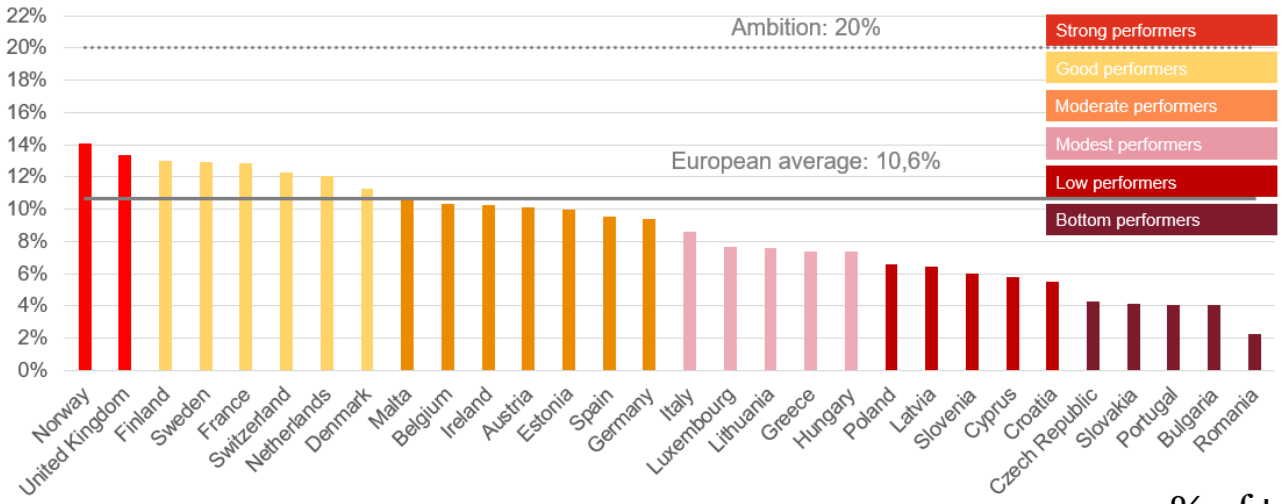
- 0,5% PP / 0,1% GDP -> R&D*
- Most MS targets: 2-10% of PP -> innov
- Adoption innovative ICTs needs tripling

Dependence of economy on PP

– PP = 17% of GDP

Europe-wide benchmarking

Total innovation procurement investments (out of total proc.)



EC / DG CNECT efforts to promote **innovation procurement** moved the needle to from 2% to 10,6% over last 10 years

But we still need to step up our game to **double investments** in future.

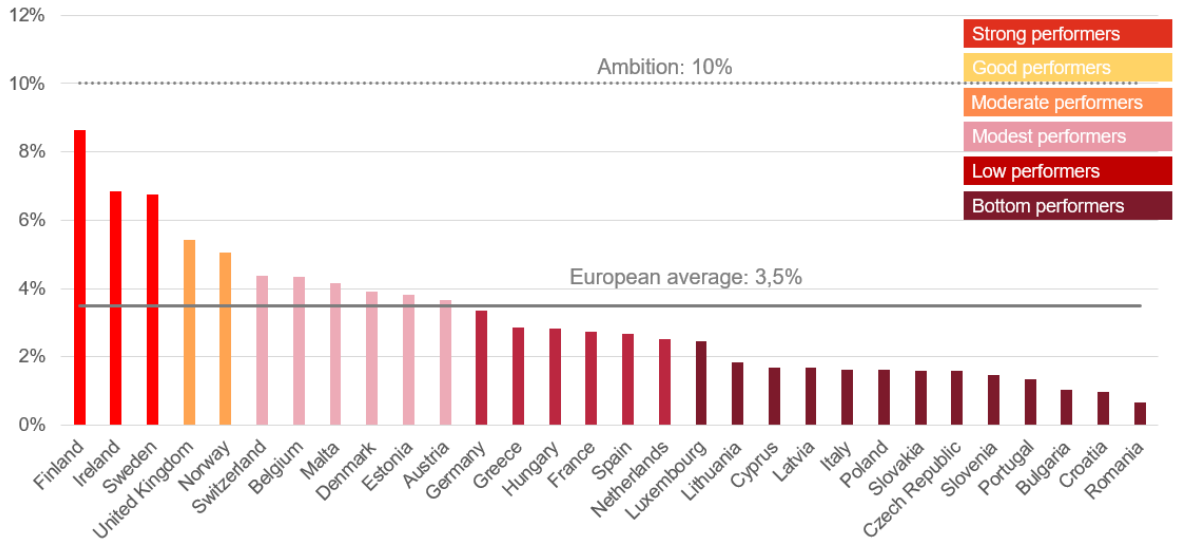
Underinvestment in R&D procurement is still responsible for half of the EU-US R&D investment gap. Underinvestment in procurement of innovative solutions is still hampering early adoption of innovations.

ICT-savvy countries are nearly there. Others still need to catch up (a lot).

In the future, Europe as a whole still need to **triple investments** in **innovation procurements of ICT-based solutions**.

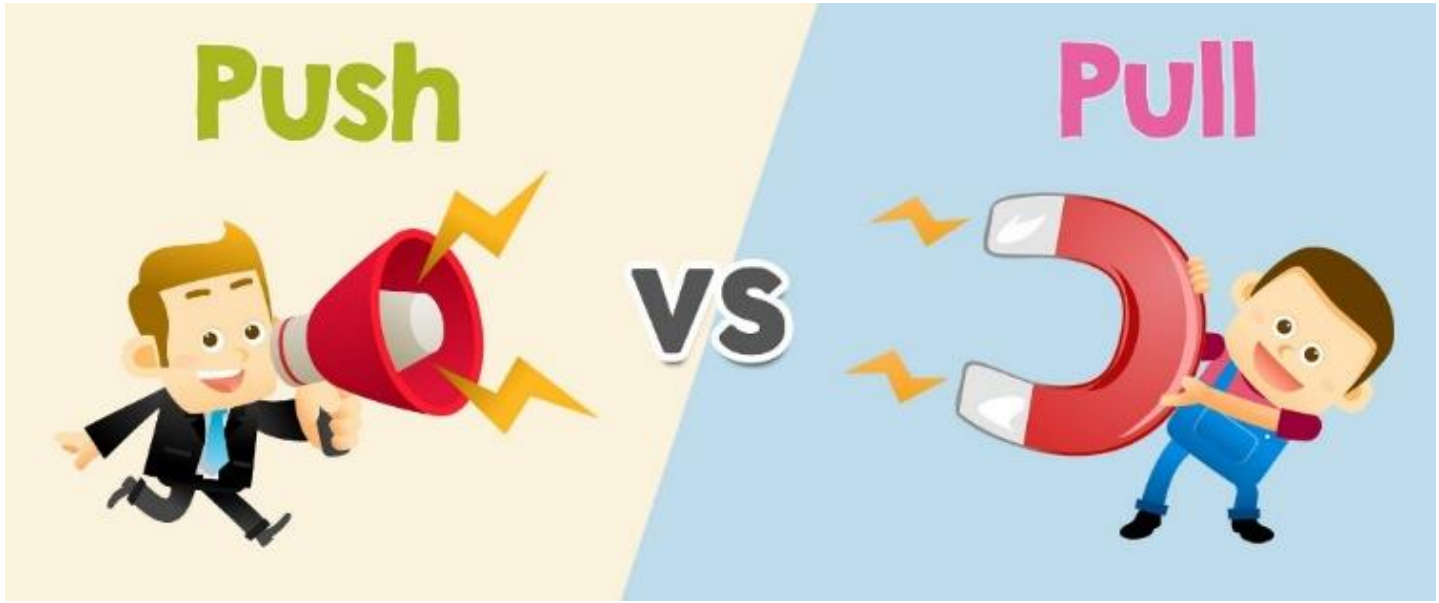
Underinvestment in public procurement of R&D and of innovative ICT-based solutions still hamper EU competitiveness on strategic ICTs (cybersecurity, AI / robotics, green digital solutions, even the metaverse etc).

