MEDIA KIT

TRANSCEND

TRANSPORT RESILIENCE AGAINST CYBER AND NON-CYBER EVENTS TO PREVENT NETWORK DISRUPTION

LUXEMBOURG
INSTITUTE OF SCIENCE
AND TECHNOLOGY

LIST

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FOREWORD

BUILDING RESILIENT FREIGHT NETWORKS: A COLLABORATIVE VISION FOR EUROPE'S TRANSPORT FUTURE

Transport networks are the backbone of the single market, enabling the efficient movement of people and goods. However, their complexity and interdependence make them particularly vulnerable to disruptions, which can have far-reaching economic impacts across the EU. To address these challenges, it is crucial to move beyond traditional risk management and focus on resilience—ensuring the ability to prevent, resist, absorb, and recover from unexpected disruptions to maintain business continuity.

TRANSCEND exemplifies this vision, bringing together a robust consortium of seven Luxembourg-based partners, including academic institutions, industry leaders, and public sector organizations, alongside key European collaborators. By fostering a cohesive and integrated ecosystem, this collaboration aligns research objectives with national and EU priorities, particularly the implementation of directives such as the Critical Entities Resilience Directive and the Network and Information Security 2 Directive.

LUCIEN HOFFMANN

SCIENTIFIC DIRECTOR, LIST

"The consortium includes seven partners from Luxembourg, demonstrating a robust presence within the Luxembourg ecosystem. This collaboration fosters a cohesive and integrated ecosystem where knowledge and resources are shared, aligning research objectives with national priorities."

Lucien Hoffmann, Scientific Director, LIST.

STÉPHANIE OBERTIN

MINISTER FOR RESEARCH AND HIGHER EDUCATION

"This project is designed not only to develop knowledge but also, and above all, to provide a targeted solution to a concrete problem. It is a perfect illustration of the government's strategy to make research a driver of economic diversification and innovation. By encouraging public-private partnerships, we are strengthening the link between research and the real needs of the economy and society."

Stéphanie Obertin, Minister for Research and Higher Education.

Supported by Horizon Europe, the EU's premier research funding program, TRANSCEND demonstrates the power of international collaboration in driving innovation.

"The European Commission is proud to support the TRANSCEND project, a key initiative to strengthen the resilience of Europe's freight transport networks to cyber and Non-Cyber Events. In an increasingly interconnected world, ensuring the security of critical infrastructures is essential to protect our supply chains and support the competitiveness of the European economy. Through Horizon Europe, the Commission is committed to fostering innovation and collaboration, bringing together public and private actors to tackle complex challenges and improve the security and sustainability of Europe's transport ecosystem."

Anne Calteux, Head of Representation at Representation of EU Commission to Luxembourg.

ANNE CALTEUX

HEAD OF REPRESENTATION AT REPRESENTATION OF EU COMMISSION TO LUXEMBOURG.

PRESS RELEASE

TRANSCEND: SECURING FREIGHT TRANSPORT NETWORKS IN EUROPE

LIST launches European project on freight transport resilience to prevent network disruptions

The Luxembourg Institute of Science and Technology (LIST) kicked off TRANSCEND, a European Commission-funded project, on 14 January 2025 in the presence of Stéphanie Obertin, Minister for Research and Higher Education, and Anne Calteux, Head of Representation, European Commission. The project focuses on enhancing the resilience of freight transport networks against both cyber and non-cyber threats.

Coordinated by LIST, the project gathers a consortium of key players in Europe and in Luxembourg, including Cargolux Airlines International SA, its new subsidy LuxCargo Handling SA, Haut-Commissariat à la Protection Nationale, Institut Luxembourgeois de Régulation, Luxembourg House of Cybersecurity, Netcompany-Intrasoft SA, and the University of Luxembourg.

