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European forum and oBsErVatory for OPEN science in transport

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« Open Science in transport: stakeholders involved and their areas of
interest, main gaps and opportunities to overcome »

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Analysis of main actors involved

6 competence areas

Business Modelling area

Environmental area

Legal/Regulatory area

Socio-economic area

Technological area

Transport planning area

Research of scientific resources

Original research data

Operational data directly related to research

Data from published transport research

Analysis of three main actors' categories

Industry

Research

Public authorities

Main findings

Business area

Most influencing actors

- Policy makers
- Public authorities
- Transport networks
- Commercial and logistics transport players

Research question trends

From:

- Increased traffic demand
- Transport efficiency
- Modal shift

Towards:

- Innovative commercial models also using digital technologies
- Fostering seamless and shared mobility
- Cross-cutting issues
- User needs
- People and goods services integration

Main findings (2)

Environmental area

Most influencing actors

- Research centres and universities
- Public authorities
- Commercial transport and logistics industry players
- Policy makers

Research question trends

From:

- Tackle urban pollution
- Improve quality of life

Towards:

- Environmental protection and monitoring
- Blue growth development
- Alternative energies and propulsions (zero emissions targets)
- Impact of land use
- Increase re-use and recycling

Main findings (3)

Transport legal and regulatory area

Most influencing actors

- Policy makers
- Public authorities
- Transport networks
- Commercial and logistics industry players

Research question trends

From:

- Management of barriers and legal issues
- Addressing incentives

Towards:

- Policy and regulatory needs
- Intermodal technical interoperability
- Regulatory frameworks (global level playing field for EU)
- Policies for information and data sharing and ownership
- PPPs and P2Ps
- Unified language for European transport operations

Main findings (4)

Socio-economic area

Most influencing actors

- Public authorities
- Transport networks
- Commercial and logistics industry players

Research question trends

From:

- Safety, social and economic constraints
- Public participation
- Improvement of collective transport for better accessibility and social inclusion

Towards:

- User awareness
- Market liberalisation
- Circular economy in transport
- Investments in EU innovations and transport capacity
- Supply chain cost reduction
- Travel behaviour
- Ageing society
- Pricing and externalities and service economics

Main findings (5)

Technological area

Most influencing actors

- Research centres and universities
- Commercial transport and logistics industry players

Research question trends

From:

- Quality of transport system and services
- Traffic congestion related issues
- Advancement of critical technologies

Towards:

- Smart and connected transport
- Services provision from hub to hub
- Digital awareness and resilience
- Automated vehicles,
- big data, IoT and blockchain
- New space-based applications
- Cooperative systems
- New materials
- Augmented reality systems
- Smart grids and sensors

Main findings ⁽⁶⁾

Transport planning area

Most influencing actors

- Public authorities
- Transport networks
- Policy makers

Research question trends

From:

- Traffic congestion
- Emissions reduction and safety increase

Towards:

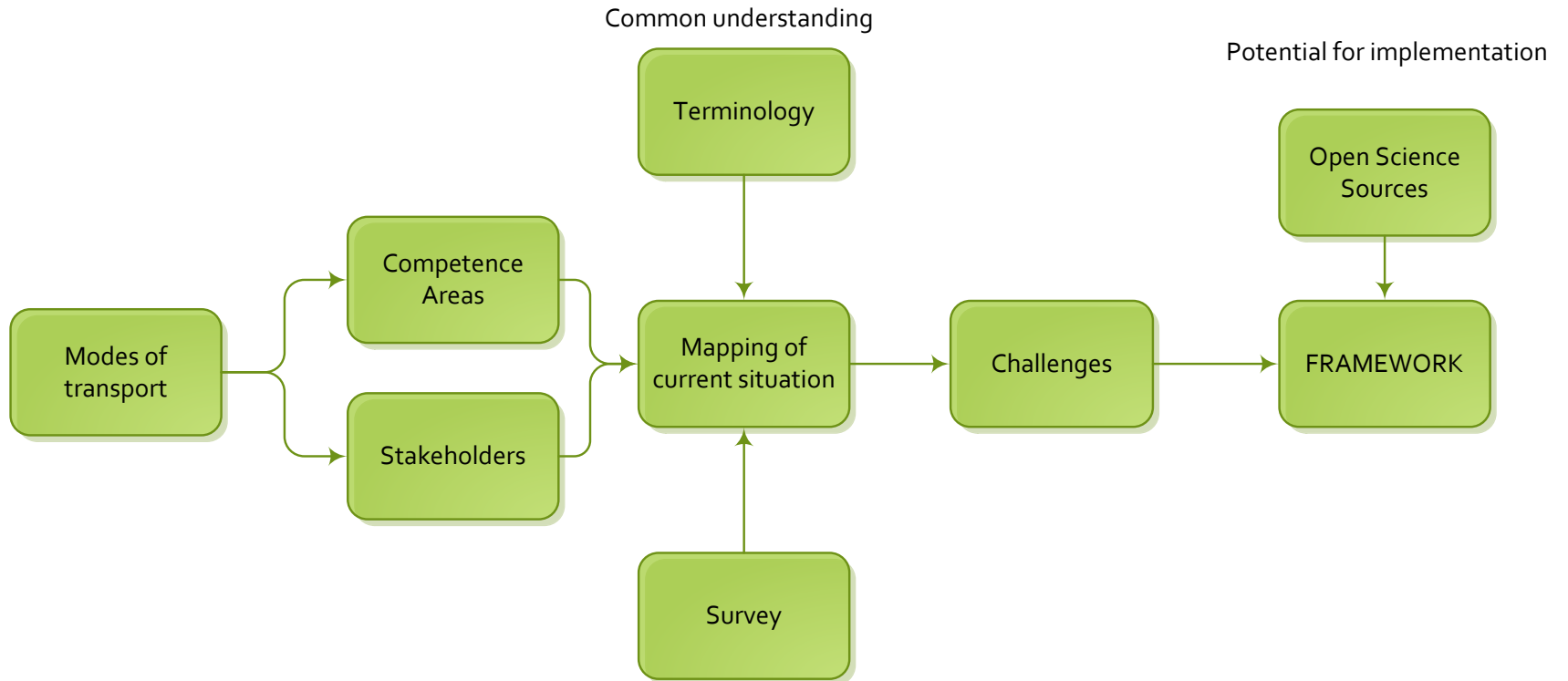
- Accessibility
- Smart city planning
- Network efficiency
- Interoperability within modes
- Integrated and resilient transport systems
- Risk analysis and management

Open Science framework, terminology and instruments

Scope

- Connect transport modes, stakeholders and competence areas to extrapolate the main challenges to be addressed by the framework structure.
- List Open Science main challenges, analyses transport sector stakeholders experience and proposes a framework.

Approach



Areas of Interest & Stakeholders in Transport Research

Areas of Interest:

- Legal/Regulatory
- Technological
- Transport planning
- Business modelling
- Socio-economic
- Environmental

