
ERCI INNOVATION AWARDS 2021

SIFER

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EURAILCLUSTERS



10 years of ERCI – the network



- ERCI – the **European Railway Clusters Initiative** – founded in 2010
- 16 railway clusters covering 17 European countries
- > 2,000 companies (of which 1,500 SMEs) managed by regionally-focused clusters, universities, R&D organisations, education institutions, incubators, accelerators, ...



“It’s all about bringing customers, suppliers and supply chain opportunities together”



- Shift2Rail Support / Partner matchmaking in R&D projects



- ERCI Taskforces



- Support for small and medium-sized enterprises



- Bilateral Workshops



- Annual ERCI Innovation Awards

WWW

- <https://eurailclusters.com>

What about the ERCI Innovation Awards?



- Every year, the European Railway Clusters Initiative (ERCI) honours pioneering innovation projects from European rail industry companies with its annual ERCI Innovation Awards.
- The ERCI Innovation Awards are organised and staged by the ERCI partner clusters; the submissions can come from European companies that provide products, systems, technologies, processes or services, with proven innovative features.
- Submissions are nominated by ERCI clusters and the competition is a 2-stage contest:
 - 1st stage: national or regional pre-selection (according to ERCI clusters' geographical area of responsibility)
 - 2nd stage: European competition

ERCI Innovation Awards

The evaluation criteria



The selection of winners is based on the following criteria:

- **Innovative features of the solution**
- **Economic and social benefits for the railway sector**
- **Integration of new digital technologies**
- **Impact on “human capital”**
- **Creation of the innovation by networking
(cooperation and collaborating with other private or public entities)**



ERCI Innovation Awards

The winning categories



Winners are selected by a European jury comprising independent experts representing industry, research and public authorities.

The categories of the ERCI Innovation Awards include:

- **“Best Large Enterprise”**
- **“Best SME”**
- **“Coup de Cœur” special jury prize**



ERCI Innovation Awards 2020



At the annual award ceremony, pioneering innovations in railway technology receive what they deserve: International recognition!



ASELAN (Türkei) – MIDAS-R
“MIDAS-R” is based on fiber optic distributed acoustic sensing (DAS) technology to collect acoustic data and analyses it in order to detect intrusions on the railway and to detect anomalies on both railway and the train.



ENEKOM (Türkei) – Railacoustic
detects small and big rail faults from a distance of 2km with an accurate location information without any misleading information before train comes, automatically and precisely



CG Rail – Lightweight CFRP-Bogie-Frame
fully made of carbon-fiber reinforced plastic (CFRP) and offers a weight reduction of nearly 50 %

ERCI Innovation Awards 2019



Best SME

D-Rail AB (Sweden)
Anti-derailing system

Best Large Enterprise

Siemens Mobility GmbH (Germany)
First autonomous tram in the world

Coup de Cœur Jury Prize

IVM Srl (Italy)
POWERVE



ERCI Innovation Awards 2018



Best SME

Perpetuum Ltd. (United Kingdom)

Wireless Sensor Nodes including vibration and temperature sensors, an energy harvester, a microprocessor and a wireless transmitter

Best Large Enterprise

DB Cargo AG (Germany)

Fully Automated Hump Yard Locomotive – Demonstrator (VAL2020)

Coup de Cœur Jury Prize

TRAXENS (France)

Digital Freight Train



ERCI Innovation Awards 2017



Best SME

SIUT GmbH (Germany)

Smart train platforms tiles 4.0

Best Large Enterprise

Bombardier Transportation (Germany, Austria)

Obstacle Detection Assistance System „ODAS”

Coup de Cœur Jury Prize

MER MEC S.p.A. (Italy)

Railway Network Asset Inventor



ERCI Innovation Awards 2016

Best SME

ubidata (Belgium)

Combining a telematics hardware device with a big-data layer

Best Large Enterprise

Deutsche Bahn AG (Germany)

