

**ASEAN-ESCAP JOINT CAPACITY BUILDING WEBINAR ON
STRENGTHENING RAILWAY TRANSPORT IN ASEAN AND BEYOND
14-15 SEPTEMBER 2021**



**DIGITALIZATION STRATEGY OF RAILWAYS
IN RUSSIA AND THE EURASIAN ECONOMIC UNION
SOME LESSONS**

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EMERGING GLOBAL TRENDS FORMING NEW RAILWAY REALITY



AUTOMATION

further trend development until the system is saturated
artificial limitation is possible

ACCESSIBILITY AND AFFORDABILITY

focus on physical accessibility (driven by demo trends)
likely stratification by affordability

INTEGRATION

integration of transportation modes into unified ecosystems
digital interoperability

DIGITALIZATION

data as an asset
trusted networks and environment

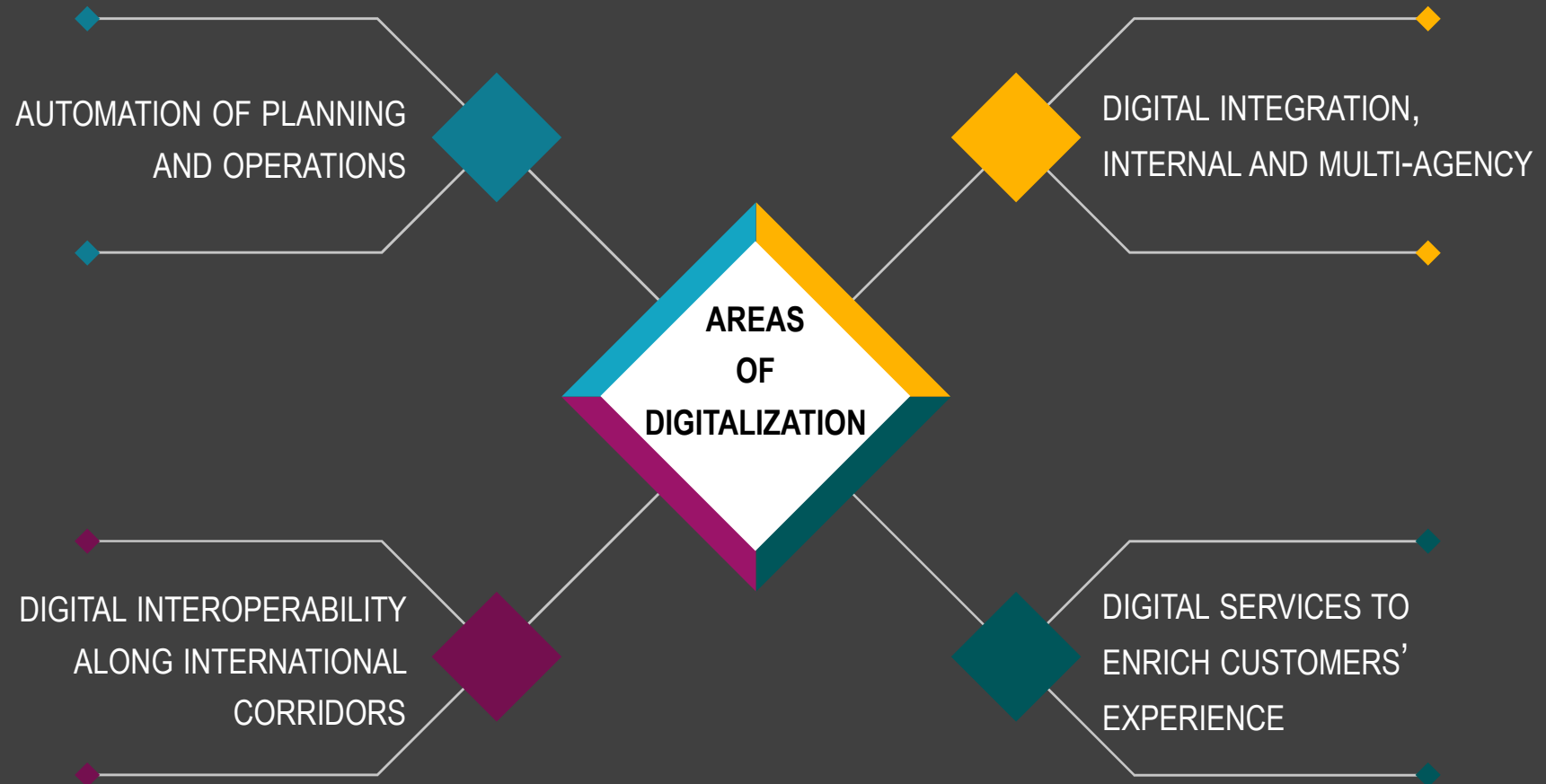
SUSTAINABILITY

new types of fuel
new materials
sustainability and thrift as an imperative