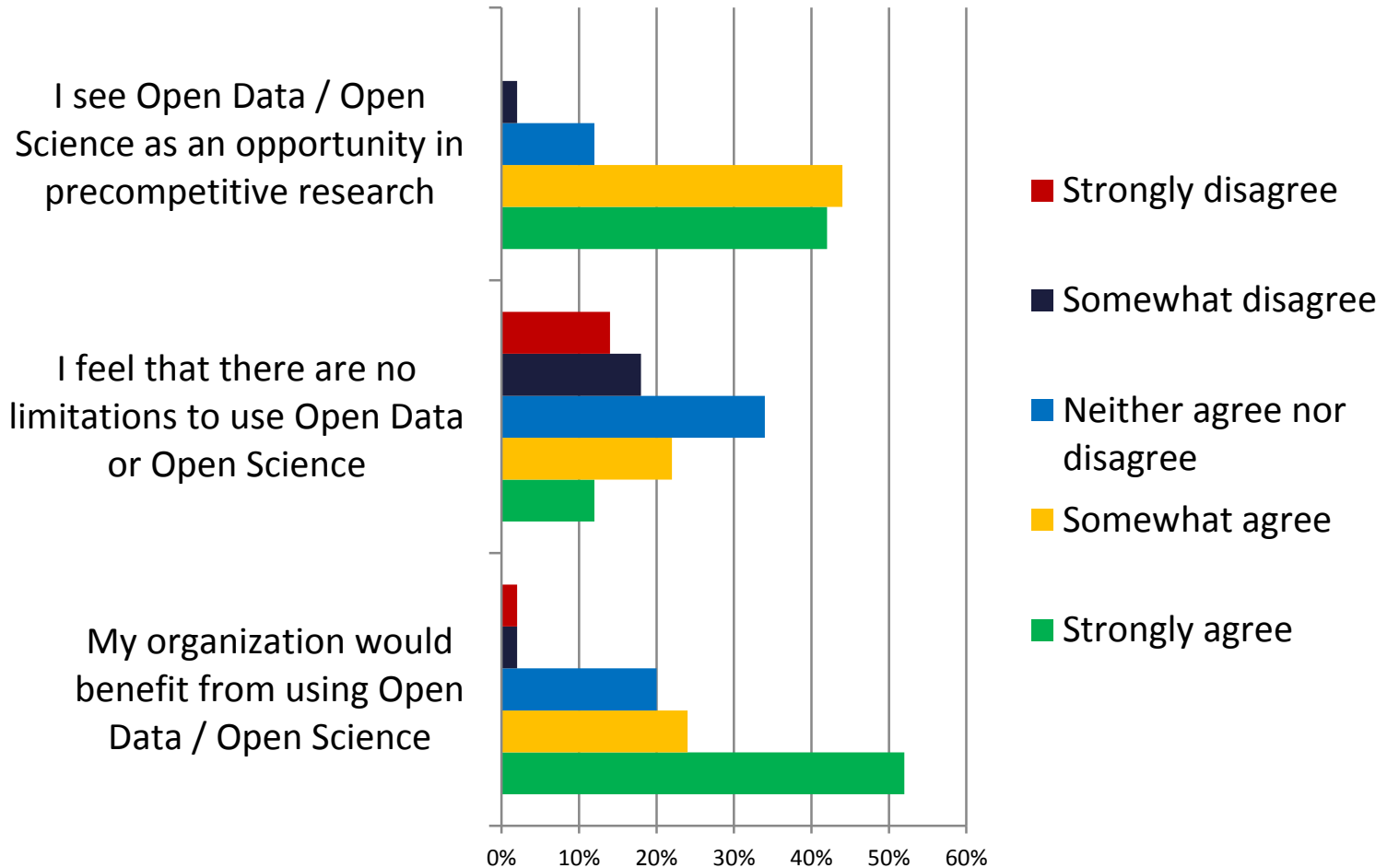
Stakeholders:

- Research centres
- Universities
- Private researchers
- Policy makers
- Transport networks
- NGOs
- Community organisations
- Commercial transport
- Logistics industry
- Citizens

Interrelation of Stakeholders

Competence area	Primary stakeholder	Secondary stakeholders
Legal/ Regulatory	Policy makers, public authorities Transport networks, commercial transport & logistics	Research centres, universities
Technological	Research centres, universities Commercial transport, logistics industry Transport network, policy makers	Transport network, policy makers
Transport planning	Public authorities, transport networks, policy makers	Commercial transport & logistics Research centres & universities.
Business modelling	Policy maker, public authority, transport networks, Commercial transport & logistics	Research centres & universities
Socio-economic	Public authorities, commercial transport, logistics & transport network	Transport network
Environmental	Research centres & universities Public authorities, commercial transport, logistics & policy makers	NGOs & community organizations Citizens

Survey – Stakeholder-centered Study



Challenges

- Fragmented data, data quality, data security
 - Technological framework (standards, etc.)
 - Lack of skilled experts
 - Large variety of stakeholders, privacy principles
 - Legal framework
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- Establish **common understanding** among all stakeholders
 - Provide a common **technical framework**
 - develop appropriate **funding mechanisms**