Eco DeMe Train

Coup de Cœur Jury Prize

National Security Alliance (France)

Ticketing app using biometrical information



ERCI Innovation Awards 2015



Best SME

Witt Industrie Elektronik GmbH (Germany)

Train based Track Inspection System

Best Large Enterprise

NEWAG S.A. (Poland)

The first in Europe Polish six-axle multi-system locomotive for heavy freight transport compliant with TSI

Coup de Cœur Jury Prize

SMTC (France)

integrating an electromagnetic transmitter with a sandwich-type panel





**Congratulations to the winners
of this year's
ERCI Innovation Awards.**





Best SME



PJ Monitoring GmbH (PJM)

PJM is an internationally renowned specialist in the field of railway systems. Based in Austria, PJM is technology leader for a wide range of forward-looking solutions and railway automation.

Innovation: « WAGGON TRACKER»

The WaggonTracker is a platform which perfectly combines monitoring and automation and designed a robust overall system which is very efficient. It provides automated processes plus crucial information about the vehicle fleet in real-time.

Advantages

- It is the only system worldwide providing a range of automation features including monitoring and automated functionalities
- It is a proven and patented system which is manufactured in series-production
- It is the only digital wagon backbone facilitating to integrate and connect all wagon's components such as couplers, brakes etc.

Contact

- Christoph Lorenzutti | lorenzutti@pjm.co.at





Best Large Enterprise



BOZANKAYA

Bozankaya was founded in 1989 in Germany as an R&D company. In 2003, the company expanded to Turkey, where it became a powerful domestic brand, building on its R&D investments of the previous years. Company has a strong track record as an innovator in developing and manufacturing environmentally friendly, energy saving, low-noise vehicles, offering clients an advantageous combination of attractive investment and operating cost.

Innovation: Bozankaya Battery Tram

With the high voltage battery application integrated into the tram drive system, catenary-free drive is provided. Thanks to this battery concept with lithium-ion chemistry, it is possible to drive 63 km without a catenary under normal operating conditions.

Advantages

- Save on Overhead Line Investment
- Save Maintenance Costs
- Prevent Visual Pollution

Contact

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nominated by



ANATOLIAN RAIL TRANSPORTATION SYSTEMS CLUSTER



Everydens

IoT, AI and Big Data technologies are only means to an end, these technologies must be put at the service of human beings to handle industrial use cases and allow their necessary return on investment. This approach is at the heart of Everydens' DNA.

Innovation: « TVMS »

Everydens offers the first Transport Visibility & Management System (TVMS): a TMS that integrates field visibility data deep into your transport processes. Buy, plan, track and optimize in real time all your Supply Chain flows on a collaborative and predictive platform.

Advantages

- Better customer service in terms of planning and visibility
- Cost reduction of 10 to 20 %, with control over resources and purchases
- Operational excellence through an automation of the processes for all actors in the rail and road logistics chains
- Reduced carbon footprint based on real data from the field and by promoting intermodal transport

Contact

- Sabrina Meksaoui | sabrina@everysens.com

PANTOhealth GmbH

PANTOhealth combines Simulation and IIoT and Predictive Analytic methods to deliver real-time monitoring and predictive maintenance reports for railway infrastructures.

Innovation: «Predictive Maintenance via real and synthetic data»

The mathematical model using the collected data from monitoring hardware can estimate meaningful data that directly determine the condition of the monitored system. In addition, the simulation engine based on the mathematical model can generate labelled synthetic data to train the AI engine.

Advantages

- The prediction of the failure is faster with higher accuracy
- The mathematical model helps to estimate some essential parameters based on monitoring parameter
- The monitoring hardware is comprehensive and can collect data continuously

Contact

- Farzad Vesali | Farzad@pantohealth.com

Te.Si.Fer. Srl

A company specializing in the design of signalling and telecommunication plants for railways, subways and tramways, for more than 15 years. We have worldwide experience in every phase, from the survey stage to the commissioning.

