EU Funding Opportunities for FVL Players

Pursuing Green Initiatives for Europe's Transport Sector

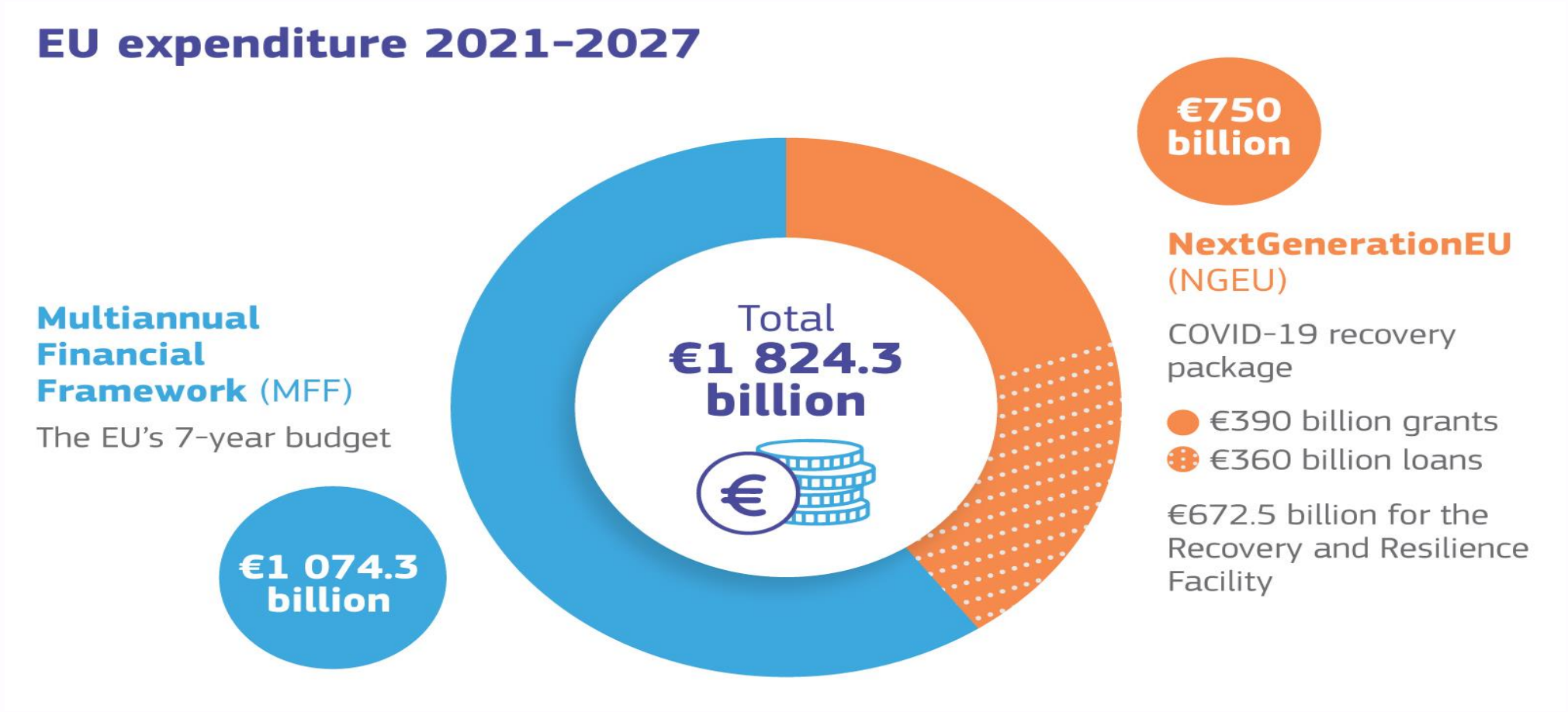
Presented by Namrita Chow

Part 1