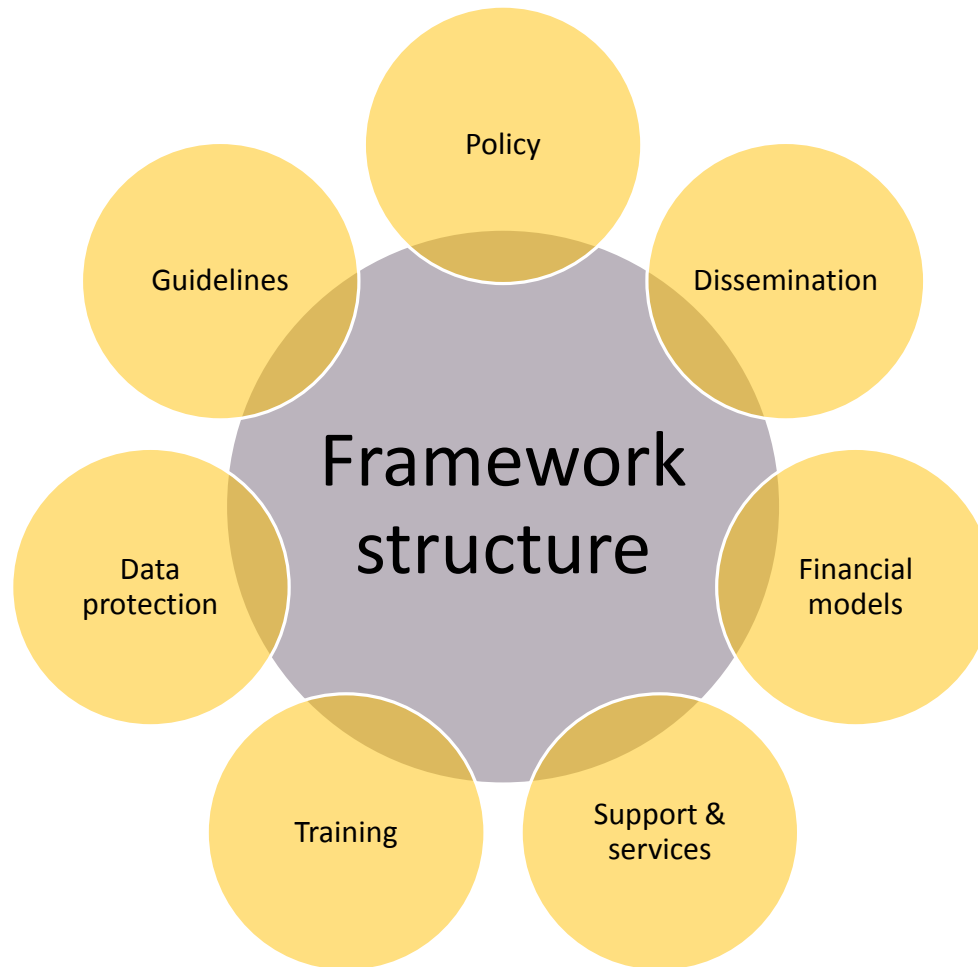
Challenges & Opportunities

Identified Challenge	Framework Topics	Opportunities
Fragmented data & large variety of stakeholders:	Policy and Guidelines, Dissemination of Open Science in transport research data	Research Data Alliance (RDA)/ RDA Europe 4 Transport fOrum/ Observatory for Promoting Open Science - TOPOS Implementation Roadmap for the European Science Cloud – Communication European Cloud FREYA V-Advance
Data quality	Explicit guidelines	EU ODP EUROSTAT FAIR European Commission Open Research Publishing Platform TRIMIS
Enhancing data security & privacy	Data protection and security	Cyber security framework EOSCPilot

