INTERMODEL

WP2: INTEGRATED PLANNING ENVIRONMENT AND DECISION SUPPORT

VTT Technical Research Centre of Finland

1st global meeting

Kiruna, April 2017

European Commission

HORIZON 2020

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- WP2 aims is to develop **a holistic integrated planning environment** to increase interaction
  - Enables technical management with models and supports making decisions
- WP2 considers **life-cycle from planning**, design and construction **towards the operational** analyses
  - Utilization of models
  - Closely coupled with indicators (WP3), pilot modelling (WP4) and operational simulation (WP5).

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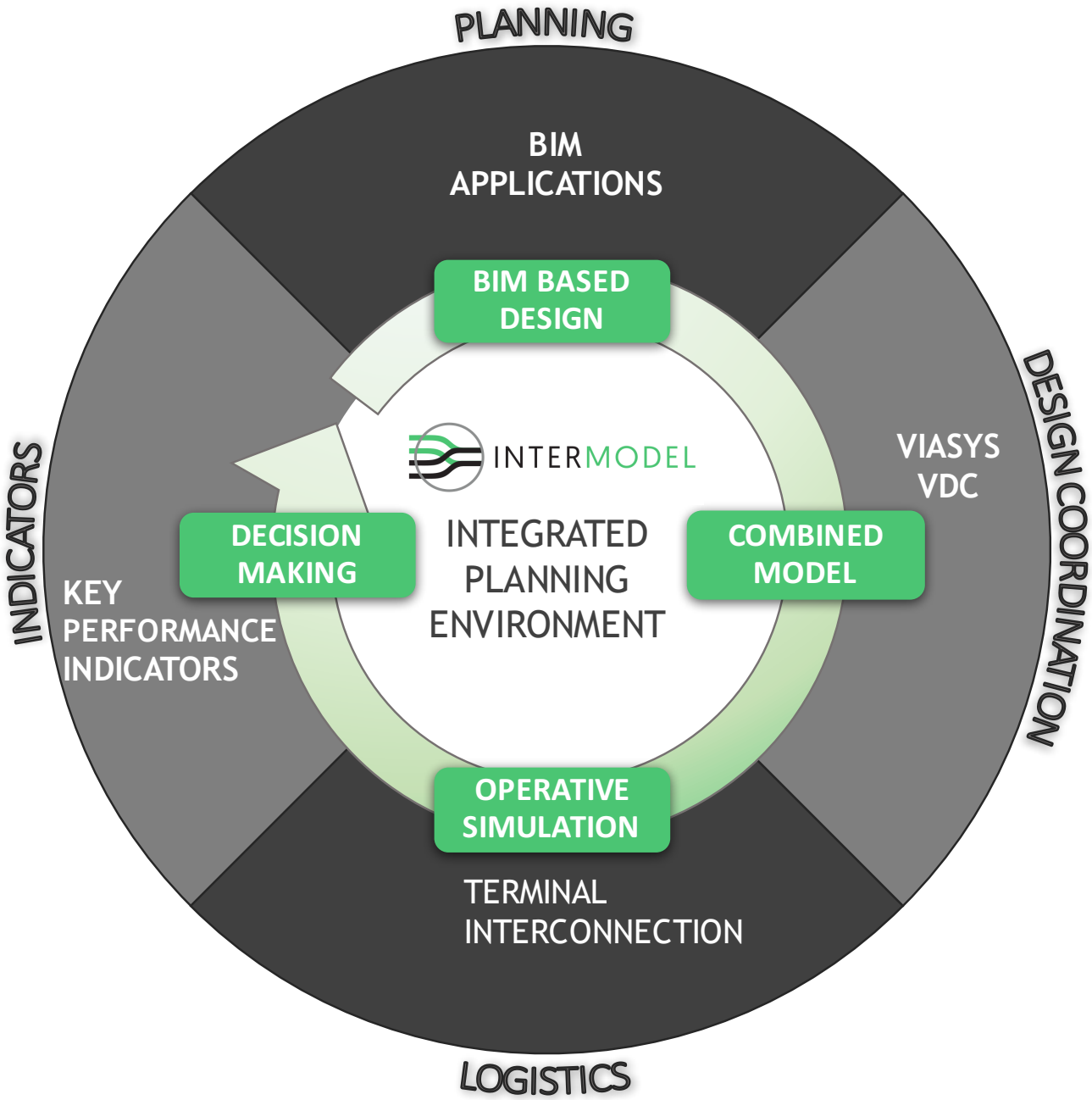
1- STATUS OVERVIEW