Overview of Funds, Criteria, Projects

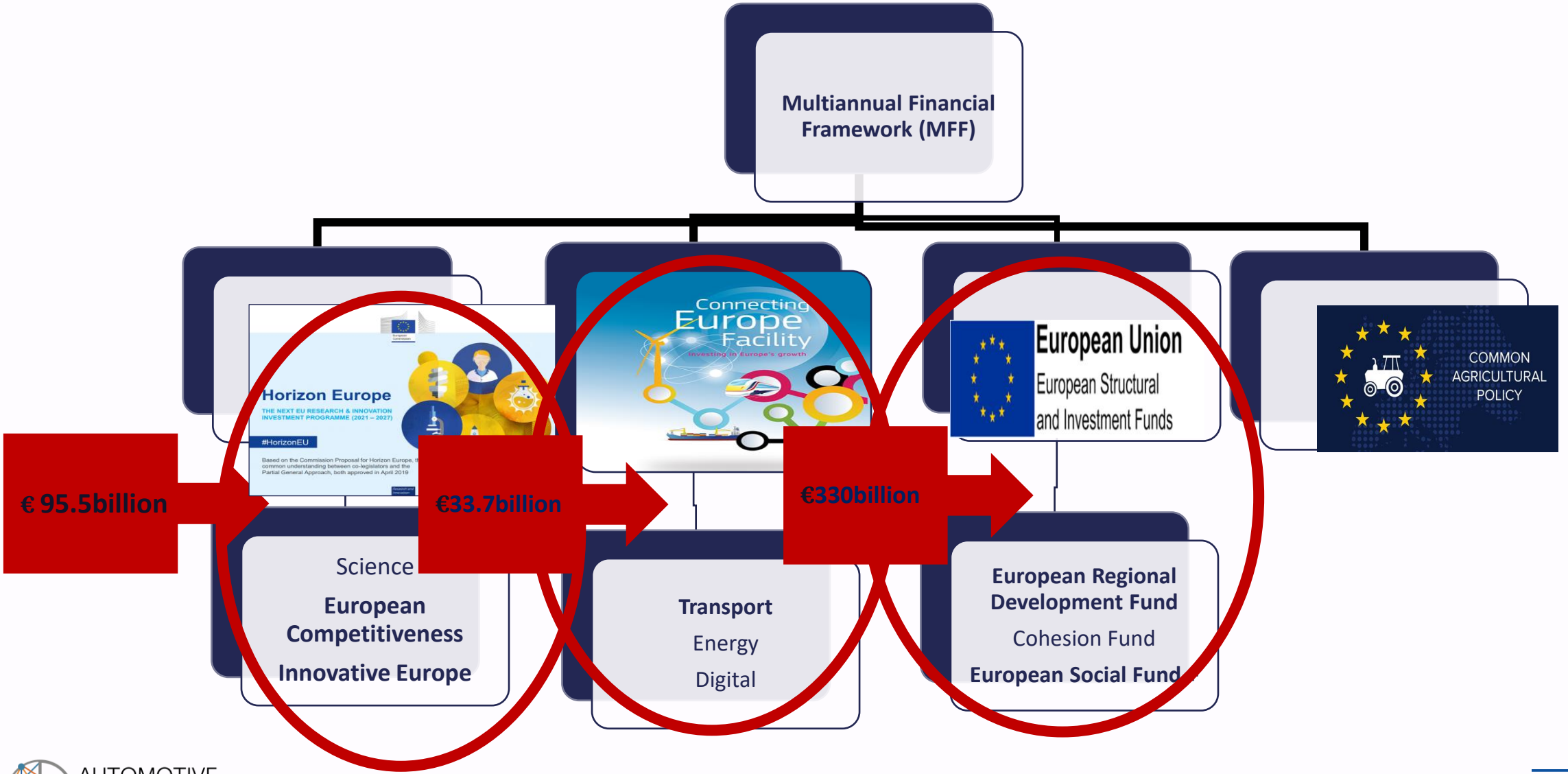
Disclaimer: All examples used are for illustrative purposes only and do not represent official Horizon Europe views

