

# Improving safety and customer service with IOT

*Experience return on CFL lock-e deployment  
in  
CFL Freight rail operations*

**CFL** multimodal

26.05.2026 11:00-12:30 



## INTERMODAL WAGONS AND LOADING UNITS



### WEBINAR

KEYNOTE CONTRIBUTIONS FROM LEADING INDUSTRY PLAYERS

- Wecon
- Tatravagonka
- CFL Multimodal
- Combipass
- Unit45
- Modalis

ECOlogistics for our future

# Presentation topics

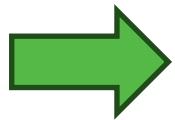
- CFL Freight overview
- CFL Lock-e context
- Return of experience on 4 years of CFL Lock-e implementation
- Vision of the future challenges and opportunities for IOT and technology within CFL Freight activities



# Freight CFL, our vision

## Develop Luxembourg as international multimodal hub

- Propose innovative and value-added logistics solutions
- Connect main ports and European economic centres
- Support the economy and industrial activities on a national and regional level
- Become a connecting hub for semi-trailer



Various partners in operations  
Different countries  
Clients request global integrated overview



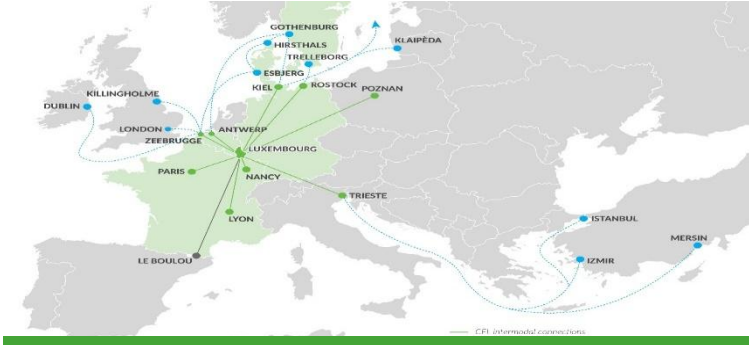
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# CFL multimodal, a rail logistic hub in Luxembourg



## Logistics

- Customised logistic solutions
- Freight forwarding (rail, road, sea and air)
- FTL, LTL, special transports
- Warehousing and commissioning
- Temperature controlled (positive and negative)
- Picking and packing
- Customs and port services



## Rail

- Railway licenses and safety certificates in 6 countries
- +300 international conventional and combined freight trains per week
- Regional last mile and industrial site rail services
- A fleet of 80 locomotives and more than 3.600 wagons combined and conventional
- A combined transport network all over Europe



## Infrastructure

- Combined terminal
  - Capacity: 300.000 handlings / year
  - 4 railway-tracks of 700 m
- Rail motorway
  - Capacity: 300.000 trailers / year
  - 2 Modalohr platforms of 700 m

# Trailers transport, the new backbone of our network



# CFL Lock-e, the origin of our king pin monitoring



## Context

- 2019: Great Blet bridge accident and subsequent JNS tasks and restrictions
- Effective issue concerning bad loading of semi trailers
- Lack of market solution for supporting control



## Evaluation of possibilities to find a solution to support loading control

- Analysis of the hitch with CFL technics, our maintenance shop
- Identification of ideas
- Discussion with people about their needs and expectations
- Construction of a prototype
- First tests on our trains for REX
- Industrialisation and deployment



2026, more than 1000 CFL Lock-e in operation

# Return of experience compared to initial expectations

## Our initial objectives

- Securing and giving better transparency on the loading and securing situation of trailers on trains after Great Belt bridge
- Preventing derailment and bad lifting during unloading
- Avoiding any manual action to receive information and easy to use
- Managing energy autonomously
- Exchanging information with connected terminals
- Avoiding being dependent on market decisions and findings
- Optimising and securing technical inspection visit as well as loading/unloading operations
- Possibility for partners (wagons leasers, clients,...) to propose the solution
- Finding a way for simple installation and maintenance



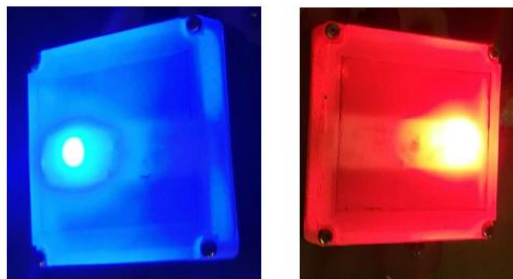
## Current situation

- Most of our intermodal railcars are equipped with Lock-e
- Solution is integrated and use in operational process by terminal and rail inspectors
- Anticipated identification of bad loading enabling preventive correction
- Confidence of people in information receive and reliability
- Huge reduction of wagon lifting
- Easy installation done mainly in terminals in less than 1 hour
- Alerting systems and tracking clarify and factualise most of issue