Innovation: SmartTrack

The software platform collects data, from any type of survey, and manages all the digitalized railway information to obtain a unique database. Our solution was developed to answer three major challenges affecting the design, installation and management of signalling systems, including ERTMS.

Advantages

- Time and cost reduction in all the railway design phases
- Storing data to be used in the continuous maintenance of ERTMS and railway infrastructure
- Delivering digital-native data transcoded into a unique format, based on the European RailML® standard

Contact

- Simone Durazzani | segreteria@tesifer.it



And these are the other finalists



Alstom

Leading societies to a low carbon future, Alstom develops and markets mobility solutions that provide the sustainable foundations for the future of transportation. Alstom's product portfolio ranges from high-speed trains, metros, monorails and trams to integrated systems, customized services, infrastructure, signalling and digital mobility solutions.

Innovation: PEPA-F™

- Effective air filter against pandemic in public service vehicles
- Unique application of high-end technologies from medical engineering in vehicle construction
- Integral part of Alstom's Healthier mobility™ portfolio

Advantages

- Quick and easy integration without modifications of existing air conditioning system or vehicle
- Particle filter efficiency up to ISO ePM10 50% according to ISO 16890
- Active catching and eliminating Covid19 viruses, 99,9 % efficiency laboratory-confirmed

Contact

- Michael Eckhardt | michael.eckhardt@alstomgroup.com



BERDAN BOLTS & NUTS

Berdan Civata Company was founded in 1979 in Tarsus to meet the standard and special screws, nuts, studs and anchor fasteners needs of both domestic and overseas firms in each kind and quality.

Innovation: Tensile Test Device Capacity 500 Tons By Pressing Method

The device is the shortest, lightest but the biggest capacity tensile test device in Europe. Its height is 1,5 m and weight is 750 kg besides a capacity of 500 t.

Advantages

- Big Capacity
- Space Advantage
- Lower Cost

Contact

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nominated by



ANATOLIAN RAIL TRANSPORTATION SYSTEMS CLUSTER



Ci4Rail GmbH

Ci4Rail is a young, dynamic company built on many years of experience in the railroad market and in embedded electronics/software. Goal is to support customers in the digitalization process, to increase transparency and to improve the customer's value during daily operation in a sustainable way.

Innovation: KYT – Know Your Train

KYT is a sensor to cloud digitalization platform consisting of edge and cloud components to support the digital transformation of railway operators and operators of public transport systems with the focus on fleet optimization and preventive maintenance applications, using latest technologies like machine learning.

Advantages

- Flexible data acquisition incl. non-retroactive interfaces to connect to TCN (train communication network) to avoid costly re-certifications of vehicles
- Remote Management of devices and applications: Monitor, manage, update remotely fully IT secure → without presence in vehicles
- Independent from vehicle type, vendor & vehicle generation → ONE comfortable IT tool landscape for diverse fleets

Contact

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nominated by



Colas Rail

Colas Rail, subsidiary of the Colas Group (in turn a subsidiary of Bouygues), is able to offer turnkey systems for railway infrastructures that cover the whole life cycle, from design to construction and maintenance.

Innovation: « COUPE »

On our refurbishment projects of existing catenary lines, COUPE allows us to make slices on 3D point cloud scanner rail lines, from them, we generate the 2D drawings with all necessary information for our design activities and extracts data quickly. The innovation is to quickly carry out an inventory of the existing situation without traveling for miles along the track.

Advantages

- Produce the documents for carrying out large-quantities redesign studies and without having to send a team on railway tracks and considerably to reduce the risks associated with on running railways and the errors associated with the site surveys.
- Several sections per year for 5 years which represents around 800 masts on which we would have spent 20 minutes per post (i.e. 270 hours) to collect and enter the information necessary for our studies, we do it in less than 70 hours. The time saved is therefore considerable and represents a significant economic gain.