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- WP2 is **progressing on time** (VTT, VIAN, IDP, MAC)
- **2 deliverables under development**, regular online meetings
  - Data requirements D2.1 (M0-M9)
  - Integration environ. architecture D2.2 (M4-M12)
- **Pilot terminals visited** in Melzo and La Spezia
- Discussions ongoing about use case description, interfaces and software tools.

- Tasks:

active

- **Information requirements for terminal use cases** (Task 2.1)
- **Architecture and interfaces for integrated planning environment** (Task 2.2)
- Integrated planning environment prototype with new functionalities (Task 2.3)
- Model coordination in pilots (Task 2.4)
- Decisions with integrated planning and enhanced interaction (Task 2.5)

2- OBJECTIVES AND DELIVERABLES

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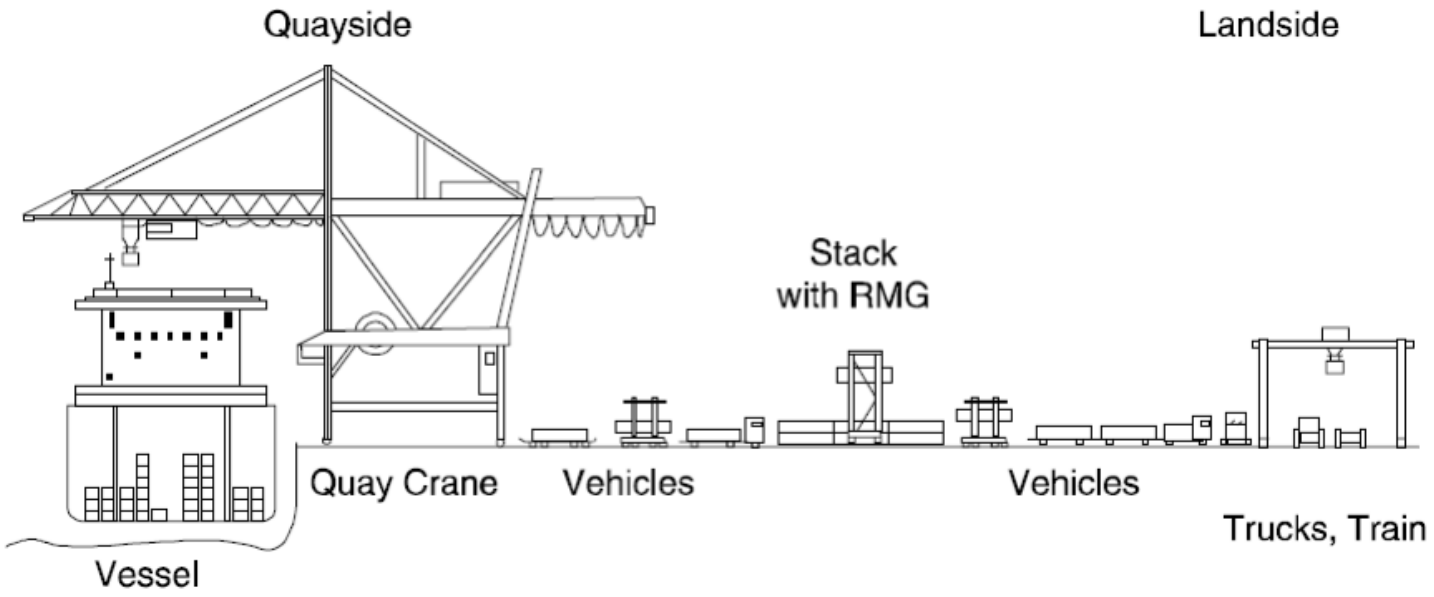
active