% of total proc. invested in adoption of ICT-based innovations



Complementing push with pull R&I policies

Innovation procurement uses public procurement to drive innovation from the demand side.



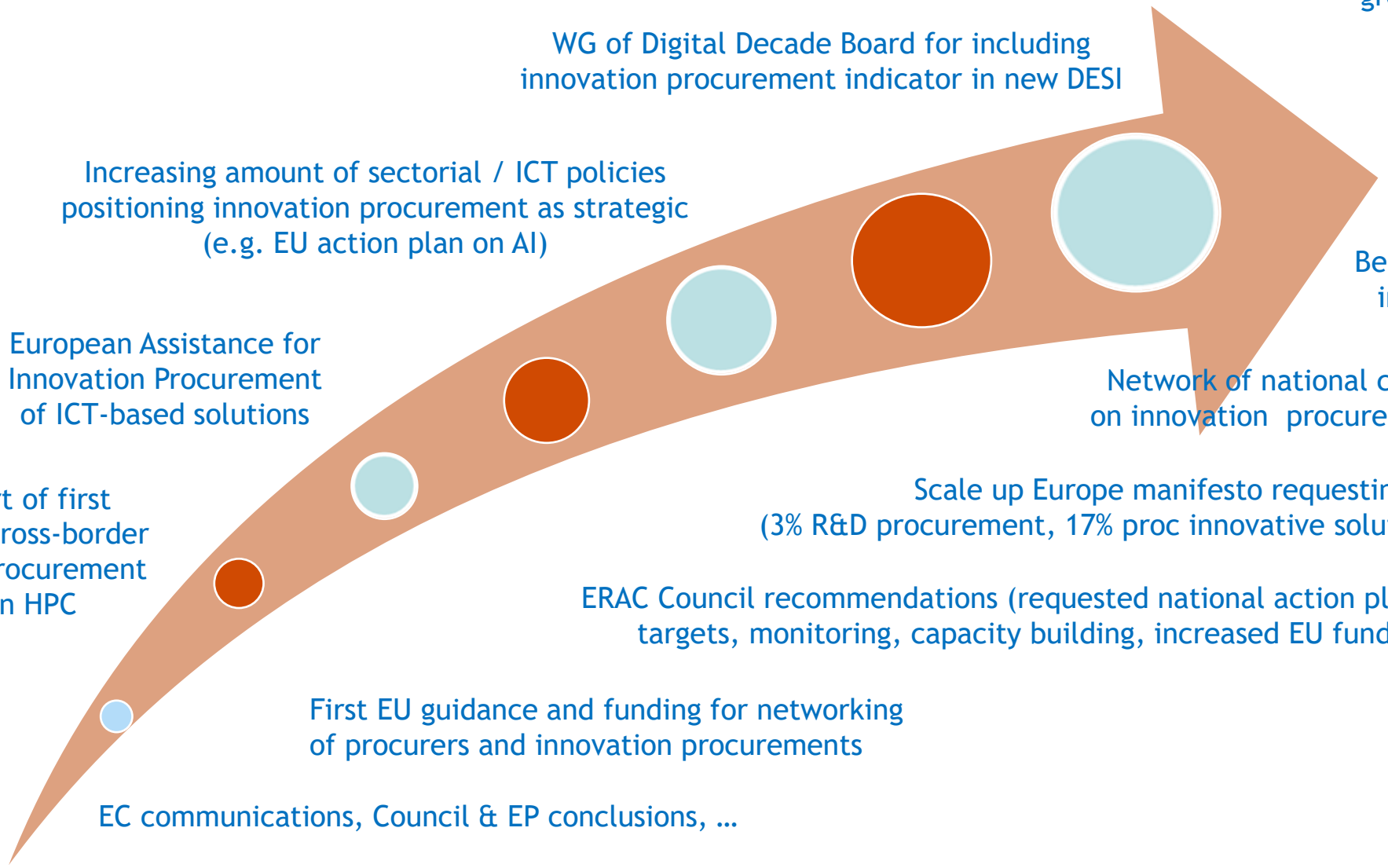
Innovation procurement
Key benefits for the supply side

- Open up concrete business opportunities
- Speed up time to market for innovations
- Attract investors / scale up internationally
- Create jobs / technological leadership

Innovation Procurement
Key benefits for the demand side

Steer and speed up the development and/or adoption of innovative solutions to:
- Improve quality & efficiency of public services
- Address wider societal challenges

DG CNECT actions taken so far



Impacts achieved

- Investments in **innovation procurement of digital solutions** have increased from peanuts to 4% of total public proc
- 1/3 of MS so far have embedded innovation procurement as strategic priority in their national digital strategies
- Some MS increase investment in ICT skills development of procurers for innovation procurements (e.g. via EDIHs)
- Some MS start to link their innovation procurement and green procurement strategies (twin green, digital transition)

- Boosting **business opportunities for SMEs and startups**
  - Innovation procurement awards 70% instead of usual 30% of contracts to SMEs and startups
  - Innovation procurement quadruples their international growth
- Contributes to roll-out of **more interoperable solutions** / uptake of **standards**
  - 40% of innovation procurements are done to obtain more interoperable solutions
- **Reinforces strategic autonomy** through ‘made in Europe’ solutions
  - Procurements of R&D and deployment of first batch of tested solutions can be limited to EU (controlled) companies and require large part of R&D and later commercialisation to take place in EU -> new EU lead markets

- Pushing market transition to achieve specific public sector goals, **address societal challenges**
  - Green transition: see carbon capture example next slide
  - Digital transition: see disinfection robot example next slide

Case examples

EC buys 200 disinfection robots

- 2014-2016: PCP by Danish hospitals
  Result: Blue Ocean Robotics (Danish startup) created innovative disinfection robots that kill 99% of all viruses & bacteria within 10 minutes.
- 2020: EU bought 300 of these 'EU made' robots for hospitals around Europe to fight COVID.
  Largest order so far for the company, triggered wider diffusion of the solutions, selling worldwide. Steep growth, becoming a unicorn. Strengthens European position in robotics.