Overview: EU Budget 2021-2027 + Covid Recovery



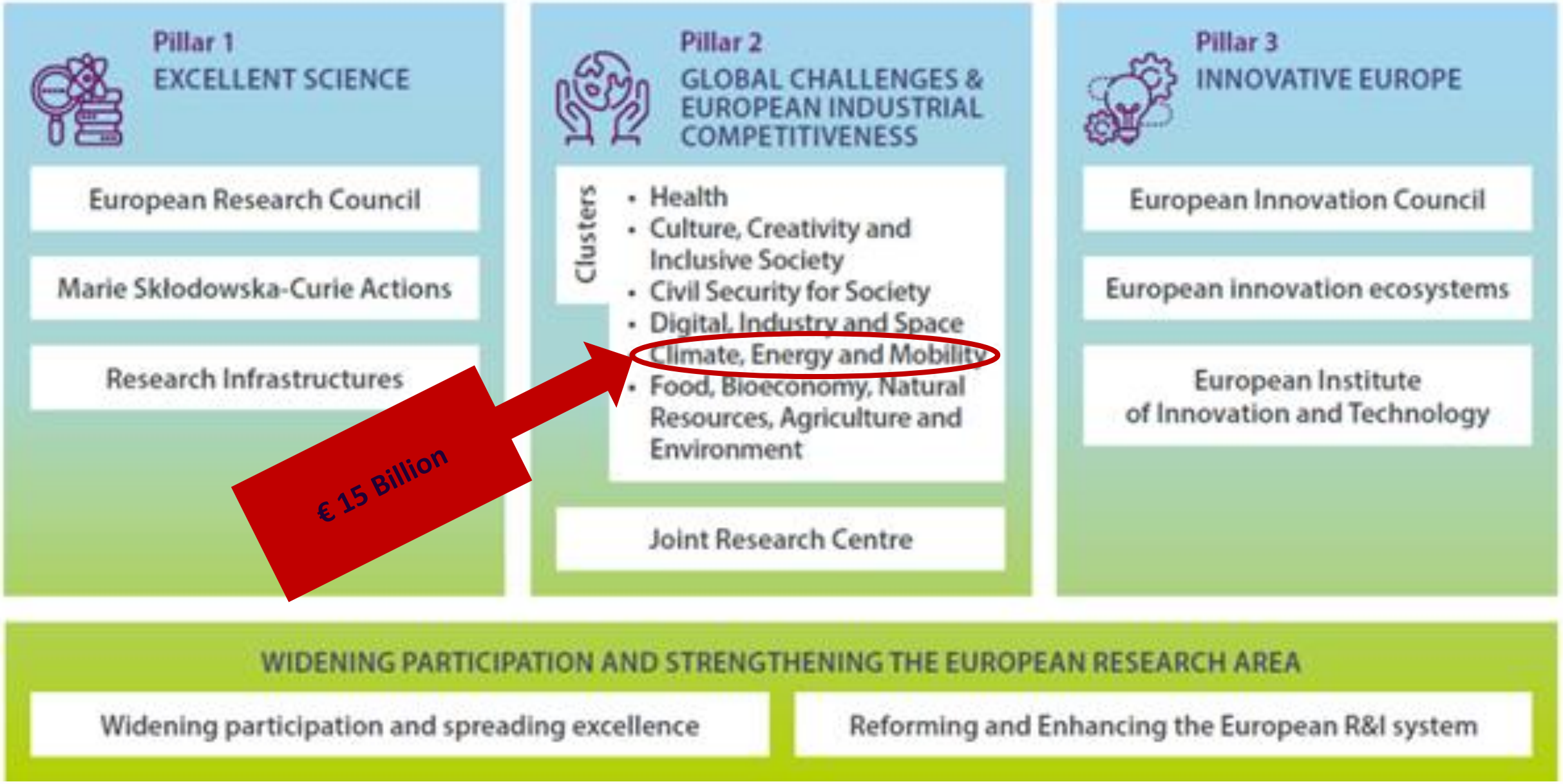
€1074.3 billion + €750 billion = €1.8 trillion

Potential pots for vehicle logistics



Note: Main projects relevant to vehicle logistics players **in bold** under each Fund.