Deliverable	Month	Important
D2.1 Requirements for terminal projects	M0-M9	Describe information requirements for terminal use cases.
D2.2 Integrated planning environment architecture	M4-M12	Describe architecture, based on Viasys VDC.
D2.3 Interoperability and data exchange specification	M4-M18	Specify interfaces, open formats.
D2.4 Documentation of implemented integrating ICT env. prototype	M12-M24	Guide and coordinate modelling.
D2.5 Interactive decision making with integrated planning environment	M16-M30	Collaborative planning, decision processes, technology utilisation
D2.6 Gaming technology in interactive operational visualisation	M16-M30	Based on terminal 3D models (WP4) and operational simulation (WP5).

Milestone	Month	Related deliverables
M2.1 Prototype for integrated planning for terminal projects	M24	D2.1, D2.2, D2.3, D2.4
M2.2 Video for interactive operation. game technology visualisation	M24	D2.5, D2.6

D2.1 – Information requirements for terminal use cases

- **D2.1 draft published** (v0.5)
- Terminal is distributed into **functional areas** (various purposes for their use)



Overview of container terminal system (Steenken et al., 2004)

D2.1 – Information requirements for terminal use cases

- **Terminal area** (restricted access)
  1. Waterside area (Quays, navigation area)
  2. Quayside transport (transport between vessel and stack area)
  3. Stacking area (Piles of containers, equipment to move containers)
  4. Vehicle loading/unloading area
  5. Train loading/unloading area
  6. Internal transport area (connects different parts of the terminal; railways and roads)
  7. Other terminal facilities (needed for working)

D2.1 – Information requirements for terminal use cases

- **Support operations** (restricted access)
  1. Logistics area (storage facilities, container loading/ unloading)
  2. Container depot area
  3. Facilities for port equipment maintenance
- **Adjacent areas** (public area)
  1. Gate area (Truck, railway, customs, weighting of the containers, scanners)
  2. Connections to hinterland
  3. Connections to waterways
  4. Office area (Port administration, offices, parking)

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3- WORK DONE

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Pilot terminal visits (password "Intermodel) (see photos)

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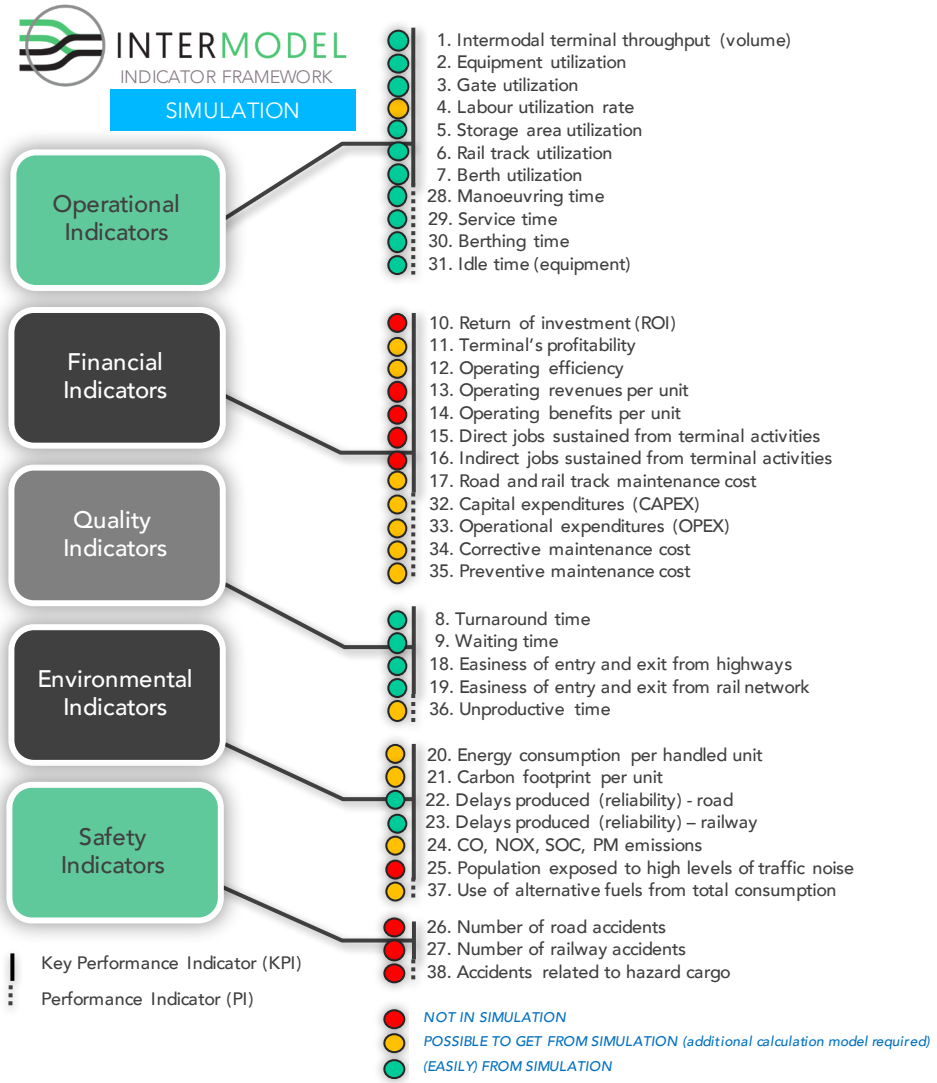
D2.1 – Information requirements for terminal use cases