Sweden builds first permanent electric roads

- 2016-2019: PCP by Swedish Trafic Authority
  develops e-traction systems for heavy road transport vehicles. Two EU suppliers (Siemens, Scania) successfully build solutions that reduce energy cost and CO2 emissions to such levels that pay back all operational investments.
- Jan 2022: Sweden announces deployment of first permanent electric road. First electric road for transport vehicles to be operational by 2025 (between Hallsberg and Örebro). Other EU countries (Germany) also pushing for e-roads.

More showcase examples on DG CNECT's innovation procurement webpages

PROTECT
PROCURING INNOVATIVE CLIMATE CHANGE SERVICES

Introduction to Innovation Procurement: PCP and PPI

What is PCP and what is in it for you?

Beatriz Gómez Fariñas

Ana Lucia Jaramillo

Corvers Procurement Services B.V.

CORVERS
COMMERCIAL & LEGAL AFFAIRS

This project has received funding from the Horizon Europe Framework Programme (HORIZON) under grant agreement No 101060592

Agenda

Opening by Lieve Bos (EC, DG Connect) – The EU perspective

1. What is Public Procurement?
2. What is Innovation Public Procurement and its two modalities: PCP and PPI
3. PCP: what, when and how. Legal framework.
4. PPI: what, when and how. Legal framework.
5. Conclusions and lessons learnt.

1. What is Public Procurement?

- “Public procurement is the process by which public authorities (such as government departments or local authorities) purchase works, goods or services from companies which they have selected for this purpose.” (EU)

- E.g., building a state school, purchasing furniture for the prosecutor’s office; contracting cleaning services for a railway station.

Why do we regulate it?

- “… to ensure that public funds are spent honestly and efficiently, on the basis of a serious assessment and without any kind of favouritism or quid pro quo whether financial or political.”

- Source: Opinion of Advocate General Jacobs in Case C–19/00, SIAC Construction Ltd v County Council of the County of Mayo

Why do we regulate it at EU level?

- “The main purpose of Community harmonisation is to ensure a free market.”

- Source: Opinion of Advocate General Jacobs in Case C–19/00, SIAC Construction Ltd v County Council of the County of Mayo

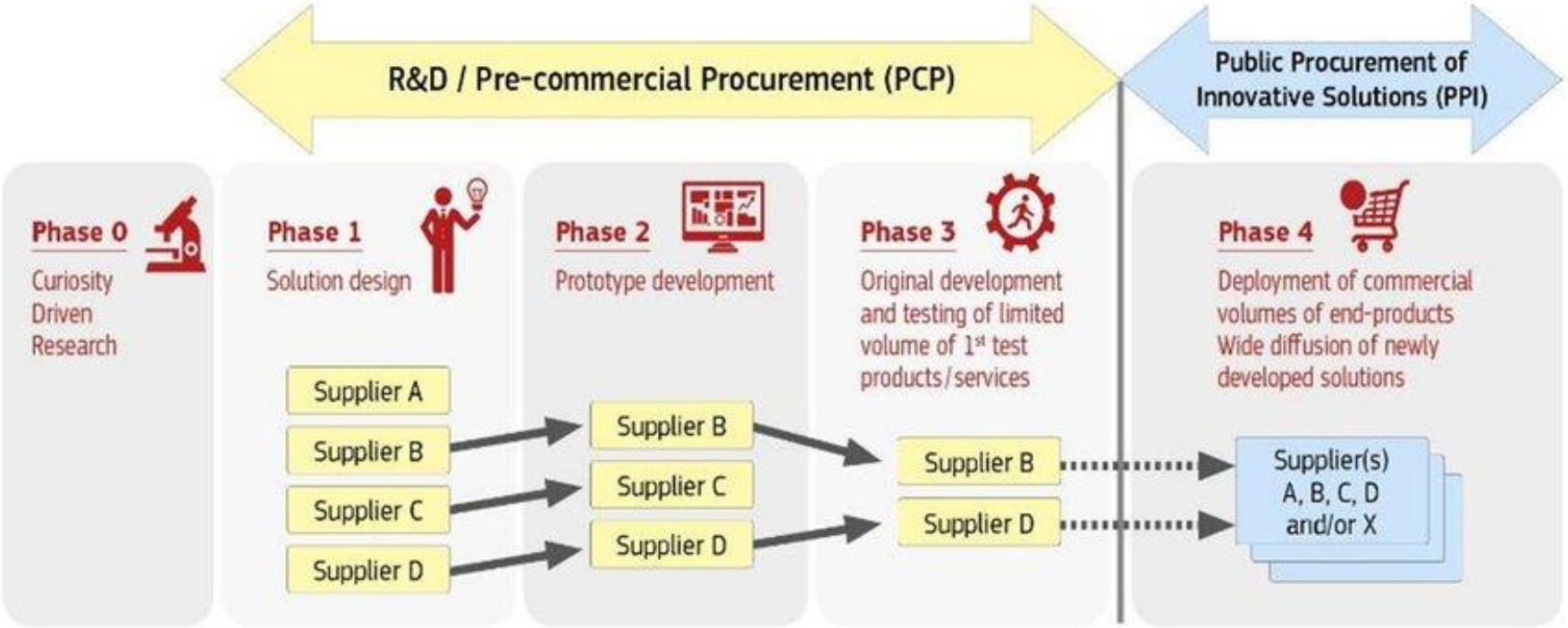
Strategic role of public procurement

- “Public authorities can use [procurement] in a more strategic manner, to obtain better value for each euro of public money spent and to contribute to a more innovative, sustainable, inclusive and competitive economy.”