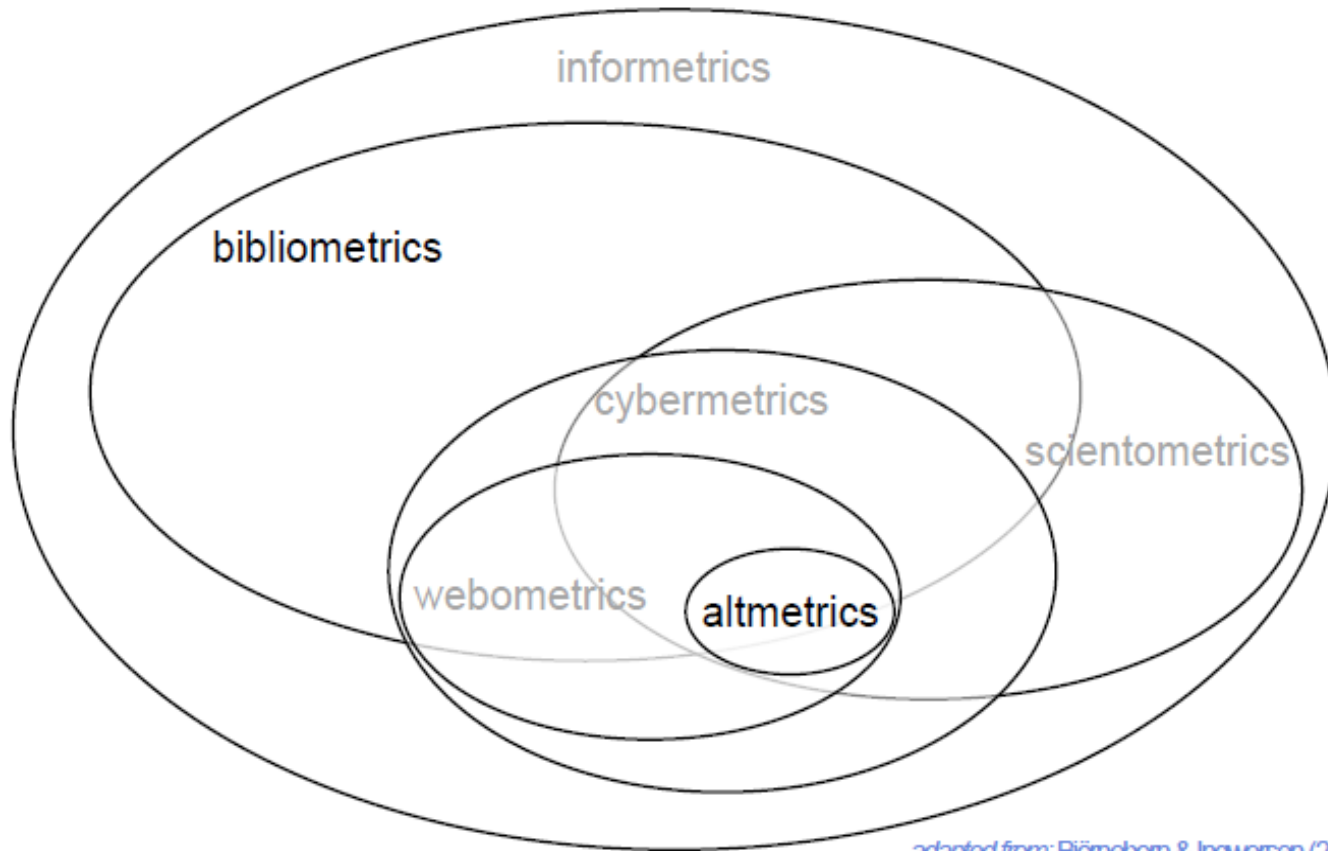
Challenges & Opportunities

Identified Challenge	Framework Topics	Opportunities
Technological challenge	Support and research services	Transport Research Cloud (TRC) eInfraCentral Next generation repository FREYA EOSC-Hub OpenAIRE-Advanced GO-BUILD – coordinating FAIR technology
Lack of skilled experts	Training requirements	GO-Train, European Skills and Qualifications Matrix for Open Science. FOSTER Plus
Legal challenges	Policy	Policy development to create common understanding EOSCPilot Open Science Policy Platform V-Advance GO CHANGE
Funding	Financial schemes	EC initiative to support Open Science

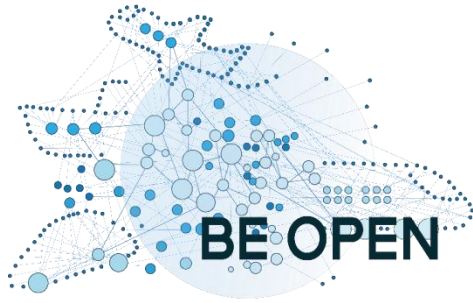
Framework & Metrics



Framework & Metrics



adapted from: Björneborn & Ingwersen (2004, p. 1217)



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