Contact

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nominated by





ETS Srl

is a civil engineering company at the forefront of infrastructure projects with a strong expertise on railways, structural, hydraulic and geotechnical engineering, architecture, mobile mapping, digitalization and risk management for slopes and civil works.

Innovation: « MIRET »

Management and Identification of the Risk for Existing Tunnels (MIRET) is a methodology, a process and a technology for the digital and integrated management of tunnels, combining mobile mapping technologies for survey and inspection (ARCHITA), artificial intelligence and risk analyses in the framework of the Facility Management.

Advantages

- Safety and security: inspections are performed with ARCHITA and processes are moved to a common data framework with objective data
- Digital transformation: inspections and geometry digitalization with common standards and storage-management of the data through time
- Sustainable transport and structural resiliency: priorities analysis and predictive model in relation to the environment and the infrastructure

Contact

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Vossloh Rail Services, Fraunhofer IKTS, WOLFRAM Designer und Ingenieure

Vossloh is a listed technology group operating worldwide. Our core business is rail infrastructure: we offer an integrated range of products and services for rail-bound transport under one brand.

Innovation: «SoniQ Rail Explorer»

Hand-guided high-performance ultrasonic inspection device for the inspection of railroad rails
The SRE sets new technological as well as ergonomic standards for mobile ultrasonic rail testing devices.

Advantages

- High wearing comfort, easy handling due to low weight (> 20 kg) and slim body
- Interfaces for direct integration of inspection results into customer's digitized process chains

Contact

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Fraunhofer LBF / Fraunhofer IML

Fraunhofer LBF has stood for the safety and reliability of lightweight structures for 80 years. The Fraunhofer IML is the partner of choice for integrated logistics research. It works in all fields of internal and external logistics.

Anti-Noise System for the reduction of noise emission from CT terminals

In the project I2PANEMA an Active Noise Control (ANC) system is implemented in a test environment reduce noise emissions from handling operations in a Combined Transport Terminal. The applicability of ANC systems has already been proven for small and enclosed test environments.

Advantages

The solution allows additional handlings in night times as well as an extension of the operating hours of the terminal. Further industrial exploitation of the results besides CT terminals are able in inland ports or industrial areas.

Contact

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Center for Transportation & Logistics Neuer Adler e.V.



nominated by

INAVET GmbH – Institut für angewandte Verkehrstelematik

INAVET GmbH provides scientific analyses and develops customised software and system concepts in the field of traffic telematics, traffic management and energy efficiency in transport.

Innovation: « smartrains.das »

smartrains.das is a driver advisory system (DAS) for energy and cost-efficient driving while maintaining punctuality in rail traffic. It gives recommendations for the optimal driving mode depending on the operational situation in real time.

Advantages

- Significant savings of overall energy consumption from 5 % to 15 %
- Sustained support for (especially new) train drivers
- Optimisation of internal train crossings and connection relationships

Contact

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Instalaciones y Servicios
de Comunicaciones



ISC - Instalaciones y Servicios de Comunicaciones

Technology provider of the TRANSIS multimodal transit information system in Spain. TRANSIS delivers with a transit operator driven Corporate Customer Information & Communications platform that enables digital transformation to better serve citizens and provide greater operational efficiencies for tis own operations.

Innovation: Multimodal & Multi-Operator information for Public Transport in Barcelona

TRANSIS connects to open and/or proprietary data sources from various sources at the 4 main transit operators in Barcelona and transforms the data into homogeneous and consistent information that provides a useful and intuitive user experience with many interactive applications provided on interactive transit information kiosks in FGC stations in Barcelona while providing efficiencies to FGC by providing an advanced multimodal interactive passenger communication platform.