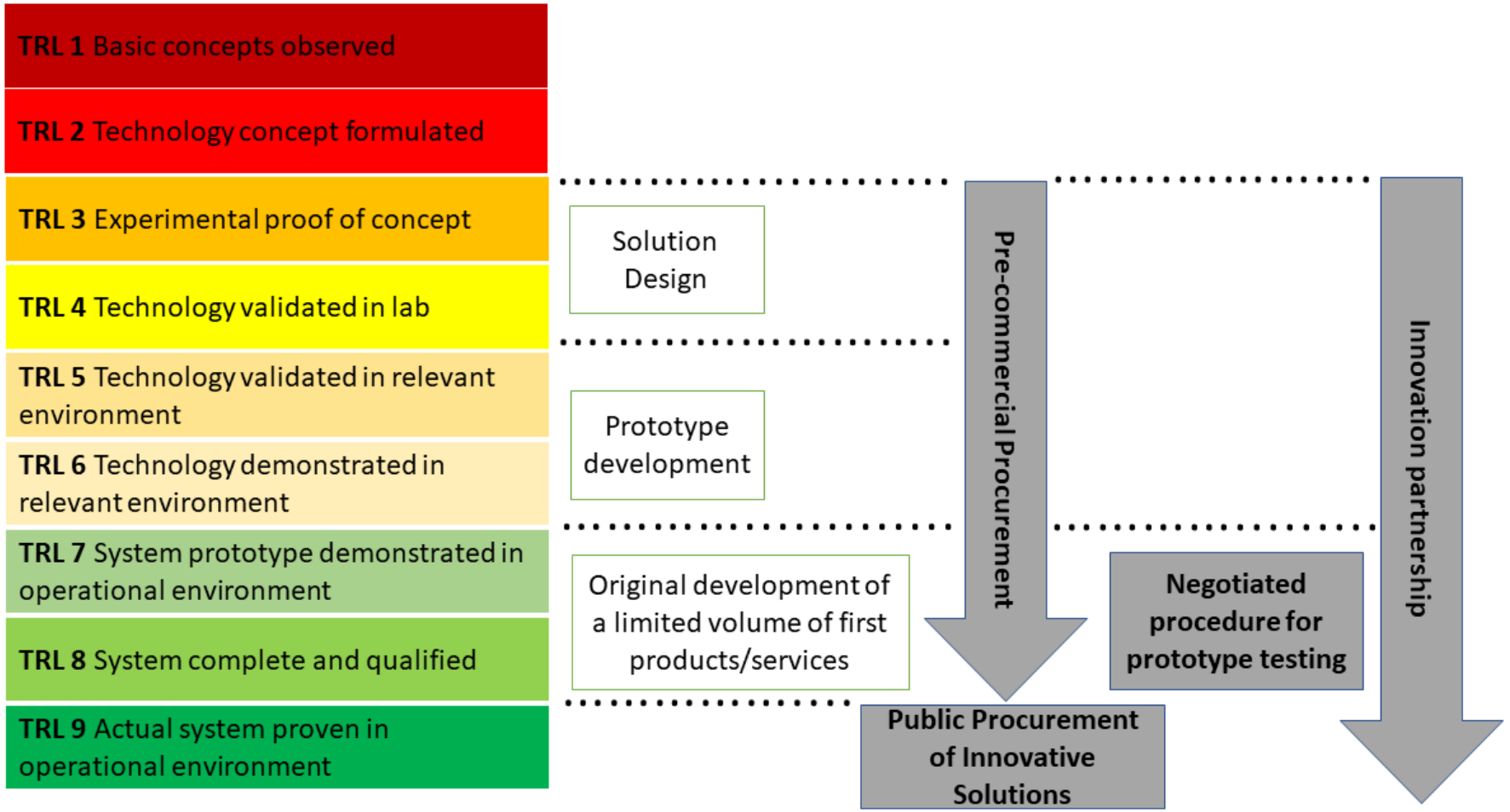
- (European Commission COM (2017) 572 final)

2. What is Innovation Public Procurement and its two modalities: PCP and PPI

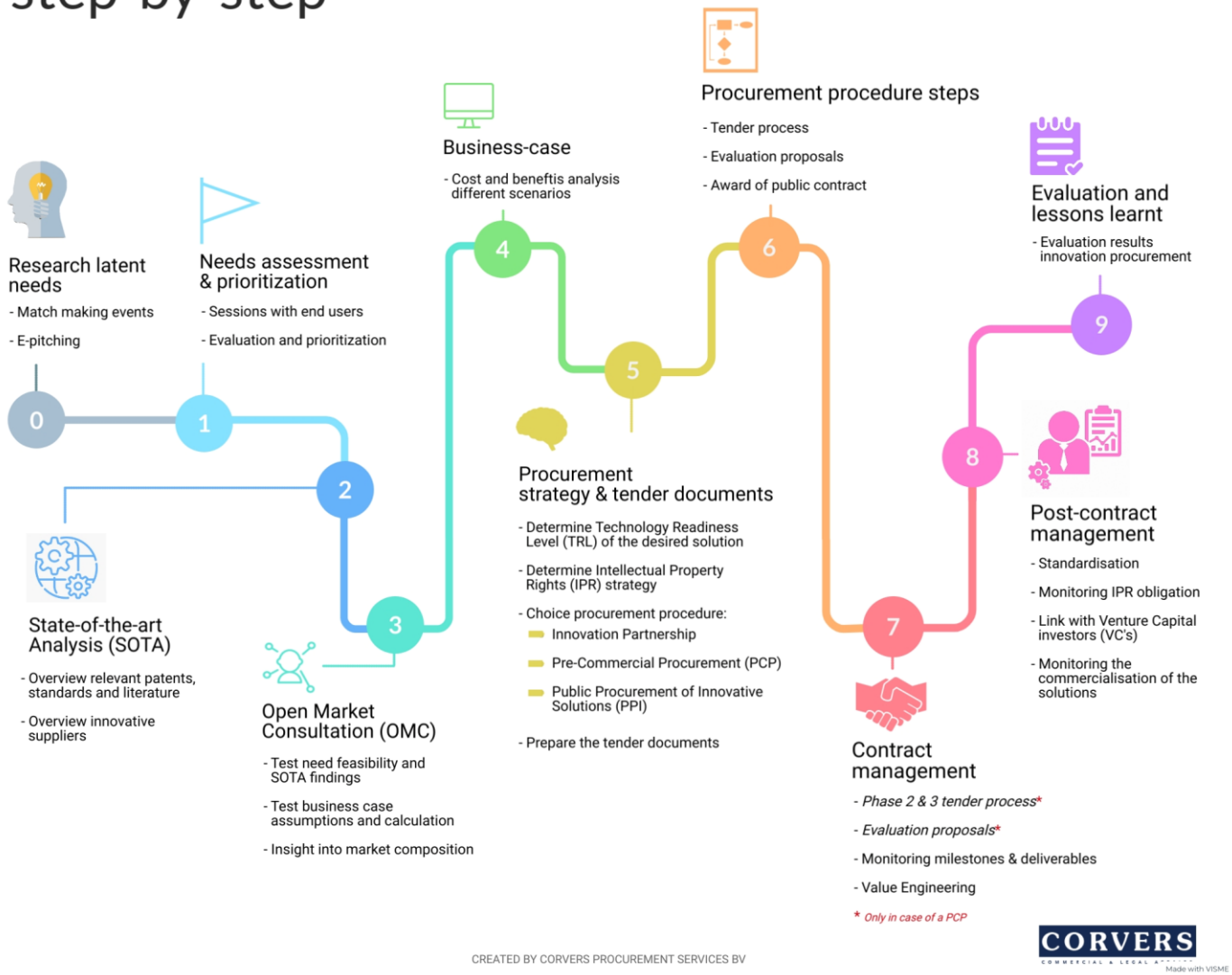
Innovation Procurement happens when ***public buyers*** *acquire the* ***development or deployment of pioneering innovative solutions*** *to* ***address specific mid-to-long term public sector needs****.*