*example of train inspectors comments:*

*“King pin monitoring solution is helpful as the system informs about something to control. it comforts us in our control by reducing the risk of missing something“*



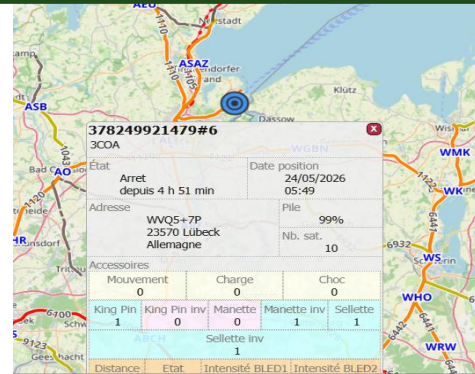
# Return of experience – additional benefits

Originally, solution expected to support only our safety process, but provides more ...

## Costs and customers service improvements



Integrated tracking tool with efficient GPS at 1 minute in moves and redundancy to improve, train tracking and CBM with high reliability



In time visibility of the loading operation at distance improving significantly the service client on the intermodal chain

## Compliance



System in line with new obligation for trailer loading control

## Business development



System used by external partners/clients

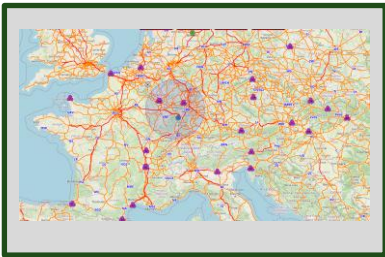


More value than we may have imagined, an opportunity to streamline costs, a solution to improve clients services and a way to develop new business opportunities

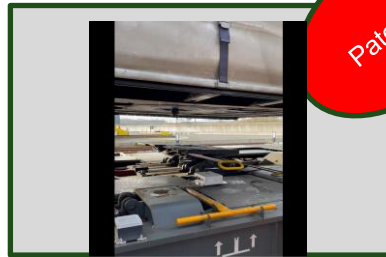
# Return of experience – one experience leading to other applications

## In operation

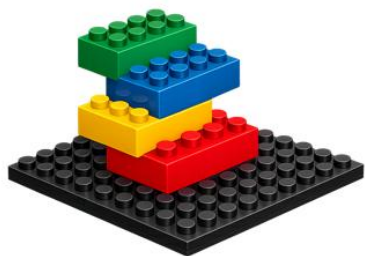
### Tracking



### King pin monitoring LOCK-E



Patented



Monitoring sensors

Energy supply

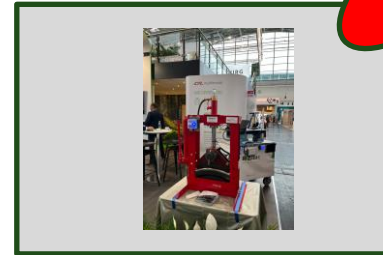
Visibility

Tracking  
communication  
Acquisition digital/analogic

IT platform and data

## Operational testing and improvement

### Digital brake test Brak-e

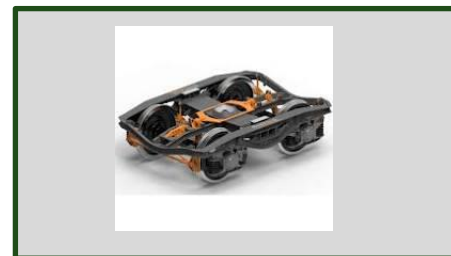


Patented

#### Expectations

- Easy brake test
- Non intrusive
- Easy to install
- Digitally connected to save time and record

## Prototypes under development



#### Expectations

- Safety reinforcement
- Improving client base development

## As a conclusion on the REX ,

**IOT and data in rail freight is effective and delivers value, but only if it:**

- *is integrated in ops*
- *is an answer to a need*
- *is reliable*

is orientated to  
bring more freight on rail by more efficient services



### Vision:

- Opportunity to expand by bringing more adapted technologies on process
- Stay simple and as much as possible not intrusive
- Keep approach of simple installation
- Be independent of external control and manage integration within our ecosystem



### Challenges:

- Focusing on key processes/needs
- Keep control (risk with external solution)
- Manage costs
- Valuing potential of data by better usage
- Integrating new regulation / safety constraints

## Our future strategy in actions

- Keep momentum of integrating more technology but always focused
- Always evaluate alternatives to existing market solutions to integrate more the small RU specific needs
- Keep dual approach of internal and external development to improve our efficiency and stay responsive to our business issues
- Take advantage of our quick path from idea to test on ground for all the new coming changes in rail freight
- Continue to promote the approach of “self client”



*DAC operational validation test in Belval  
March 2026*

DAC, the new  
challenge / opportunity  
for digitalisation

## Contact

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