Horizon Europe's 3 Pillars



Criteria for EU Transport Funding

- **Decarbonising European Transport**: Funding is highly focused on vehicles with zero tailpipe emissions, but also scaling up research and investment in green transport technology and alternative fuels, while developing digitalised, more efficient, low-emission transport and freight networks.

Key focus areas:

- **Decarbonising European Passenger Cars**: Scale up research and investment in batteries and other low-emission technologies
- **Decarbonising European Trucking**: Battery-electric and hydrogen fuelled long-haul trucks
- **Decarbonising European Shipping**: Projects to enhance research into using battery electric and green hydrogen/ammonia-based propulsion systems including fuel cells

- **Freight Digitalisation and Multimodality:** Focus on automation and system integration, as well as efficiency opportunities across transport modes to reduce emissions and waste

Funding no longer provided for any further development or optimisation of internal combustion engines, including gasoline.

Part 2

Horizon Europe: Destination 5 & 6

Call: Clean & Competitive Solutions for all Transport modes

Call: Safe, Resilient, Transport & Smart Mobility services for passengers & goods

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TOPIC ID: HORIZON-CL5-2022-D5-01-03, Exploiting renewable energy for shipping, in particular the potential of wind energy (ZEWT Partnership)

BUDGET: €18,000,000 in total, 2 projects expected

Action: RIA
TRL: 5

Call: **Clean and competitive solutions for all transport modes**

- Planned opening date: **02 December 2021**. Deadline: **26 April 2022**, **17:00 CET**.
- Enable the medium-term adoption of automated wind technologies for long-distance maritime transport.
- Projects should address both retrofitting existing ships and new purpose-built designs.
- Prove the large-scale viability of power generation and propulsion assistance systems for shipping using renewable energies such as wind and solar.
- System designs (including modular/drop-in) to reduce costs and increase confidence in refitting existing vessels across several types of ships and different forms of renewable energy.
- Should include power management architectures and energy efficiency solutions (including wind-assisted and wind-based propulsion) for purpose-built new ships with 'wind-ready' designs. Demonstrate efficiency gains of at least 15% for power generation or at least 25% for propulsion purposes.
- Summary and analysis of pertinent regulatory issues and how to address them.
- Documentation of skills requirements and incentives for crew, different ship types and renewables adopted.

*ZEWT: Zero Emission Waterborne Transport

Example: Renewable energy for shipping, focus on wind energy

Neoliner: Groupe Renault and Neoline create a new wind-based maritime transport solution

- Project aims to help to reduce Renault's logistics carbon footprint by 25% between 2010-2022.
- 3-year partnership between Renault and startup Neoline to develop marine transport service powered by wind.
- Transatlantic pilot with 2 wind-powered cargo ships.
- 136-metres long, 24.2 metres wide, 11 knots in sailing speed.
- Cargo capacity:
  - 280 TEU, 478 cars
  - Cargo access: up to 9.8-metre height
- Main propulsion: 4,200 sq.m of sails.
- Auxiliary Propulsion: Diesel-electric 4,000 kW.
- First service expected in 2023, second in 2024.

neoline.eu

Example: Renewable energy for shipping, focus on wind energy

The Oceanbird: Sweden's Wallenius Marine AB builds wind powered automobile carrier

- Wallenius and Alfa Laval combine strengths to build Oceanbird
  - Cargo vessel is 200-metres long, 40-metres wide.
  - Wingsails 80-metres tall, ability to lower sails when strong winds, passing under bridges.
  - Ability to cross the Atlantic in 12 days, cut CO_2 emissions by 90%.
  - Auxiliary engine to get in and out of harbours.
  - Capacity to carry 7,000 cars.
  - Start of service expected 2024.
  - Concept developed by Wallenius, KTH Royal Institute of Technology Stockholm and SSPA.
  - Funded partly by Swedish Transport Administration.
  - Research project under wPCC – Wind Powered Car Carrier.