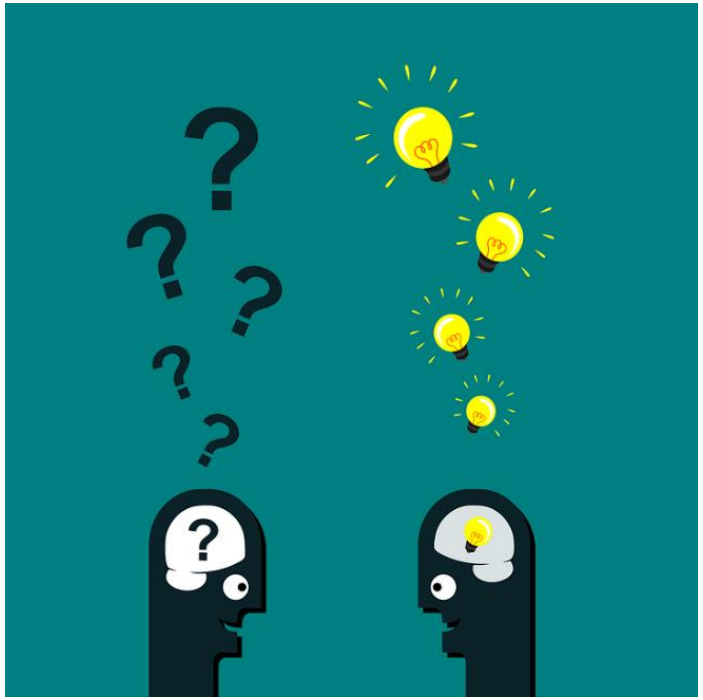
Technology Readiness Level (TRL)



EAFIP methodology step-by-step



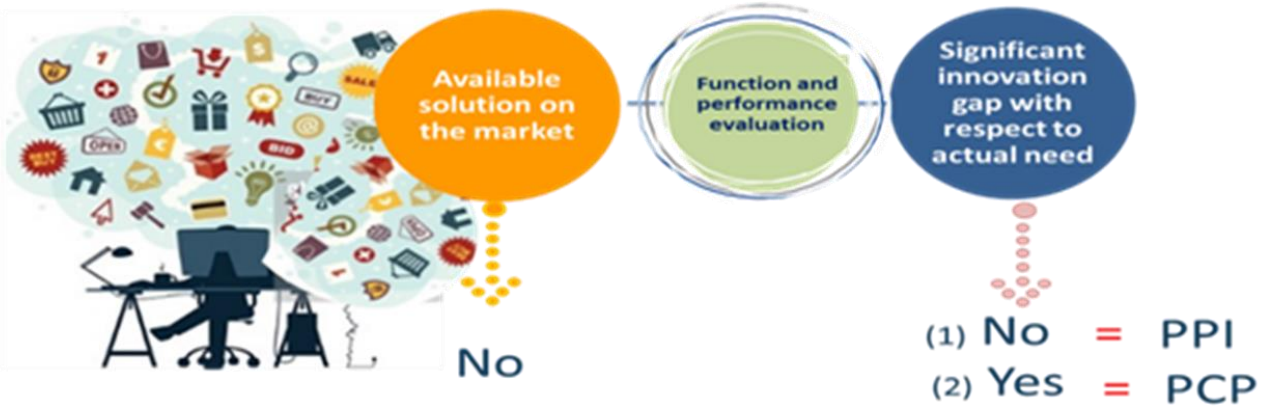
3. Pre-Commercial Procurement (PCP)



PCP approach

- **R&D is needed to identify an innovative solution** to satisfy public procurers' needs.

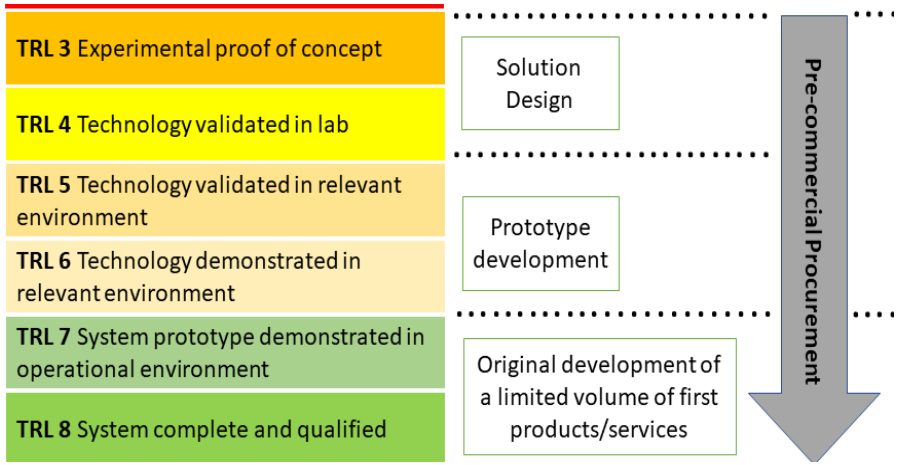
- **No solutions exist yet on the market** that meet public procurers' needs and based on a search conducted by the procurers, it does not seem that such a solution will be available on a short-term notice.

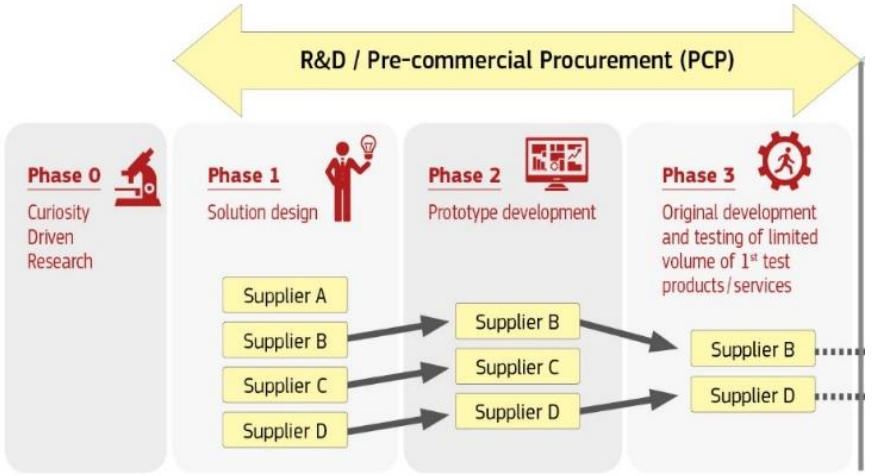


(1) Improvements are needed but don't require new and significant R&D (only integration, incremental adaptations and improvement, customization…), so authority can act as early adopter of innovative commercial end-solutions newly arriving on the market

(2) There isn't any solution or the problem is so technologically demanding that a radical and breakthrough new solution and significant R&D is needed.

PCP approach





PCP is a public procurement of Research and Development **(R&D) services** characterized by:

- **competitive** development in **phases**
- **risk-benefit sharing** under market conditions → Public procurer does not pay the full cost of the R&D performed under the contract
- a clear **separation** between the procurement of the R&D from the deployment of **commercial volumes of end-products**

Legal Framework for PCP

- **PCP falls outside the scope of the European Public Procurement Directives**

  Article 14 D. 2014/24/EU, Article 32 D. 2014/25/EU and Article 25 D. 2014/23/EU

  "this Directive shall only apply to public service contracts for research and development services […] provided that both of the following conditions are fulfilled: (i) the benefits accrue exclusively to the contracting authority for its use in the conduct of its own affairs, and (ii) the service provided is wholly remunerated by the contracting authority".