ADDRESSING CRITICAL VULNERABILITIES IN TRANSPORT NETWORKS

Transport networks are part of Europe's Critical Infrastructures (CIs), essential to maintaining the vital functions of the Single Market. These infrastructures, inherently complex and interconnected, are susceptible to large-scale disruptions that can have economic repercussions across the European Union (EU). In light of increasing cross-border interdependencies, a disruption in one Member State can easily cascade to others. With freight transport identified as a key sector, there is an urgent need to address vulnerabilities in the sector.

Although recognised as a critical sector, freight transport has been underrepresented in previous research projects, especially in the context of resilience against cyber and non-cyber events. Freight transport terminals, where goods are assembled and dispersed, are particularly vulnerable, and disruptions—such as those witnessed during the COVID-19 pandemic, the Suez Canal blockage, and cyber-attacks on oil ports—highlight the need for enhanced resilience measures.

"The European Commission is proud to support the TRANSCEND project, a key initiative to strengthen the resilience of Europe's freight transport networks to cyber and Non-Cyber Events. In an increasingly interconnected world, ensuring the security of critical infrastructures is essential to protect our supply chains and support the competitiveness of the European economy. Through Horizon Europe, the Commission is committed to fostering innovation and collaboration, bringing together public and private actors to tackle complex challenges and improve the security and sustainability of Europe's transport ecosystem," said Anne Calteux, Head of Representation at Representation of EU Commission to Luxembourg.

TRANSCEND: DRIVING RESILIENT FREIGHT FUTURES

The TRANSCEND project aims to tackle vulnerabilities by providing freight transport operators with an integrated set of tools, guidelines, and technological solutions. Its mission is to enable operators to reduce risk and improve their ability to prevent, withstand, absorb, and recover from both physical and cyber disruptions. A key outcome of the project will be the development of a Control Tower, a digital platform with embedded business intelligence that offers continuous visibility of threats and risks. By breaking down organisational silos, this platform will empower stakeholders with real-time information to enhance decision-making and resilience.

The project will involve five critical infrastructure operators across Europe, who will pilot the solutions developed through TRANSCEND. These diverse real-world test cases will demonstrate the wide-reaching impact of the project across the freight transport sector.

Cindy Guerlain, Partnership Officer, Logistics & Supply Chain and Smart Building, at LIST, stated:
"By focusing on freight transport, we are addressing a key sector that has been underrepresented in previous research. Our work will strengthen resilience not just in transport, but across the entire ecosystem of interconnected infrastructures. Through advanced tools like AI-driven predictive models, and real-world testing at major transport hubs, TRANSCEND is providing actionable solutions that can be adapted and scaled across Europe. These solutions will help operators prevent, manage, and recover from disruptions, whether they are physical, cyber, or hybrid threats."

A COLLABORATIVE EFFORT

The TRANSCEND project represents a truly collaborative effort, uniting Luxembourg's top research and cybersecurity institutions, government bodies, and key private sector partners with stakeholders from across Europe. By fostering a shared approach to tackling these critical issues, the project is poised to contribute significantly to securing Europe's freight transport networks and, by extension, the broader supply chain ecosystem.

As Europe continues to experience unprecedented levels of volatility, uncertainty, and complexity, TRANSCEND stands as a beacon of innovation, resilience, and collaboration, ensuring that critical infrastructure operators are better prepared for the challenges of tomorrow.

Stéphanie Obertin, Minister for Research and Higher Education, concluded:
"This project is designed not only to develop knowledge but also, and above all, to provide a targeted solution to a concrete problem. It is a perfect illustration of the government's strategy to make research a driver of economic diversification and innovation. By encouraging public-private partnerships, we are strengthening the link between research and the real needs of the economy and society."

PARTNERS OVERVIEW

The consortium includes seven partners from Luxembourg demonstrating a robust presence within the Luxembourg ecosystem. It brings together academic institutions, industry partners and public sector organisations, including regulatory authorities. Each entity contributes its unique expertise and perspectives. The involvement of industry partners and regulatory authorities will ensure that the results are practical and compliant with the regulatory framework.