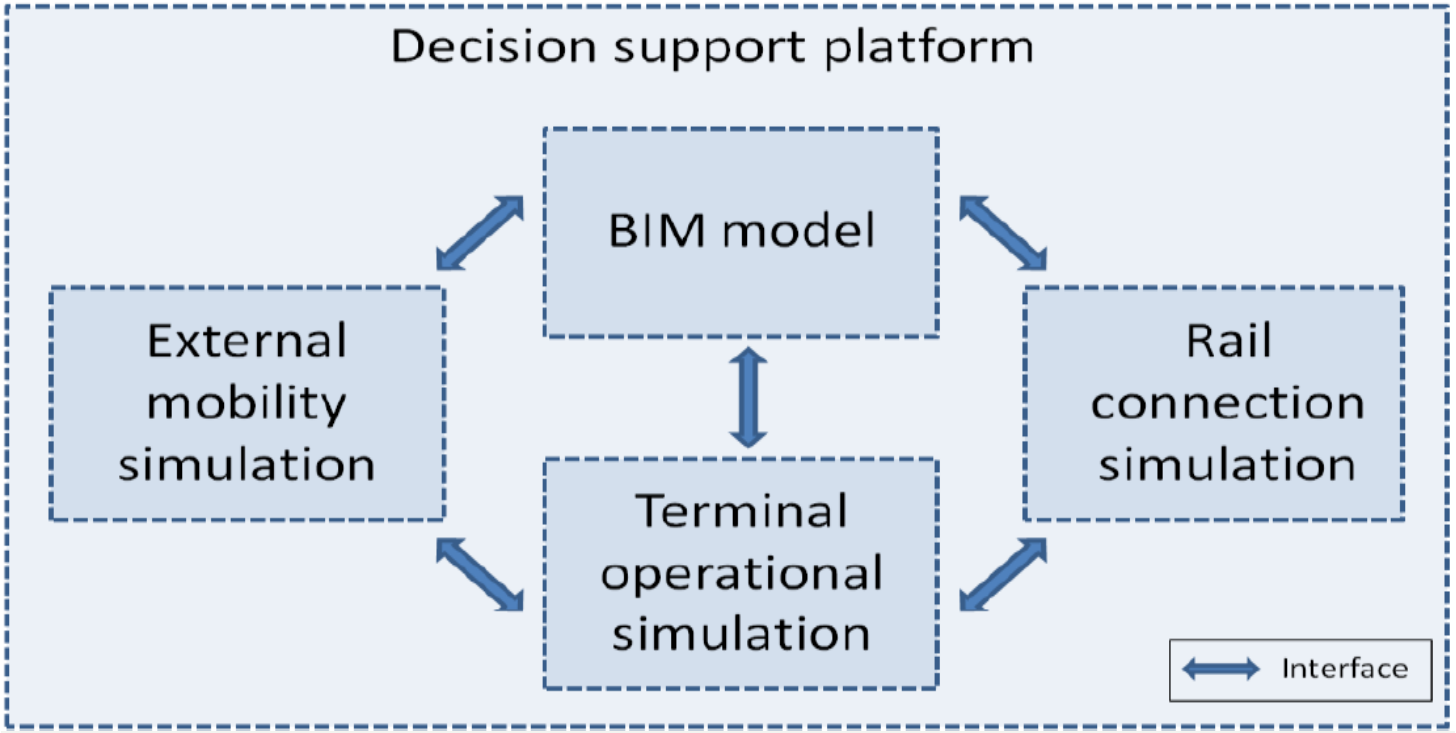
- Indicator analysis
  - How easily indicator data may be collected from operational simulation
  - Traffic lights indicate
    - Green = easy
    - Yellow = possible
    - Red=not available