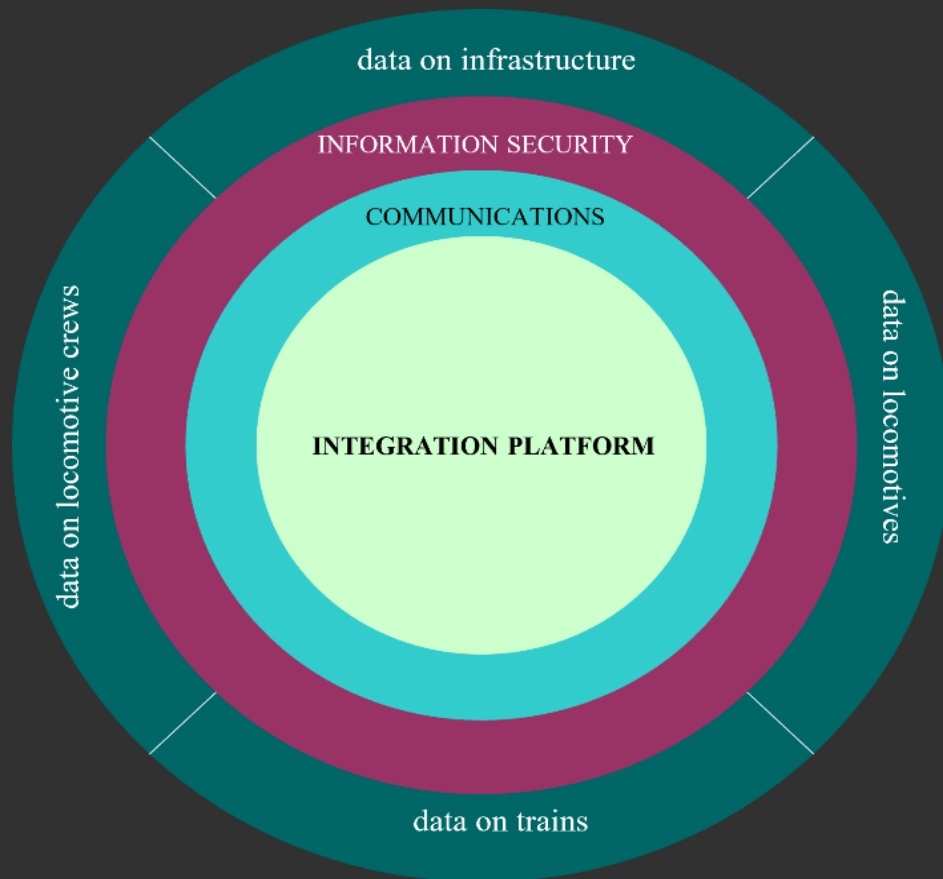
DIGITALIZATION STRATEGY OF RUSSIAN RAILWAYS (1 OF 5)

REGULATING DOCUMENTS:

1. National programme – Digital Transport and Logistics.
2. Development strategy of JSCo Russian Railways till 2030.
3. Long-term development programme of JSCo Russian Railways till 2025 (under revision).
4. Digital transformation strategy of JSCo Russian Railways.



DIGITALIZATION STRATEGY OF RUSSIAN RAILWAYS (2 OF 5)



AUTOMATION OF PLANNING AND OPERATIONS

Integrated Intelligent Process Control and Automation System for Railway Transportation is focused on **improving the quality of transportation services** and optimizing interaction between all operational units.

The system automates end-to-end processes for traffic control, traction, infrastructure and corporate transport service center directorates.