www.theoceanbird.com

ID: HORIZON-CL5-2022-D5-01-04, Transformation of the existing fleet towards greener operations through retrofitting (ZEWT* Partnership)

Action: IA
TRL: 7-8

BUDGET: €25,000,000 total, 5 projects expected

Call: **Clean and competitive solutions for all transport modes**

- Planned opening date: **02 December 2021**. Deadline: **26 April 2022**, **17:00 CET**.
- Accelerate climate neutrality of waterborne transport through retrofit modifications to existing fleet.
- Establish new business models, industry standards, regulatory approvals, best practice guidance, and easy-to-customise strategies for retrofitting – which will reduce the commercial risk of deployment.
- Activities are expected to achieve TRL 7-8 by the end of the project.
- Retrofit solutions to reduce GHG emissions that are ready to deploy. The target is to achieve a GHG emissions reduction of at least 35% compared to the original design.
- Retrofit solutions which significantly reduce GHG emissions through partial or full electrification. Indicative examples are battery ICE hybridisation for the main propulsion system and auxiliary power, electric network reconfiguration, electrical power management.

* ZEWT: Zero Emission Waterborne Transport

Example Green technologies to retrofit across fleets

Green Ship of the Future (GSF), joint Dutch Maritime Cluster

Retrofit Changes made under GSF:

1 Engines: Selective Catalytic Reduction systems to marine engines, reduce NO_X by 80%.

2 Fuel: Liquid Natural Gas cuts CO_2 by 25%, NO_X by 35%, SO_X by 100% (when moving from diesel)

3 Waste Heat: Waste Heat Recovery Utilisation Systems saves 20% of ship's total annual fuel consumption

4 Scrubber Systems: Scrubber System to reduce particulate matter by 80%, SOX by 98%.

5 Exhaust Gas Recirculation: Exhaust Gas Recirculation System reduces NO_X by 80%

6 Trim Optimisation: Programming matrix to optimise trim sees fuel reduction in 80% of voyages.

7 Cooling Systems: Installing variable speed pump with self-tuning control algorithms saves 731 tonnes CO_2.

8 Operations: Attune machinery to maximise energy savings using operational tools.

9 Turbochargers: Use of turbochargers reduces fuel consumption.

10 Biocide-free Paint: Using biocide free paint with hydrogen coating reduces pollutants and CO_2 emissions.

Project partners

WÄRTSILÄ · THE DANISH MARITIME FUND · HAFNIA Member of BW Group · DFDS · MAERSK TANKERS · ALFA LAVAL · BOS · C.C.JENSEN · Clorius CONTROLS · DANISH ENERGY CONSULTING · DEIF · DESMI · DNV·GL · GREENSTEAM · HEMPEL · KONGSBERG · MAN Energy Solutions · NORSEPOWER · OPTIMUM VOYAGE · orcan · Royston

Retrofitting to reduce CO_2 emission – *a case study of three different vessels*

GREEN SHIP OF THE FUTURE
www.greenship.org

greenship.org

HORIZON-CL5-2022-D6-01-04, Integrate CCAM services in fleet and traffic management systems (CCAM Partnership*)

BUDGET: €10,000,000 total, 2 projects expected

Action: IA
TRL: 6-7

Call: **Safe, Resilient Transport and Smart Mobility services for passengers and goods (HORIZON-CL5-2022-D6-01)**

Planned opening date **14 October 2021**, Deadline **12 January 2022**, **17:00 CET**.