D2.2 - Integrated planning environment architecture

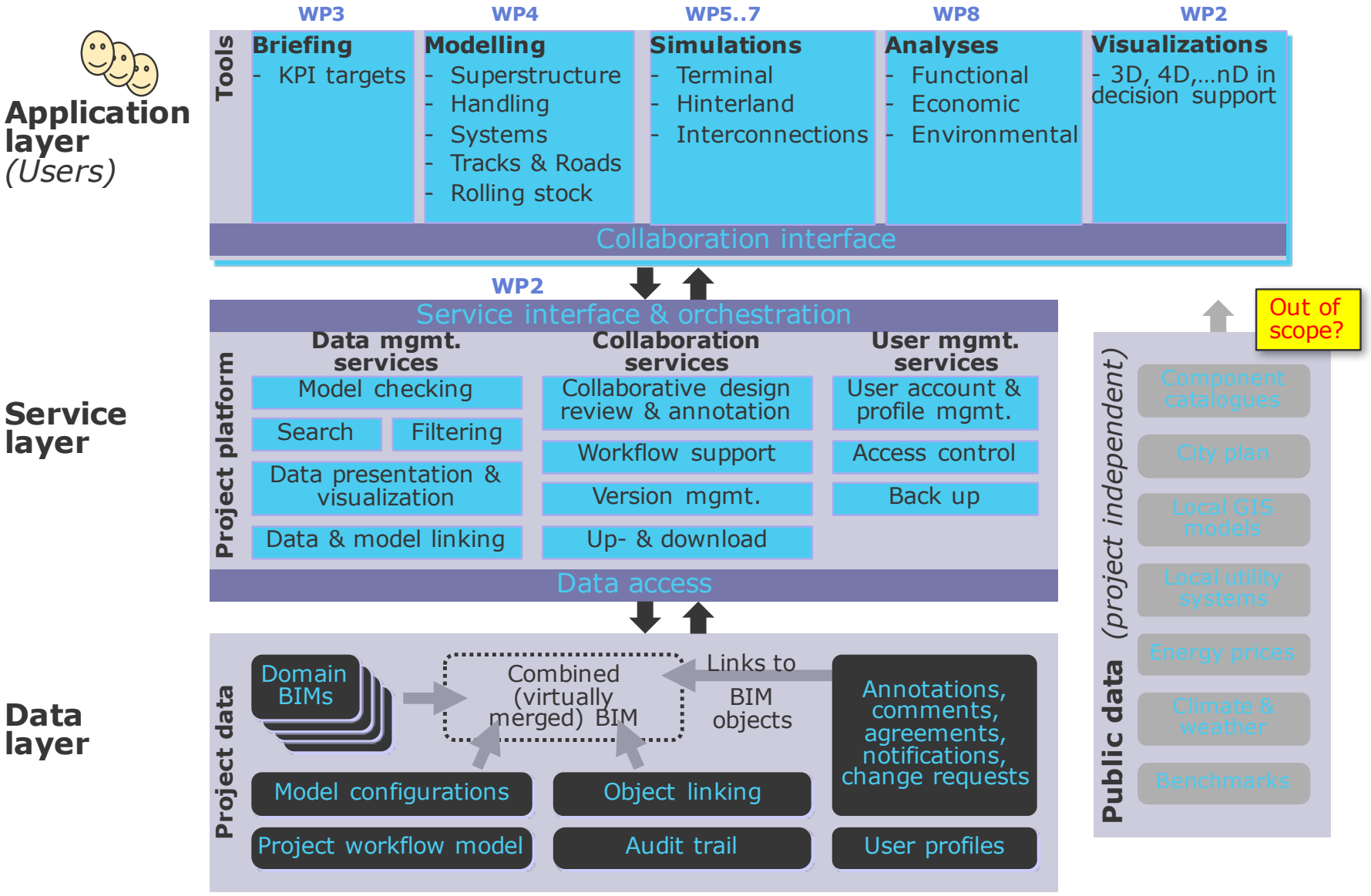
- **Deliverable draft prepared** (v0.1)
- An **ICT environment** will be developed to integrate **four different modules** into a single decision making tool in order to provide an integral assessment of a freight rail terminal.
- **BIM model** of the terminal: *3-D model(s)*, with *cost*, *scheduling*, *energy efficiency* and *environment* dimensions.
- **Simulation models**: performance of all processes of the *terminal operation*, jointly *performance of two terminals connected by rail*, *impacts on the hinterland road network*.