Available **subprojects within the system**:

- (a) development of a standard train schedule,
- (b) traction management,
- (c) traction resource management,
- (d) dispatching control of train traffic.

All these subsystems include **automated decision-making and optimization**.

DIGITALIZATION STRATEGY OF RUSSIAN RAILWAYS (3 OF 5)

DIGITAL INTEGRATION, INTERNAL AND MULTI-AGENCY

Railways of the 1520 mm gauge area has got a high level of digital integration, also with non-rail agencies, especially within the Council for Railway Transport of the Commonwealth of Independent States (CIS CRT).

ETRAN is an automated system for preparation and execution of transportation documents for railway freight transportation owned by Russian Railways.

Key functions:

- operational control over the coordination of applications,
- delivery of transportation documents using data of agreed orders,
- elimination of human factor errors in transportation documents,
- electronic waybill data exchange with foreign railways (Finland, Lithuania, Latvia, Estonia, Belarus, Ukraine, China).

MESPLAN is a system for integrative freight capacity planning applied in the CIS countries for the routes crossing the territory of the Russian Federation.



Picture source: RZD Website

DIGITALIZATION STRATEGY OF RUSSIAN RAILWAYS (4 OF 5)

DIGITAL INTEROPERABILITY ALONG INTERNATIONAL CORRIDORS



INTERTRAN project first started as sea-to-rail exchange.

In 2020 it was complemented with rail-to-rail part with transportation via Russia to Belarus.

According to information from Russian Railways, similar procedures are going to be set for all transit directions in the future.

Picture source: Presentation of Russian Railways

DIGITALIZATION STRATEGY OF RUSSIAN RAILWAYS (5 OF 5)

DIGITAL SERVICES TO ENRICH CUSTOMERS' EXPERIENCE

Electronic Trading Platform for Freight Transportation is a digital marketplace organized and maintained by Digital Logistics, a subsidiary of Russian Railways.

The platform allows booking of services:

- station-to-station transportation service in both universal and specialized rolling stock;
- railway terminal services;
- payments for import and transit operations;
- a large variety of additional services and information.

As of May 2021, the platform is used by 6,200 clients and 4 operators.



In September 2021 the Government of the Russian Federation announced creation of a **multimodal freight transport marketplace**. The project owner is a Ministry of Transport.

NEW PRINCIPLES IN EAEU AREA: ELECTRONIC INTEROPERABILITY = DIGITALIZATION + INTEGRATION

In 2018 EAEU started a programme for developing an ecosystem of digital transport corridors (all modes of transportation) as a part of uniform digital framework.

KEY OBJECTIVES:

- 1) development of **uniform trusted environment** for informational exchange – principle of the third trusted party
- 2) use of **uniform informational space of national control authorities**
- 3) modelling of **trade flows** and development of transport infrastructure
- 4) monitoring of **condition and parameters of transport infrastructure** of EAEU member states
- 5) informational **support of agreements, rules and mutual obligations** in transportation domain