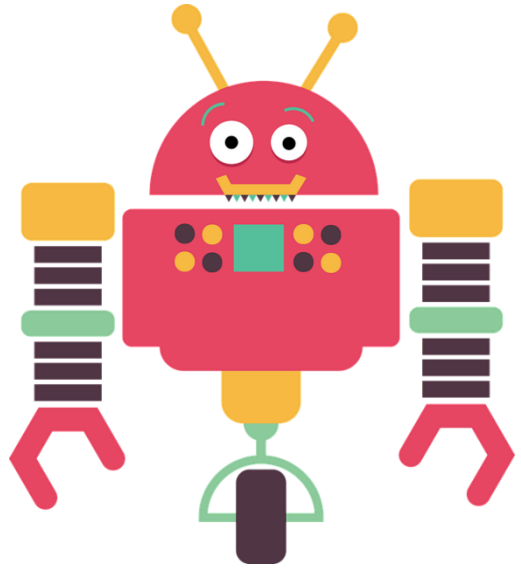
- The **general principles of the TFEU** are applicable.

- Communication from the Commission, "**Pre-commercial procurement: driving innovation to ensure sustainable high quality public services in Europe**", COM(2007) 799 final, 14.12.2007

- Commission Staff Working Document, Example of a possible approach for procuring R&D services SEC(2007) 1668

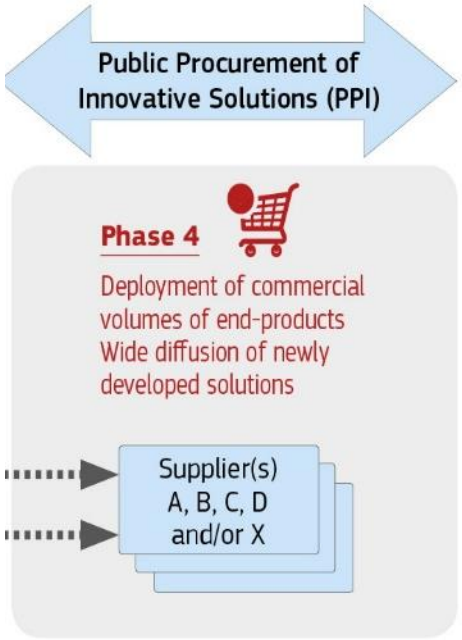
- 2014 Framework for state aid for R&D&I

4. Public Procurement of Innovative Solutions (PPI)



PPI approach

- Purchase of **innovative solutions** which are **not yet available on a large-scale** commercial basis.



PPI is characterized by:

- It does not include R&D (it has already been conducted or it is not needed).
- The contracting authority act as a **launching customer** of innovative goods or services to trigger a market response.
- It may include conformance testing.
- It falls within the scope of the European Public Procurement Directives.

Legal Framework for PPI

- **PPI falls within the scope of the European Public Procurement Directives**

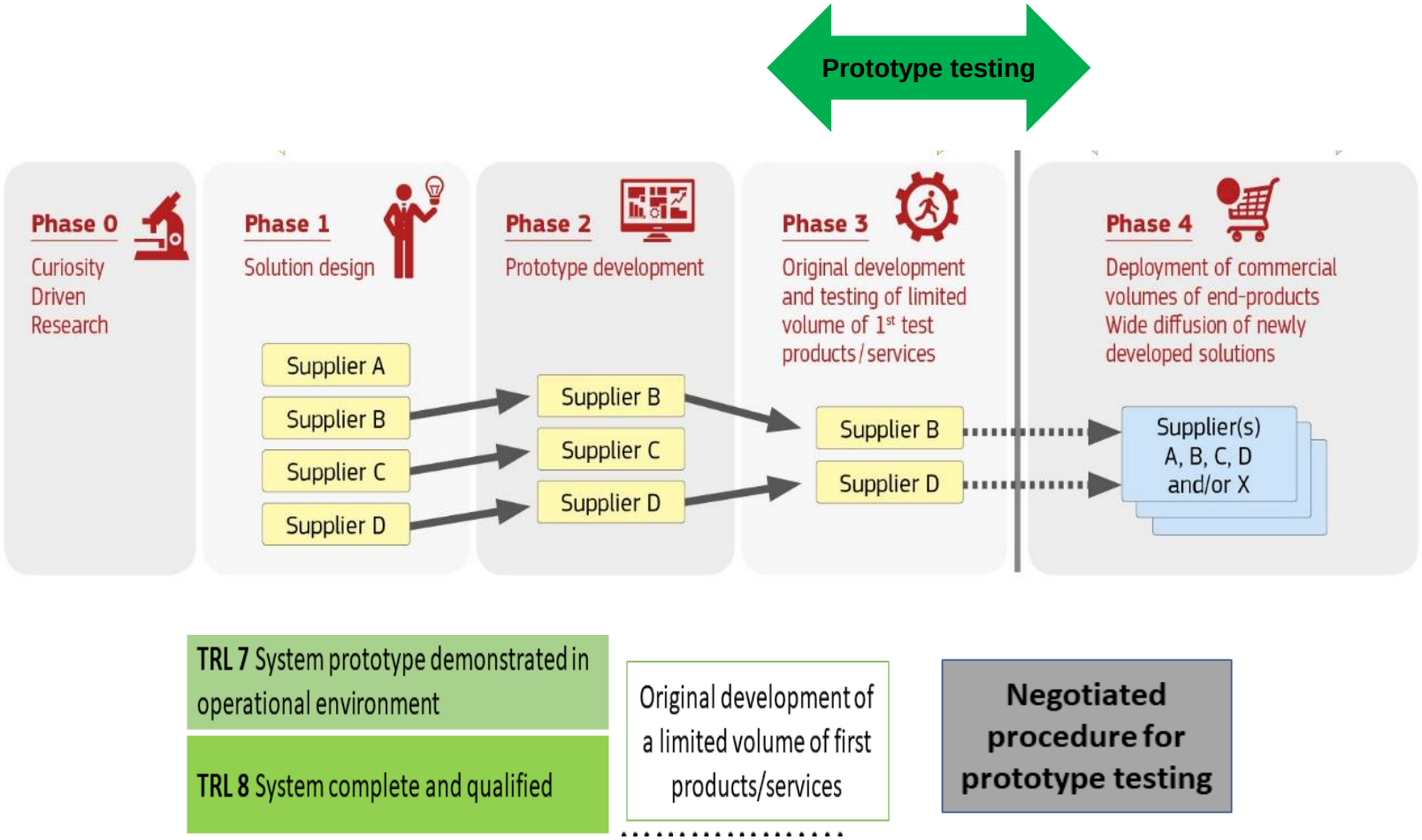
  Use the procurement procedures contemplated in the Directives (Article 26 of D.2014/24/EU and similarly Article 44 D.2014/25/EU)

  “When awarding public contracts, contracting authorities shall apply the national procedures adjusted to be in conformity with this Directive”.