Having multiple partners from Luxembourg reinforces LIST's role as a central hub in the national research and innovation landscape. This collaboration fosters a cohesive and integrated ecosystem where knowledge and resources are shared, leading to more comprehensive and impactful research outcomes.

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY

The Luxembourg Institute of Science and Technology (LIST) is a Research and Technology Organization (RTO) under the auspices of the Ministry of Higher Education and Research, and its mission is to develop competitive and market-oriented prototypes of products and services for public and private stakeholders.

With more than 710 employees, nearly 80% of whom are researchers or innovators from all over the world, LIST is active in the fields of information technology, materials, space resources and the environment, and works across the entire innovation chain, from basic and applied research to technology incubation and transfer.

By transforming scientific knowledge into intelligent technologies, data and tools, LIST:
- helps European citizens make informed choices,
- helps public authorities make decisions, and
- encourages companies to develop.

ROLE

LIST acts as the coordinator for this project.

LUXEMBOURG INSTITUTE OF SCIENCE AND TECHNOLOGY | **LIST**

QUOTE

"The overarching objective of TRANSCEND is to provide freight transport critical infrastructure operators with an integrated set of advanced tools, guidelines and technological solutions to reduce risk, and enhance the protection and resilience of their critical infrastructure and interrelated critical infrastructures against physical, cyber and hybrid threats. The contributions will be integrated into a Control Tower, a digital platform with embedded business intelligence giving stakeholders a shared and continuous visibility of threats and risks by breaking down silos within and between organizations."

Cindy Guerlain, Partnership Officer, Logistics & Supply Chain and Smart Building, at LIST.

CARGOLUX AIRLINES INTERNATIONAL SA

Luxcargo Handling, a 100% owned subsidiary of Cargolux, based at Luxembourg airport is a ground handling company, specialized in air cargo.

Luxcargo Handling operates Luxembourg airport's cargo center, the 8th largest air freight platform in Europe which has been active for over 30 years. The company is equipped to handle all kinds of commodities, from high-tech and valuable cargo, to live animals, perishables, dangerous goods, and outsize shipments. Founded in 2023, the organization took over the activities of Luxair's Cargo Handling branch and employs over a thousand employees.

ROLE

As a central component in the supply chain, Cargolux and Luxcargo Handling are committed to playing a leading role in logistics resilience. With partners up- and downstream across a global network, airlines are exposed to malicious intent. Cargolux and Luxcargo Handling have implemented stringent safety and security procedures and are pleased to share these best practices with others in the supply chain. This project is a great opportunity to leverage expertise and build resilience through shared goals. It also showcases the importance of our industry and its capacity to create value create for global communities.

A Cargolux Group company

cargolux group
you name it; we fly it !

QUOTE

"Luxcargo Handling S.A. ("LCH"), part of the Cargolux Group, is pleased to be part of the TRANSCEND project. This project marks a crucial step in the evolution of freight handling by optimizing the control of goods flows through cutting-edge technologies. LCH focuses on an innovative approach to freight handling, combining efficiency, security, and traceability. The goal is to test new technologies with the aim of deploying next-generation scanning and screening methods to guarantee accurate identification and verification for each shipment."

Bernard Stoll, CEO of Luxcargo Handling, part of the Cargolux Group

HAUT COMMISSARIAT À LA PROTECTION NATIONALE

As the coordinator for national crisis management, the HCPN (Haut-Commissariat à la protection nationale) is dedicated to safeguarding the vital interests and essential needs of the country and its population. We are the lead public administration for building national resilience, managing crisis prevention, preparedness, and response measures at a strategic level with an all-hazard approach. Our focus includes the governance of critical infrastructure protection and the resilience of critical-infrastructure operators.

ROLE

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Haut-Commissariat
à la protection nationale

Agence nationale de la sécurité
des systèmes d'information

The HCPN has played a pivotal role in initiating this project as the national competent authority and single point of contact for the Critical Entities Resilience Directive (2022/2557). During the critical phase of project implementation, the HCPN is actively involved in several work packages, particularly in the design of analysis frameworks, comprehensive security and resilience assessments, and in providing guidance from a national and international perspective.