D2.2 - Integrated planning environment architecture



A cloud based service approach will be proposed, allowing partners remotely access the on-going virtual plans of railway terminals.

D2.2 - Integrated planning environment architecture



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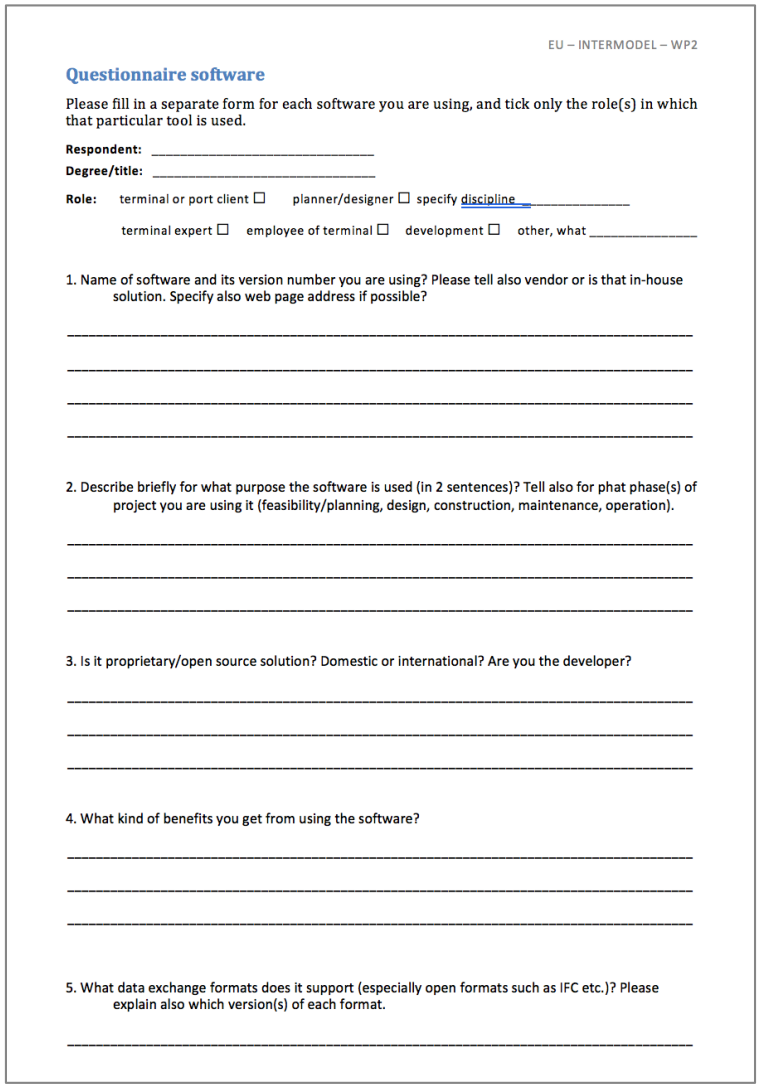
D2.2 - Integrated planning environment architecture

- **Questionnaire** under development to **map relevant software tools** for terminal projects from participants
- Needs further consideration together with WP4 (Modelling)



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Questionnaire software

Please fill in a separate form for each software you are using, and tick only the role(s) in which that particular tool is used.