- The **general principles of the TFEU** are applicable

Prototype testing

Prototype testing approach



Legal Framework for Prototype testing

Regulated in the Public Procurement Directives

- Art. 32(3)(a) Directive 2014/24/EU and art. 50(b) Directive 2014/25/EU
- Recital 50 Directive 2014/24/EU

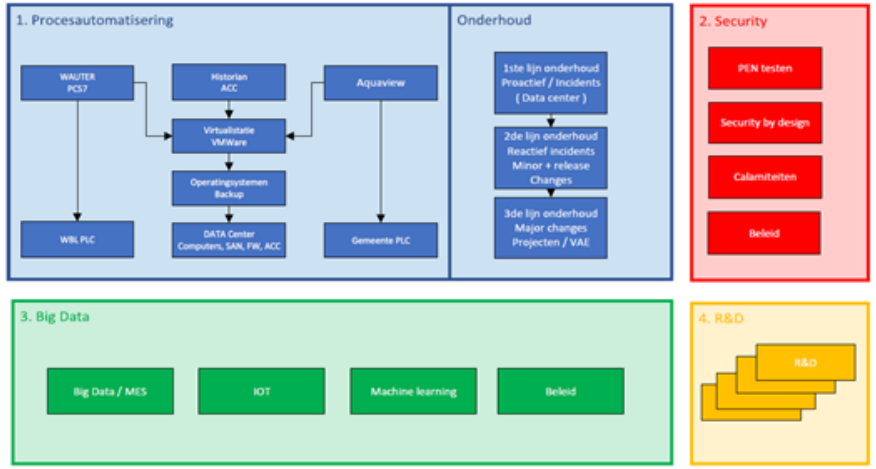
> The negotiated procedure without prior publication may be used for public supply contracts:
> (a) where the **products involved are manufactured purely for the purpose of research, experimentation, study or development**; however, contracts awarded pursuant to this point shall **not include quantity production to establish commercial viability or to recover research and development costs.**

PCP and PPI examples

Project	PCP/PPI	Procurer	Technologies	Sector
AI Models for water management	**PCP**	Waterschapsbedrijf Limburg (WBL)	AI, Machine learning, Big data, Cybersecurity	**Water**
Muntstroom Living Lab	**PCP**	STIB-MIVB	Sensor-data, Internet of Things (IoT), Machine Learning (AI) on real-time data in a geospatial context.	**Smart cities**
Smart Tech saving lifes	**PPI**	Smart Dublin	IoT network to monitor and report life rings	**Smart cities**
Ambulance Navigation and Information System	**PPI**	RAV Brabant MWN	Cybersecurity, Global Navigation Satellite System, Map applications, Encrypted communication.	**First responders**

WBL PCP of AI models for water management

- WBL challenged the market to develop innovative solutions/algorithms to continuously analyse measured values and to convert these into intelligent signals that tell whether and what has changed in the system. Because of the many different types of sensors in the field, WBL has a large amount of data to process in real time.
- The quality of the data must be monitored, and the structure of the data must be able to be changed easily and quickly, thus increasing the value of (Big) data for WBL. This will allow for more efficient planning of inspection and maintenance rounds and eventually lead to efficiency gains and cost reduction.



Prior Information Notice - PIN

Services - 575861-2019 - TED Tenders Electronic Daily (europa.eu)

waterschapsbedrijf limburg

Waterschapsbedrijf Limburg (WBL) - European Assistance for Innovation Procurement (eafip.eu)

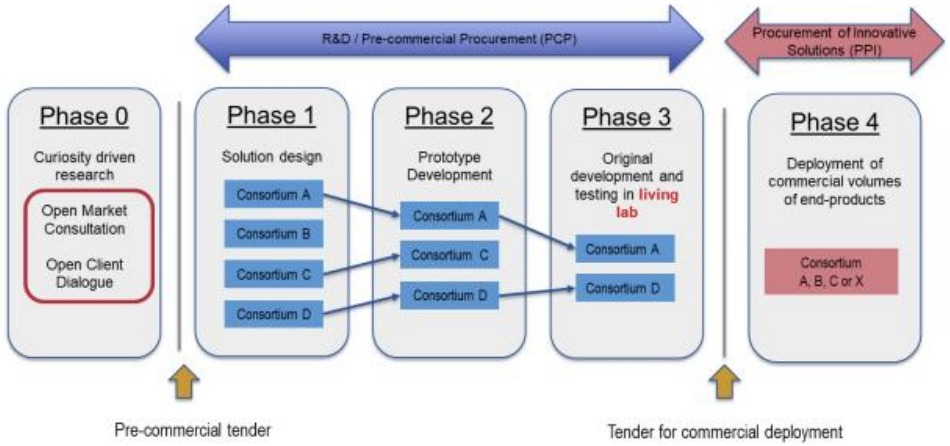
Muntstroom Living Lab PCP

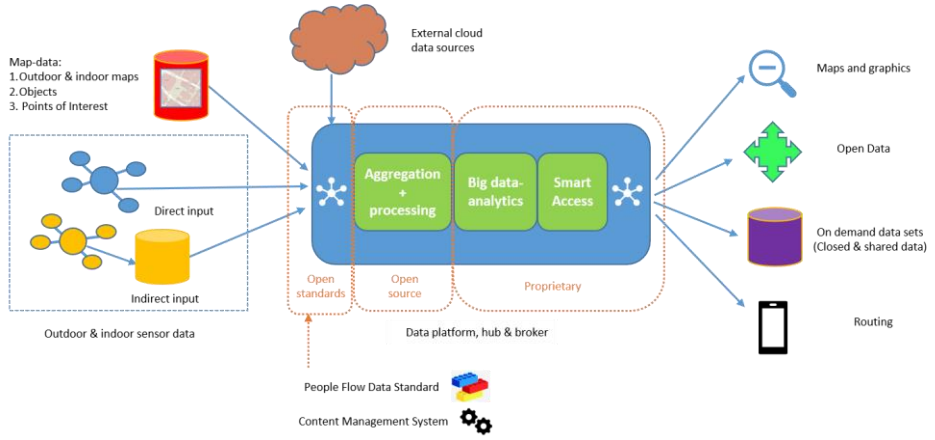
- The project Muntstroom Living Lab aims to measure, visualize and influence multi-modal people flow on, around and under the Brussels' Place de la Monnaie / Muntplein (outdoor and indoor). Planned under the Belgian digital/ICT strategy, the Muntstroom Living Lab is one of the first steps towards a common Mobility as a Service (MaaS) platform for the Brussels Capital Region (BCR).
- Public transport operator STIB-MIVB is lead procurer for a consortium of 4 public partners

Market consultation report_final.pdf (stib-mivb.be)

Services - 472051-2021 - TED Tenders Electronic Daily (europa.eu)