QUOTE

"TRANSCEND is the absolute innovation role model for implementing the Critical Entities Resilience Directive. It fully captures the spirit and the substance of the CER Directive and turns them into amazing innovations that reinforce the resilience of critical infrastructure in the freight transport sector. The HCPN, as a national competent authority under the CER Directive and its Single Point of Contact, is a proud founding member of this fantastic initiative."

Jeff Schlentz, Head of Critical Infrastructure Protection Department • Premier commissaire divisionnaire, Haut Commissariat à la protection nationale

INSTITUT LUXEMBOURGEOIS DE RÉGULATION

The ILR (Institut Luxembourgeois de Régulation) is the national regulation institute in Luxembourg for electronic communications, energy, postal services, railway and aviation and is in charge of the spectrum management in Luxembourg. ILR acts in the interests of the consumer and ensures a proper functioning of the markets based on effective and sustainable competition while guaranteeing a basic universal service. ILR also offers mediation services for the following sectors: electronic communications, postal, and energy.

Besides the market regulation, ILR also supervises the cybersecurity measures for electronic communications network and service providers, operators of essential services in the sectors: energy, health, drinking water, transport and digital infrastructure.

ROLE

In this project, ILR is contributing, as competent authority for cybersecurity measures notably in the transport sector, to the design of potential risk scenarios and to the assessment of the level of protection and resilience with a focus to the cyber aspects. ILR maintains a holistic overview of the ecosystem and thus can provide input also in relation to the consideration and integration of potential systemic risks.

ILR

INSTITUT LUXEMBOURGEOIS
DE RÉGULATION

QUOTE

"ILR holds already a long and valuable partnership with LIST, LHC and HCPN and together with our experience as competent authority for the cybersecurity measures, we know that security is the result of a common and collaborative effort. TRANSCEND reflects our values as information sharing with partners and the industry is key to our supervision work to be well prepared for different risks. Therefore, we are looking forward to the project as it is combining the physical world with the cyber aspects to make an impact on the security of our freight transport systems."

Luc Tapella, Head of ILR.

LUXEMBOURG HOUSE OF CYBERSECURITY

The National Cybersecurity Competence Centre (NC3), together with the Computer Incident Response Centre Luxembourg (CIRCL), constitutes the Luxembourg House of Cybersecurity (LHC), i.e. the backbone of cutting-edge cyber resilience in Luxembourg. The specific NC3 mission is to support the Luxembourg ecosystem in building cybersecurity competence and capacity, in a way that contributes to develop the cybersecurity industrial base in the country and strengthens the strategic autonomy of the European Union. NC3 is involved in different type of activities at national and international level, and it has been appointed as National Coordination Centre (NCC) to support the European Cybersecurity Competence Centre (ECCC) in fulfilling its mission.

ROLE

LHC mainly contributes to the project by developing risk scenarios focusing on the logistics infrastructure involved. The scenarios will then be simulated using the immersive simulation facility ROOM#42 developed by the NC3 to test the concepts and processes that will be develop during the TRANSCEND project.

QUOTE

"Our increasingly complex and interconnected societies are continuously exposed to a wide range of risks. Infrastructure systems are subject to functional impairments associated with technological failure, natural threats and malicious acts. An adequate level of protection and security of infrastructures is crucially sustaining our societal and economic activities."

Carmelo Dimauro, Risk Management Specialist - Team lead Data for Research, Innovation and Governance at NC3

NETCOMPANY-INTRASOFT SA

NETCOMPANY-INTRASOFT is a leading European IT Solutions and Services company with proven expertise in conceptual system architecture and system design, advanced application development and integration / communication services, information portal management, communication services, and project management, offering innovative and added-value solutions of the highest quality to a wide range of international and national public and private organisations.