Respondent: _____

Degree/title: _____

Role: terminal or port client ☐ planner/designer ☐ specify discipline _____

terminal expert ☐ employee of terminal ☐ development ☐ other, what _____

1. Name of software and its version number you are using? Please tell also vendor or is that in-house solution. Specify also web page address if possible?

_____

_____

_____

_____

2. Describe briefly for what purpose the software is used (in 2 sentences)? Tell also for phat phase(s) of project you are using it (feasibility/planning, design, construction, maintenance, operation).

_____

_____

_____

3. Is it proprietary/open source solution? Domestic or international? Are you the developer?

_____

_____

_____

4. What kind of benefits you get from using the software?

_____

_____

_____

5. What data exchange formats does it support (especially open formats such as IFC etc.)? Please explain also which version(s) of each format.

_____

Collaboration environment to support work

WELCOME TO CREATION LAB

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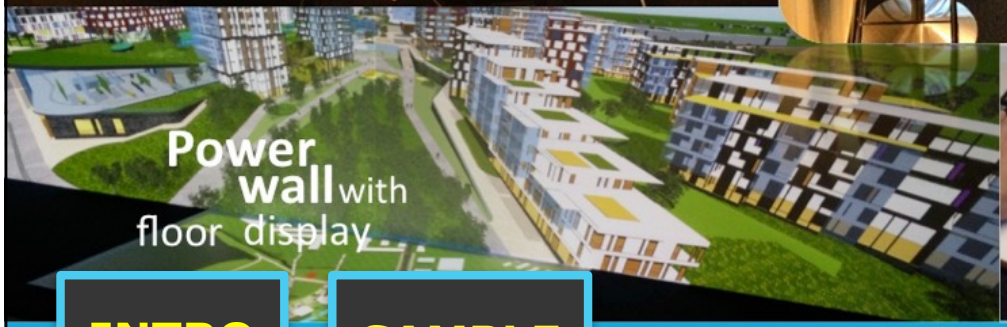
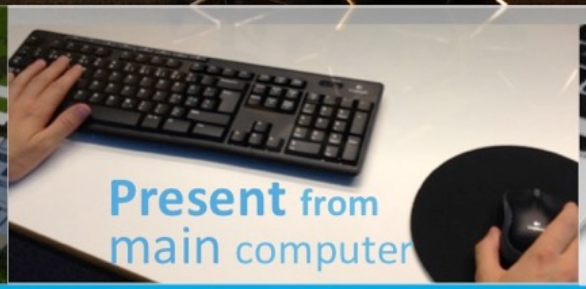




INTRO 1 MIN

SAMPLE 5 MIN

ADDRESS Tekniikantie 4A, Otaniemi, Espoo (Finland)