Advantages

- TRANSIS catalyzes smarter mobility for Barcelona, its surrounding regions with a focus on information services to better inform and serve its citizens.
- For the citizens, this new level of service and information for mobility increases travel efficiencies and optimizes transport infrastructures for FGC by creating a more competitive environment for Barcelona and its area public transport by increasing mobility flexibility and reducing its mobility costs through greater use of public transport.
- For FGC, TRANSIS provides a means to access greater operational efficiencies by providing access to real-time data with dashboards for more rapid decision making in its operations. TRANSIS also enables FGC to communicate more effectively in real-time with information from all modes of transport of the city with a consistent information environment throughout.

Contact

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nominated by  *by Railgrup*
Cluster de Movilidad y Logística Multimodal





IVM – Innovative Vibration Monitoring

develops end-to-end monitoring & diagnostics systems, mainly focused on wheel/rail interaction, both in static and in dynamic conditions, aimed to improve safety and to optimize maintenance processes.

Innovation: « SWAN – Smart Wayside Accelerometric Network »

SWAN is an innovative Wheel Condition Monitoring system, developed to monitor the quality of the wear of the contact patch of any wheel over the time, detecting wheel slide defects of any rolling stock during the running operation.

Advantages

- On the safety side, by detecting the presence of defects on wheels, SWAN improves the running safety, protecting both the rolling stock and the track infrastructure health.
- On the maintenance side, being able to perform reproducible measurements, SWAN allows to analyze the degradation trends, so unlocking on-condition & predictive approaches on wheel's reprofiling, thus extending the lifecycle.

Contact

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nominated by

DITECFER
DISTRICT FOR RAIL TECHNOLOGIES
HIGH SPEED SAFETY & SECURITY



Knick Elektronische Messgeräte GmbH & Co. KG

We have been developing, producing and selling high-quality products and services, with a focus on interface technology and process analytic for 75 years as a family-owned and run company with nearly 200 employees.

Innovation: ProLine P16800

Duplicates signals functionally safe: Listens to signals from speed sensors (pulse generators, encoders, ...) without affecting these signals (no interaction between systems on a SIL 4 functional safety level) and copies these signals without modification (signal transmission on a SIL 2 functional safety level).

Advantages

- Reduces the costs and weight of rail rolling stock
- Enables the retrofitting of control units on rail rolling stock
- Reliably decouples systems through galvanic isolation

Contact

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POWER ELECTRONICS

Power Electronics Industry and Trade Inc. was established in 1999 and became a powerful brand afterward in Turkey. With the help of Research and Development Center, Power design, improve, and manufacture our products, and sell them at national and international markets. Power continue our developments and increase the variety of our goods day by day.

Innovation: Ultrasonic Power Supply

In this project, an ultrasonic welding generator with 20kHz output frequency and 2 kW output power was designed. Ultrasonic welding generator converts electrical power into vibration with transducers called horns attached to its tip and provides bonding without using arc or chemicals in many sectors such as textile, plastic, metal etc. In textile, it is used in many products as seamless joining.

Advantages

- Environmentally Friendly
- Cost Advantage
- Wide Range of Uses

Contact

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SinusPro

SinusPro develops innovative products according to bionic design principles in order to revolutionize the fundamentals of classical mechanical engineering as well as the mobility industry.

Innovation: «FEDERTOPF» SPRING POT FROM THE CARRYING FRAME OF A RAILWAY TRAIN

The Innovation is the combination of a novel bio-inspired topology optimization and a readily available manufacturing process of casting, enabling an important reduction of the weight of the spring pot of the carrying frame from a railway wagon while also being able to use the current machines and manufacturing methods.

Advantages

- significant reduction in weight means lower manufacturing costs and CO₂ emission reduction
- reduced energy consumption and greenhouse gas emissions of the railway sector
- lower total costs of ownership

Contact

- Christian Rieger | office@sinuspro.at



Skeleton Technologies GmbH

Skeleton Technologies is Europe's leading manufacturer of high power and energy density ultracapacitors, which are used as reliable and durable energy storage solutions across industries.