ROLE   Netcompany

NCI leads two important Workpackages in the project. The first one, AI-powered algorithms for Critical Infrastructure resilience, has as its objective to explore the use of artificial intelligence and develop specific and independent AI-based components of the Control Tower that will be integrated into the TRANSCEND Control Tower. The second one, the TRANSCEND Control Tower is an integrated set of services that can be used horizontally by all the pilots within the project. The services will help stakeholders to increase their resilience and protection at various levels: at the infrastructure network level, at the transport service level and at the supply chain level.

QUOTE

"NCI is proud to be leading two innovative work packages in the project at the very heart of the project. The project's Control Tower that will be developed will provide comprehensive services to improve resilience across infrastructure networks, transport services, and supply chains. Furthermore, by means of integrating advanced AI components, the platform aims to transform infrastructure monitoring and risk management, offering stakeholders unprecedented insights and protection capabilities."

Charalampos (Babis) Ipektsidis, Senior Project Delivery Manager / Research and Innovation Policy analyst

UNIVERSITY OF LUXEMBOURG

The Luxembourg Centre for Logistics and Supply Chain Management (LCL) is a hub for research, education, and outreach in the logistics sector. The LCL engages in cutting-edge research which aims to deliver meaningful and practical innovation to industry. At its core, it offers a one-year master's program in English which features an applied thesis project with industry as well doctoral education. Founded as part of a partnership with the Massachusetts Institute of Technology (MIT), the LCL is a member of the Global Supply Chain and Logistics Excellence (SCALE) Network.

ROLE

Within the TRANSCEND project, the LCL will engage in the development of assessment tools, systemic indicators, and risk scenarios to address the weaknesses faced by freight operators and critical infrastructure providers and enhance their resilience. These will be validated via a pilot carried out in Luxembourg.

QUOTE

"Transportation of goods is the backbone of value creation and an inherent component for the livelihoods of our societies as was evident in recent global disruptions. We are delighted to be part of the TRANSCEND project that will leverage our past and ongoing activities in this domain, will harness and enhance the collaborations with the various partners, and will deliver a strong and long-lasting template that will ultimately strengthen the resilience of the freight industry and the pertinent critical infrastructure. We are looking forward to making an impact!"

Benny Mantin, Professor of Logistics and Supply Chain Management, Director of the LCL.

PROJECT DETAILS

- Project name: Transport resilience against cyber and non-cyber events to prevent network disruptions
- Acronym: TRANSCEND
- Project number: 101168023
- Funding : European Commission – Horizon Europe
- Type of funding: Public
- Coordinator: LIST
- Start date: 01/09/2024
- End date: 31/08/2027
- Duration: 36 months
- Budget: 5 million euros (including 4.38 million euros by European Commission)

PARTNERS

Co-funded by the European Union

- Luxembourg Institute of Science and Technology, Luxembourg
- Fondazione Istituto sui Trasporti e la Logistica, Italy
- Fundacion de la Comunidad Valenciana para la investigación, promoción y estudios comerciales de Valenciaport, Spain
- Fundacion Zaragoza Logistics Center, Spain
- Netcompany-Intrasoft SA, Luxembourg
- European Network of Logistics Competence Centres, Belgium
- Universite du Luxembourg, Luxembourg
- Luxembourg House of Cybersecurity, Luxembourg
- Interporto Bologna SPA, Italy
- Gruber Logistics SPA, Italy
- DBA Pro SPA, Italy
- Cargolux Airlines International SA, Luxembourg
- Cosco Shipping Ports (Spain) Terminals SLU, Spain
- Inlecom commercial pathways CLG, Ireland
- Haut-Commissariat à la Protection Nationale, Luxembourg
- Institut Luxembourgeois de regulation, Luxembourg
- Ministerio Interior Guardia Civil, Spain
- Mahart Container Center Szolgaltato KFT, Hungary
- Egnatia Odos AE, Greece

MEDIA CONTACT

STEVE BOUKHERS

Phone/

(+352) 621 373 877

Email/

steve.boukhers@list.lu

Website/

https://www.list.lu/en/research/project/transcend/

Video/

https://youtu.be/4wrFPrvEUC0?si=9EwUs2wiricApxNq