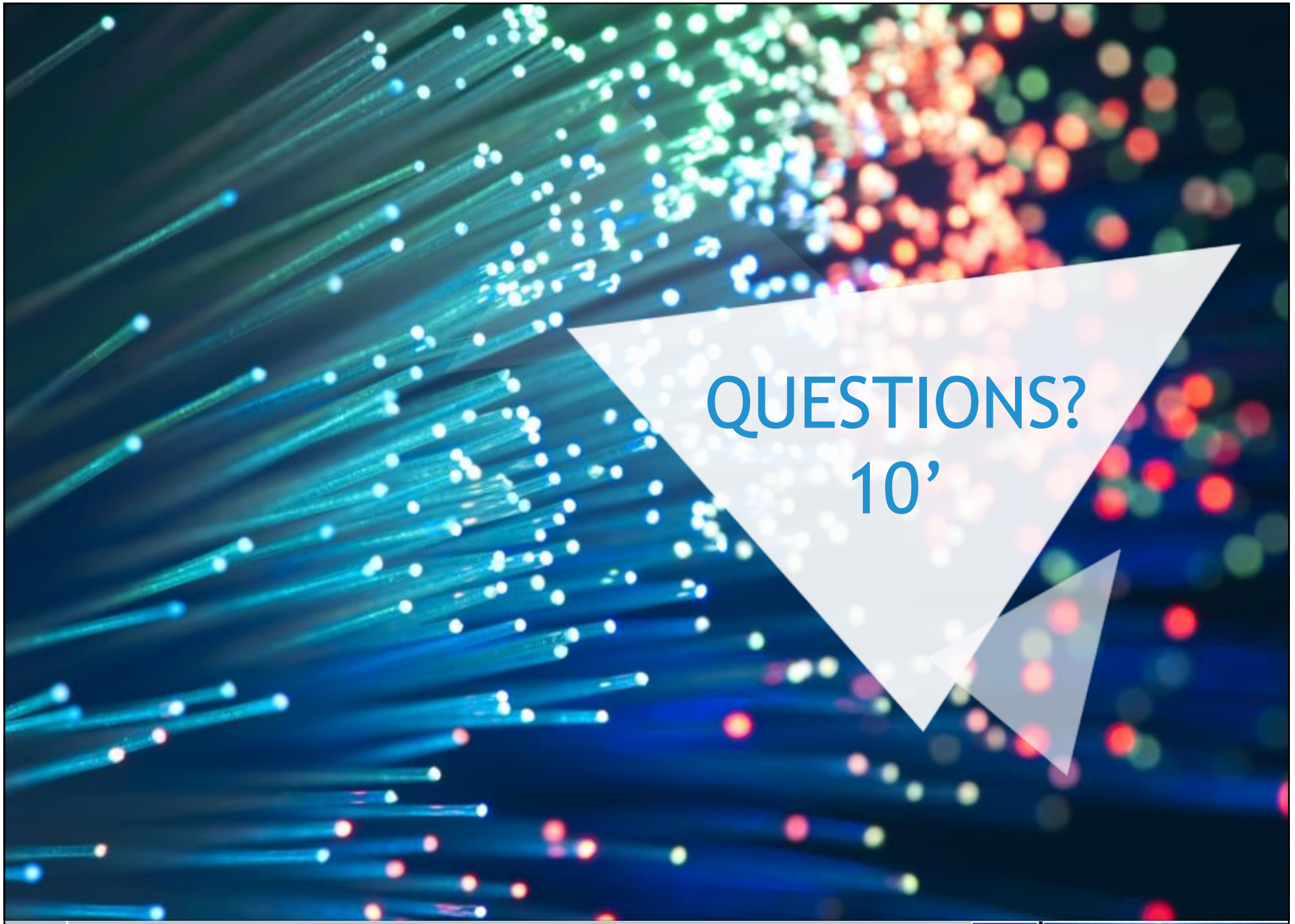
http://cic.vtt.fi/creationlab

- Complete D2.1 Information requirements for terminal use cases (M0-M9)
- Complete D2.2 Integrated planning environment architecture(M4-M12)
- Contribute to D2.3 Interoperability and data exchange specification (M4-M18) - *open standards in terminal projects to improve interoperability*
- Begin integrated platform development

- Expectations to participants
  - VIAN: Technical expertise, best practices, platform development, model coordination
  - IDP: Technical expertise, modelling (WP4), software mapping.
  - MAC: Simulation expertise, interface/API between model to operational simulation (WP5).
  - CENIT: Expertise on indicators (KPI's from WP3).

- D2.1: Schedule for delivery was harminised to task delivery → M0-M9 (earlier M0-M6)

- Risk 1: Use case description
- Risk 2: Indicators in assisting decision making
- Risk 3: Lacking partner information on used software tools and their data exchange (questionnaire under development)


QUESTIONS?
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THANKS!

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