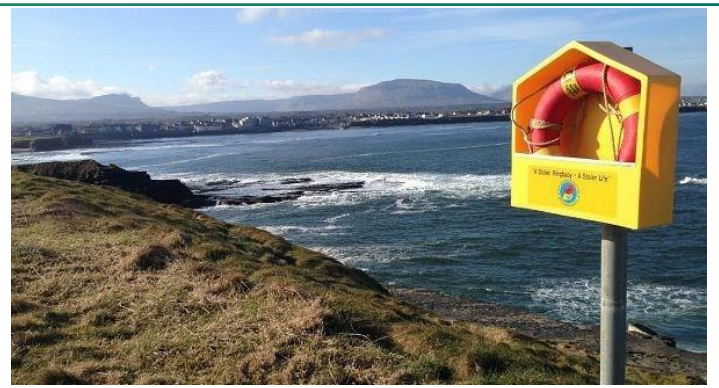
STIB-MIVB - European Assistance for Innovation Procurement (eafip.eu)

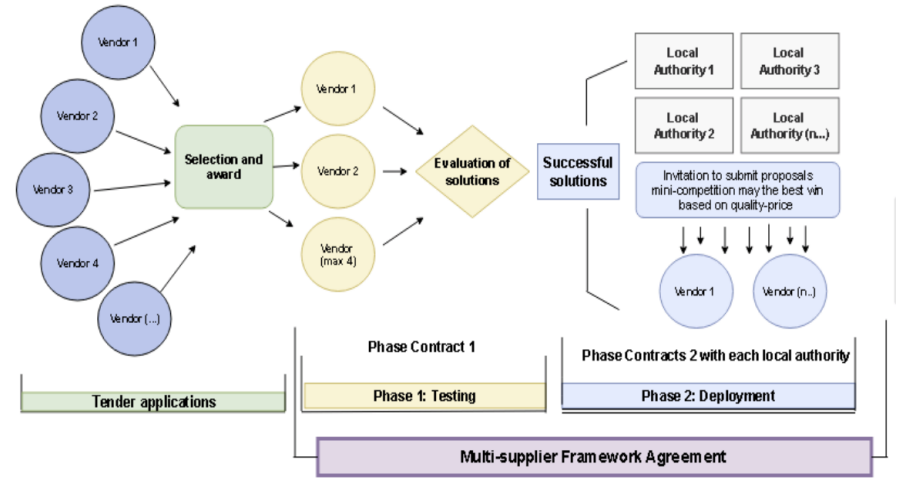




Smart Tech saving lifes

- Low-cost Low-Power Wide Area Network (LPWAN – a new type of connectivity innovation) sensors were to be trialed in this project.
- Such sensors had not been used for monitoring ring buoys before. They are much cheaper to manage than standard cellular/SIM solutions which had been trialed in the past. They also require significantly less power, which means each sensor can be deployed for up to 10 years on a battery without requiring any mains power.
- Using such simple tools to improve the efficiency and sustainability of a life-saving device was the expected innovation. The sensors are connected to a dashboard and alert system.





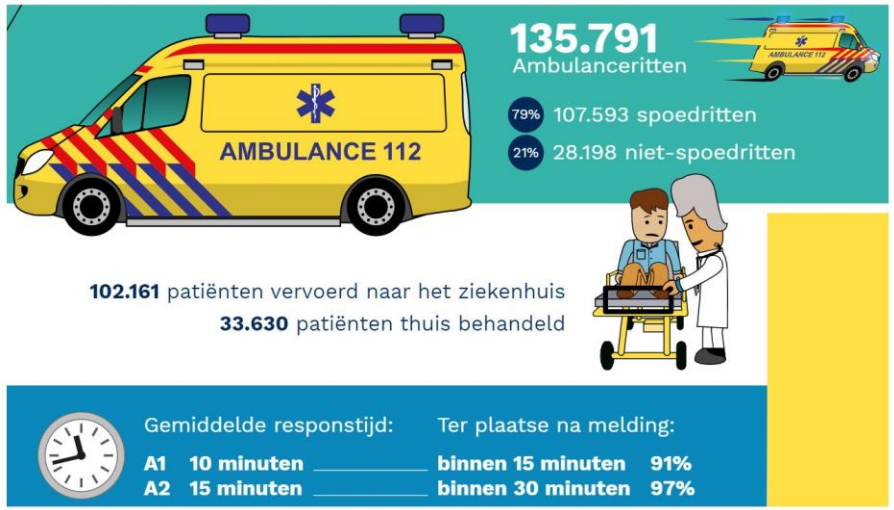
Contract notice & contract award notice

Publication (eu-supply.com)

Services - 361503-2020 - TED Tenders Electronic Daily (europa.eu)

Dublin City Council - Smart Dublin - European Assistance for Innovation Procurement (eafip.eu)

Ambulance Navigation and Information System



RAV

Brabant Midden-West-Noord

End-to-end solution, easy to replace in case of breakdown, with increased location precision, immediate response time and less margin of error. → **Public Procurement of Innovative Solutions (PPI)**

Based on a map/application that already includes considerable amounts of geolocation information and Points of Interest but should also allow RAV Brabant MWN to include new information. → **Use of Galileo Public Regulated Service (PRS) channels .**

The information that has to be shared to provide for a better health service has to be protected/encrypted because it is sensitive information. → **RAV Brabant MWN working with VZVZ** to ensure the deployed solution is **compliant with high personal data and security standards**.

Supplies - 518104-2022 - TED Tenders Electronic Daily (europa.eu)

5. Conclusions and lessons learnt

- The EU legal framework provides flexibility and different tools for Innovation Procurement.

→ It is important to understand when and how to use them .

- Innovation Procurement in its two modalities - PCP and PPI - has a multi-fold strategic role.

→ To improve public services, contribute to the economy, strengthen autonomy and resilience.

- PCP is the purchase of R&D for breakthrough innovative solutions in a competitive process in phases.

→ The EAFIP step-by-step methodology can guide PCP and PPI projects to achieve results.

Lessons learnt from PCP

- Improving the quality and efficiency of public services
  - PCPs delivered solutions that improve quality and / or efficiency
  - Procurers use PCP also to obtain more open, interoperable solutions
- Separating PCP (R&D) from PPI (commercial volume deployment) and using a phased PCP approach:
  - Opens the market for small players/SMEs (smaller gradually growing contract sizes)
  - Enables procurers to steer industry R&D to meet their needs, achieve desired quality and efficiency improvements in public services and reduce vendor lock-in
  - Stimulates cooperation with universities and larger companies
  - Enables use of place of performance clauses that create growth/jobs in Europe
- Joint cross-border PCP procurement
  - Stimulates cross-border company growth
  - Facilitates the creation of more open standards based interoperable solutions
- Leaving IPR ownership rights with contractors
  - Reduces the cost / the R&D risk for procurers with 50%
  - Encourages wider commercialisation of solutions by vendors
- Using a place of performance condition in PCPs
  - Can effectively stimulate growth and job creation in Europe

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Thank you!

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Corvers Procurement Services B.V.

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