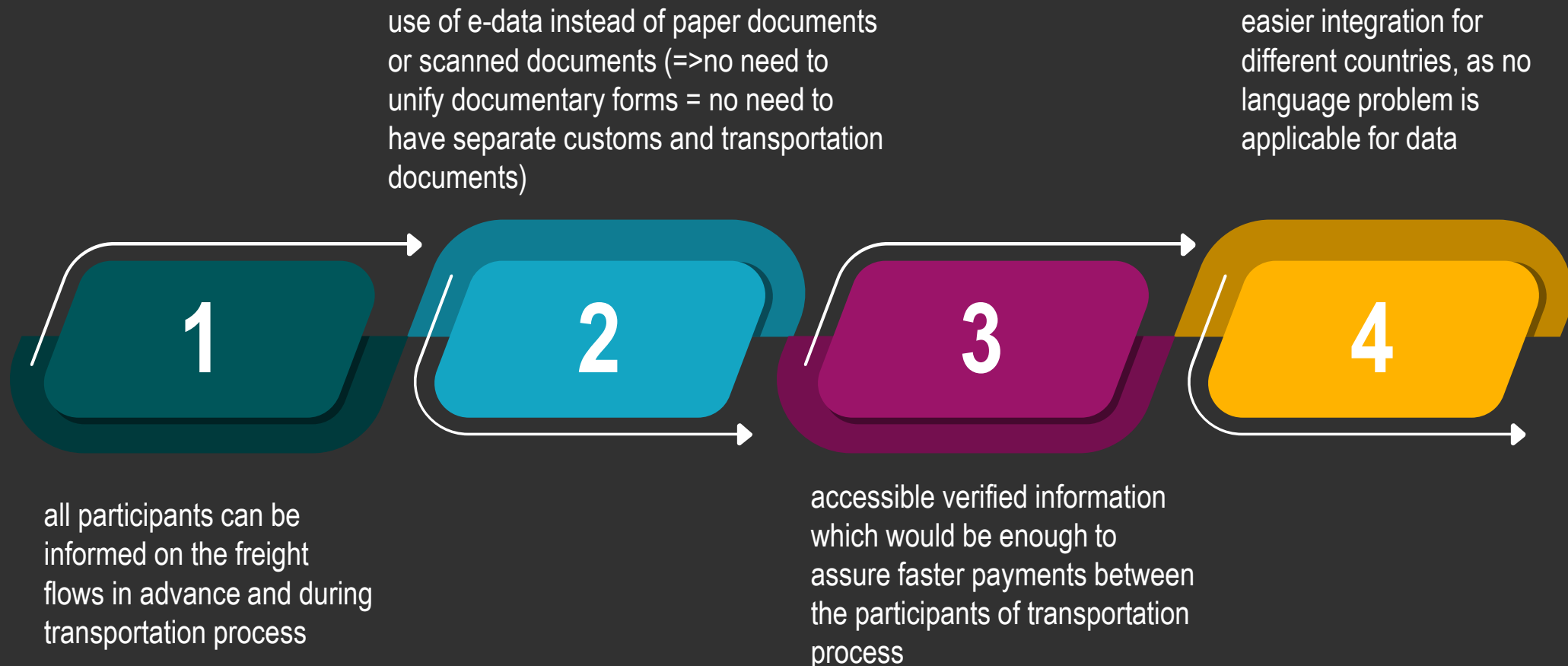
Legal framework

Organizaing framework

Technical framework

NEW PRINCIPLES IN EAEU AREA: FROM INTERNATIONAL CORRIDORS TO DIGITAL ECOSYSTEMS

Digital ecosystem is based not on paper documents flows, but on e-data flows only, where data are accessible for all participants, but are verified and cannot be changed without consequences.



NEW PRINCIPLES IN EAEU AREA: DIGITAL TRANSPORT CORRIDORS AND ECOSYSTEMS

Digital corridors ecosystem is to be structured in several platforms. The ecosystem will have external integration with existing similar platforms: LOGINK (China), NEAL-NET (China, Japan, Republic of Korea), KT-NET (Republic of Korea), SELIS (EU), etc.



**Service
platforms**

**Functional
platforms**

- data and regulatory and reference bases
- monitoring of service performance of digital transport corridors of EAEU

- modelling of the development of digital transport corridors
- monitoring of the conditions of infrastructure of digital transport corridors
- monitoring of logistics processes of digital transport corridors.

USING RUSSIAN AND EAEU EXPERIENCE: SOME LESSONS

1

COMPLEXITY

Digitalization of Russian Railways refers to complex inherited systems.

Such complexity may be avoided for new digital developments.

In many cases new technologies can be directly applied and not transformed from previous systems.

2

INTEGRATION

Digital integration is a focal issue.

This results in seamless geographic and inter-rail connections and better planning of capacities.

Free-flow integration via digital marketplaces helps to diversify and to balance the rail freight market.

3

EFFECTS

Digitalization within EAEU is considered as a part of economic integration.

In September 2021 EEC announced delivery of effects assessment methodology.

All transport digital integration projects should complement economic integration and serve to enhance trade flows.