- Develop and demonstrate concepts of fleet management to achieve a desirable integration of CCAM vehicles in the mobility system.
- Actions should address both the transport of people and goods with automated fleets and individual vehicles integrated in the entire traffic management system.
- Address technology gaps to foster vehicle integration, communication and better manoeuvre coordination and other shared mobility concepts.
- Involves planning, forecasting and managing fleet and individual vehicles' movements according to specific needs.
- Actions expected to address intermodal interfaces and interoperability between traffic management systems from one geographical location to another

* Connected, Cooperative and Automated Mobility (CCAM),
CCAM - European Partnership on Connected, Cooperative and Automated Mobility

Example: Integrate CCAM services in fleet

Ensemble: Multi-brand truck platooning

Total Cost: €26,064,297, EU Contribution: €19,802,512

Duration: 1/6/2018 - 31/05/2021

- Interoperable platooning
- Safe platooning
- Real-life platooning
- Embedded platooning

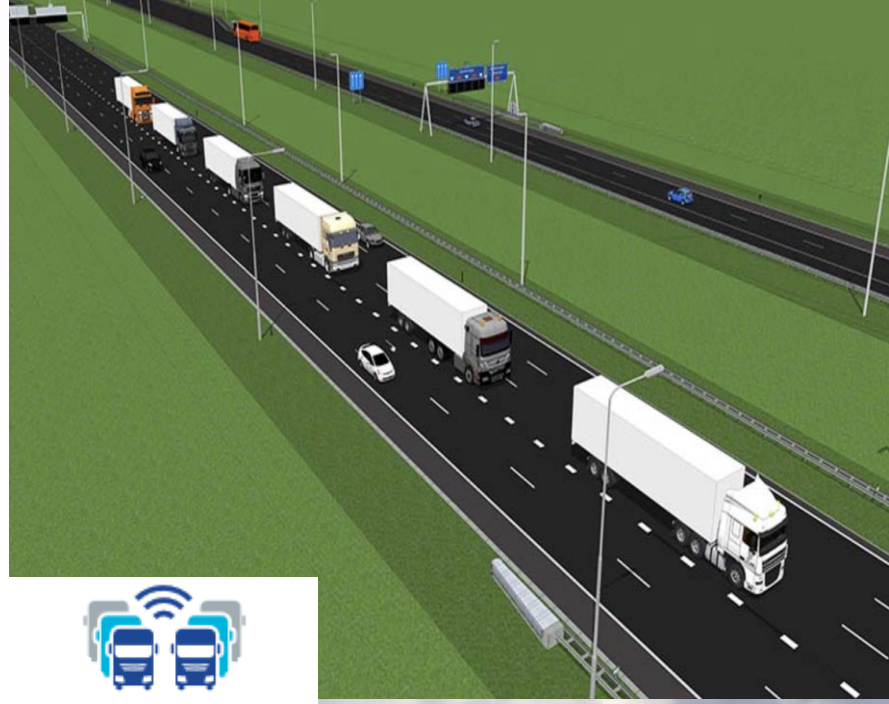
(1) Platooning as a support function

- Safety improvement
- Driver assistance
- Traffic fluency by coordinated and harmonised acceleration and deceleration of trucks

(2) Platooning as an autonomous function

- Fuel efficiency
- Logistics operation efficiency

Platooningensemble.eu



ID: HORIZON-CL5-2022-D6-02-01, Logistics networks integration and harmonisation through operational connectivity to optimise freight flows and drive logistics to climate neutrality
BUDGET: EUR 15,000,000 total, 2 projects expected

Action: IA
TRL: 6-7

Call: **Safe, Resilient Transport and Smart Mobility services for passengers and goods**