Innovation: «Rail certified Ultracapacitor kinetic energy recuperation system (KERS)»

Ultracapacitor based energy storage systems are used for kinetic energy recuperation, enabling up to 30% saved energy between braking and acceleration maneuvers. The respective modules are certified for rail applications.

Advantages

- Up to 30% energy savings for the end user
- Use of high-power trams where the infrastructure otherwise would not allow for it
- Faster adaptation of energy efficient and sustainable public transport

Contact

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nominated by



Rail.S





SNCF Réseau (SNCF Network)

SNCF Réseau is the main manager of the French national railway network. It operates and modernises the French railway network and grants access rights to all railway companies in passenger and freight transport.

Innovation: «Systematic reuse of railway materials»

This innovation concerns the complete refurbishment of a rear base (composed of 3.4 kilometers of tracks and 8 switches), using only reused materials. This rear base in Nîmes was built in the first half of 2020 to accommodate the SVB 800 (new high-speed work train) in its test phase. Through this systematic reuse of materials, we have created a new circular business model.

Advantages

- A resource saving through recycling (non-extraction of 7,900 tons of ballast and non-production of 1,074 tons of concrete and 345 tons of steel)
- A financial saving (approximately 1.5 million Euros – more or less 440 000€/km)
- Significant improvement in environmental performance (at least 969 t equivalent CO₂, or the equivalent of one year of pollution emitted by 214 French people)

Contact

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nominated by



TransANT GmbH

TransANT GmbH is a joint venture with ÖBB Rail Cargo Group and voestalpine Stahl GmbH. TransANT is intended to create capacity in the market for innovative and cost-effective rail freight cars.

Innovation: «TransANT – Less weight. More freight.»

TransANT provides a more efficient and sustainable solution for the industry with a highly innovative modular freight wagon that is based on a lightweight steel design and consists of a standardized platform wagon in different lengths plus modular and industry-specific superstructure.

Advantages

- The opportunity to replace conventional wagons with more efficient, flexible solutions
- It helps its customers in more efficiently use the existing railway infrastructure and
- Possibility in shifting more freight to rail (up to 4 tons per wagon)

Contact

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Transurb Simulation



Transurb Simulation

Transurb Simulation offers a significant range of rail simulators and advanced training solutions designed to enrich the training experience of drivers by focusing on scalability, adaptability and pedagogy.

Innovation: « TrainSim.NET »

TrainSim.NET is an R&D project which led to the creation of the product TrainLab, a train driving simulator accessible on the internet, on any platform, anywhere, anytime. This application proposes a series of interactions in immersive 3D environments and allows trainees to learn how to drive a train and to discover their rolling stock.

Advantages

- Portability
- Sectoral diversification
- High learning retention

Contact

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nominated by



LOGISTICS WALLONIA
connect move share





Zeleros Hyperloop

Zeleros is a European deep-tech company devoted to the design, development, manufacture and supply of hyperloop vehicles for intercity transportation for passengers and goods, traveling at a ground level and unprecedented speeds with zero direct emissions.

Innovation: « ZELEROS' HYPERLOOP »

Hyperloop is an evolution of high-speed railway systems to move passengers and cargo at speeds up to 1000 km/h with reduced energy consumption and 0 direct emissions. Autonomous vehicles move inside low pressure tubes levitating with minimum friction, reducing aviation and trucking emissions in the connection of key cities and logistic hubs between 400 and 1500 km in distance.

Advantages

Zeleros' unique technologies integrated in the vehicle reduces infrastructure costs and to operate at safer pressures for the passengers, offering a straight certification path. This concept, outperforms maglev systems reducing linear motor usage and improving energy efficiency thanks to the low-pressure environment reducing energy consumption from 5 to 10 times that of the medium distance aircrafts.

Contact

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nominated by



**See you next year to the
ERCi Innovation Awards 2022.**