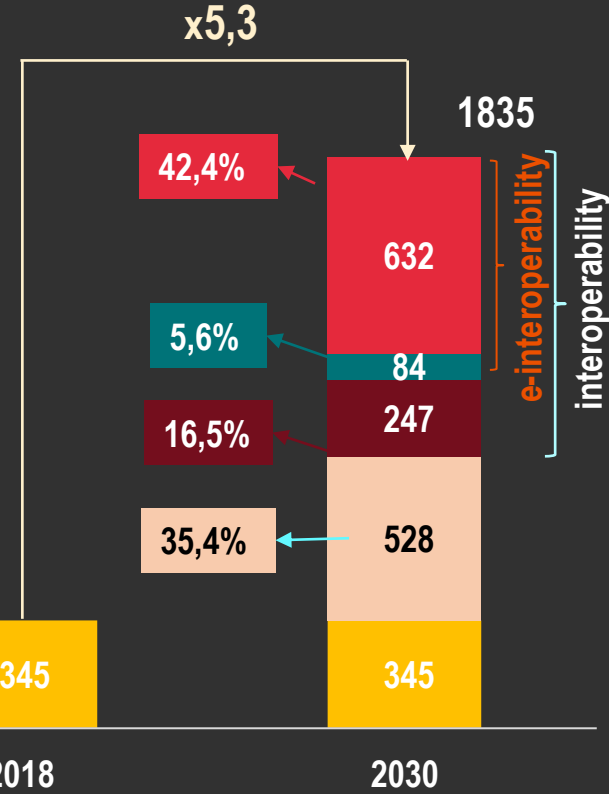
EFFECTS (1 OF 2)

CASES FROM UIC STUDY EURASIAN CORRIDORS: DEVELOPMENT POTENTIAL

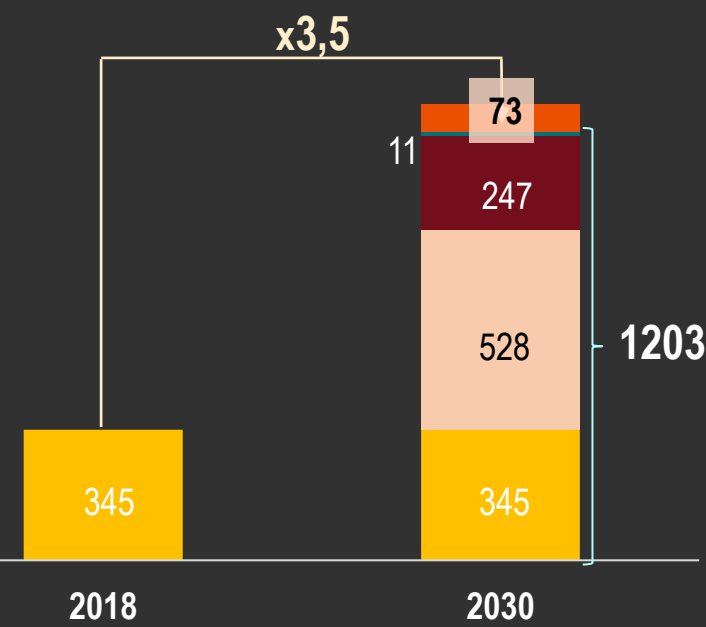
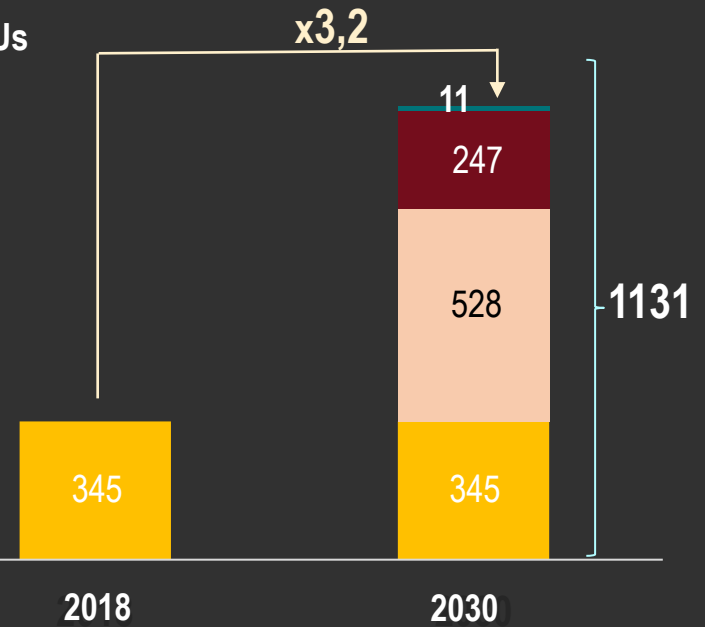
COMPREHENSIVE E-INTEROPERABILITY RESULTING IN PRICE REDUCTION