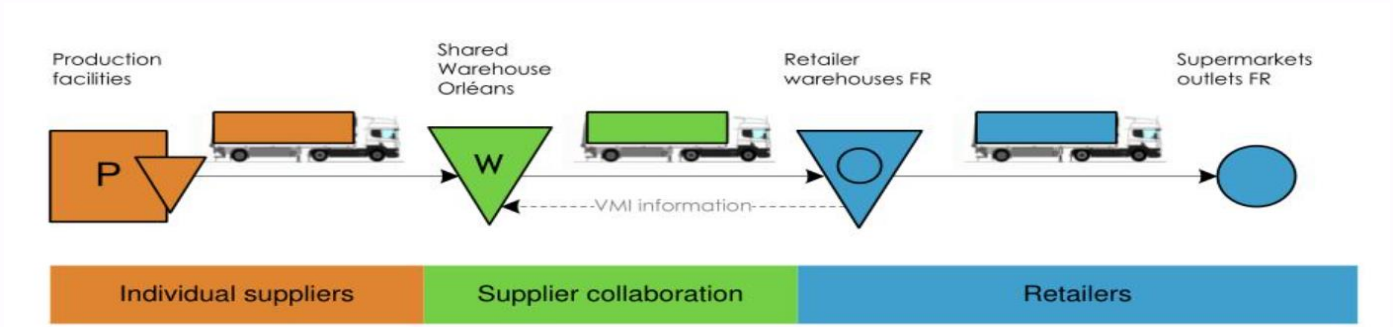
Planned opening date **28 April 2022,** Deadline **06 September 2022**, **17:00 CET**.

Two or more logistics providers or shippers should develop and demonstrate a systemic framework for connecting and pooling demand of various cargo owners to develop a system of shared logistics networks. Proposals should address all the following points and subpoints:

- Develop and demonstrate a robust and transparent collaborative framework with guiding principles to ensure operational connectivity of logistics networks (e.g. services, shared resources and assets, information and financial flows, etc.)
- Through the pilot cases and demonstrators:
  - Identify and demonstrate potential gains of these logistics networks compared to independent logistics networks in terms of emissions and energy consumption reduction and potential business models. Identify the main barriers and opportunities to achieve a system of logistics networks, propose solutions and pilot them.
  - Address governance aspects (e.g. how to organise and expand the logistic network with other logistics networks willing to join or how to legally engage with users of these shared logistics networks services and capabilities) and propose actions to accelerate organic and jointly acceptable growth of these logistics networks.
  - Identify innovative business models that address revenue sharing.

Example: Logistics network collaboration; safe resilient and smart mobility

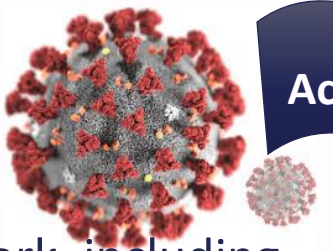
- CO3: Collaboration Concepts for Co-Modality
- Maximizing loads, improving vehicle utilisation, increase collaboration
- Shared warehouses, collaborative deliveries
- Shapley Concept: fairly distribute gains and costs in coalition to achieve payoff- Horizontal Collaboration
- Case Study: automotive plastics and steel shipments collaborative supply chain
  - The objective: to improve the efficiency, effectiveness and sustainability of logistics networks through orchestrated horizontal collaboration or “Carpooling for Cargo”



http://www.co3-project.eu

ID: HORIZON-CL5-2022-D6-02-07: New concepts and approaches for resilient and green freight transport and logistics networks against disruptive events (including pandemics)

BUDGET: €8,000,000 total, 2 projects expected.



Action: RIA

Call: **Safe, Resilient Transport and Smart Mobility services for passengers and goods**

Planned opening date **28 April 2022**, Deadline **06 September 2022, 17:00 CET**.

- Develop a more adaptive multimodal European freight transport and logistics network, including international connections, that reacts quickly to disruptions, minimises damage and shortens recovery time while significantly reducing emissions.
- Help to adopt cost-efficient business models and services towards resilient and zero-emission logistics.
- Evaluate the resilience of strategic logistics networks and their related data and IT systems and propose management systems.
- Develop and demonstrate how synchro-modal approaches (i.e. shipment split and merge, dynamic synchronisation of multimodal schedules, realignment in case of disruptions) provide resilience and sustainability by design to the freight transport and logistics networks in which these services operate.
- Develop business intelligence capabilities, such as intermodal freight corridor performance and resilient measurement and assessment.
- Explore potential synergies with projects funded under the Cluster 3 Civil Security for Society topic ‘Ensured infrastructure resilience in case of Pandemics’.

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