

Coordination and support Action for Mobility in Europe: Research and Assessment

Looking for evidence in data: Insights gathered on mobility research in Europe

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Artificial intelligence as a research assistant?

- Identification of research themes in a <u>large</u> corpus of <u>unstructured</u> textual information
 - Need to automatise
 - Use AI to create knowledge on mobility research landscape in EU





Al-powered model #1

 Identification of research themes in a large corpus of <u>unstructured</u> textual information





Most common research topics

ہط! (9) High-level strategies for transport innovation

(8) Multimodal transport networks for both passengers and freight

(7) Transport models harnessing the power of data

> (6) Air traffic management (ATM)



Mobility

Research

Topics

(5) Green urban mobility technologies

(1) Green aircraft technologies of the future

(2) Novel concepts in mobility

(3) Security systems in transport and mobility

(4) Intelligent machines and automation in transport



Al-powered model #2

• How do mobility projects align with the objectives defined in KPAs in PF?





Information retrieval

- Searches for **relevant information** within a collection of unstructured (textual) data
- Organises found information \rightarrow **knowledge**





- Probabilistic model \rightarrow **approximate matches**, not a solution
 - Returns: **RELEVANT documents** in some order
 - retrieval function based on semantic similarity metrics



Mobility-relevant projects in two multidimensional spaces

Research topics



Key Performance Areas (KPAs)



Research topics: representation in the dataset of mobility projects



Research topics: representation in the dataset of mobility projects



CAMERA



Geographical distribution





Correlational analysis





Trend analysis





Trend analysis



Understanding mobility research landscape: Mobility layers





Marrying KPAs and research topics



Green aircraft technologies Green undan technologies Transport models networks Highlevelstrategies Intelligent machines Security Systems Digitalisation and information -WEAK **MODERATE** STRONG Safety Interoperability Access and equity Security -Environment -Flexibility Predictability -Capacity -Operational efficiency -Cost effectiveness

Research Topics

Deep dive #1: Environment



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CAMERA



Deep dive #2: Digital transformation





Source: Google LLC "Google COVID-19 Community Mobility Reports"



Deep dive #3: Impact of Covid-19

Scenarios	Traffic Level	Parameters modified D2K/K2D	Parameters modified K2G	Parameters modified G2K
Scenario 1	12% of 2019	Airport access time via public/private transport (↓)	Immigration, buffer time (↑)	Immigration time (↑)
Scenario 2	45% of 2019	Same as Scenario 1		
Scenario 3	95% of 2019	Same as 2019		



Distributions of D2G+G2D times in the baseline (blue) and in the scenarios (orange). Insets: QQ-plot comparing the baseline and the scenario distributions.





Thank you for your attention. Now it's time for a coffee break!