ACCELERATION OF BORDER CROSSING PROCEDURES

100 % USE OF CIM / SMGS CONSIGNMENT (ELECTRONIC)



Thousand TEUs (loaded)



- 2018 baseline
- Acceleration of the Trans-Siberian Railway (7 days)
- Acceleration of all border crossings to 3 hrs
- 100 % use of CIM/SMGS (electronic)
- Price reduction by 20 % (excl. China)
- Trade growth input

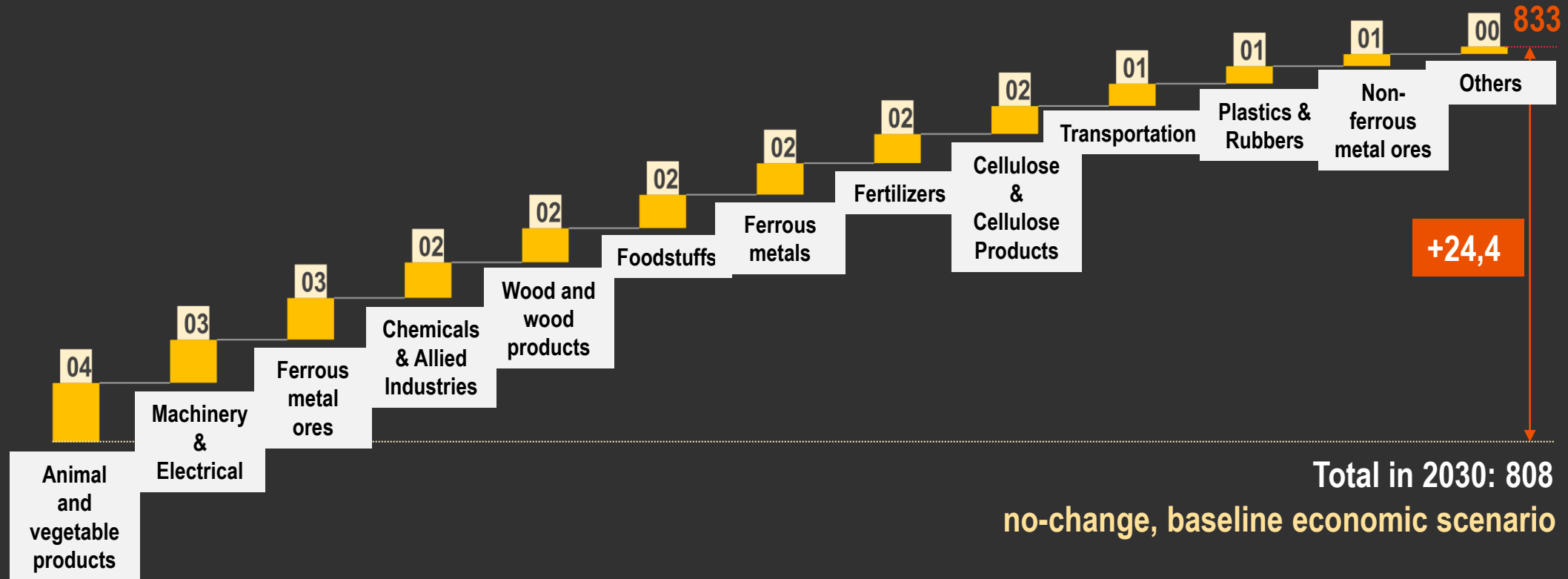
Modelled with TMF™ software.
UIC and IEC study "Eurasian corridors: development potential"



EFFECTS (2 OF 2)

EUROPE – ASIA – EUROPE EXPORTS GROWTH BY COMMODITIES, M TONS

best rail case (e-interoperability)



Modelled with TMF™ software.

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THANK YOU FOR ATTENTION!

CONTACTS

