

WORKSHOP: SUSTENTABILIDADE E INCLUSÃO SOCIAL NA GESTÃO DE
TRANSPORTES PÚBLICOS: TÉCNICAS DE APOIO À DECISÃO

VISUALIZAÇÃO DA INFORMAÇÃO ORIENTADA AO PÚBLICO E AO APOIO DA GESTÃO DA MOBILIDADE URBANA

14 DE DEZEMBRO DE 2021

FCT
Fundação
para a Ciência
e a Tecnologia

COMPETE
2020

PORTUGAL
2020



UNIÃO EUROPEIA
Fundo Europeu
de Desenvolvimento Regional

(PTDC/ECI-TRA/32053/2017 and POCI-01-0145-FEDER-032053)

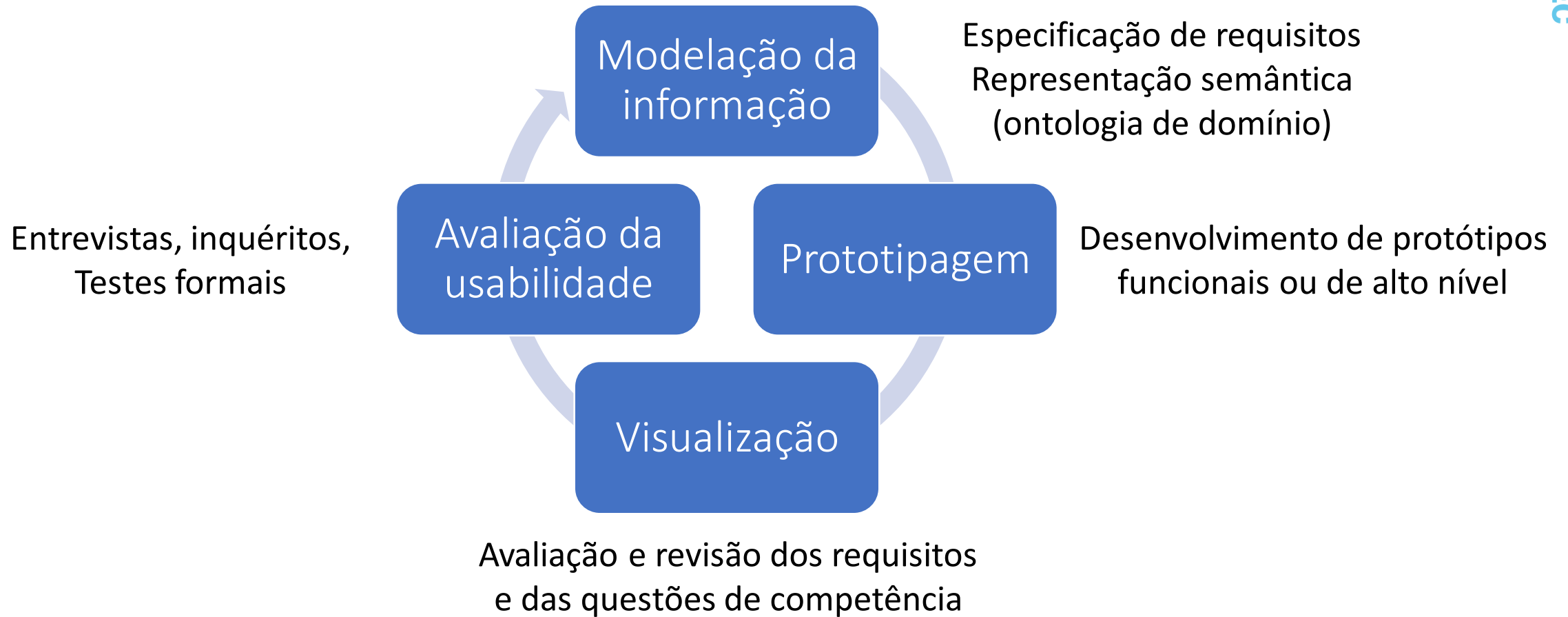


THIAGO SOBRAL

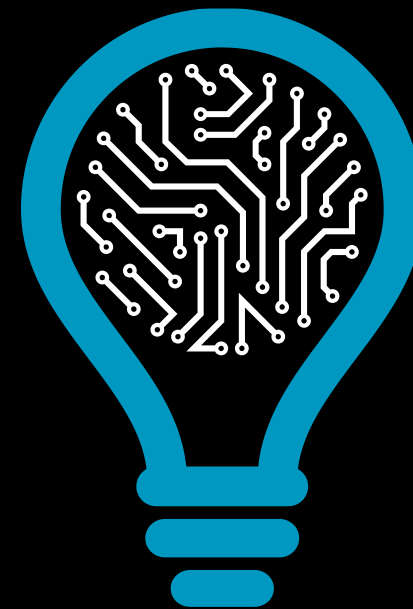
MOTIVAÇÃO

- Melhorar o acesso e a qualidade da informação sobre as redes de transportes públicos;
- Múltiplas perspetivas para a gestão da mobilidade urbana;
- Interfaces interativas para a exploração e análise dos dados;
- Dados heterogéneos provenientes de diversas fontes.

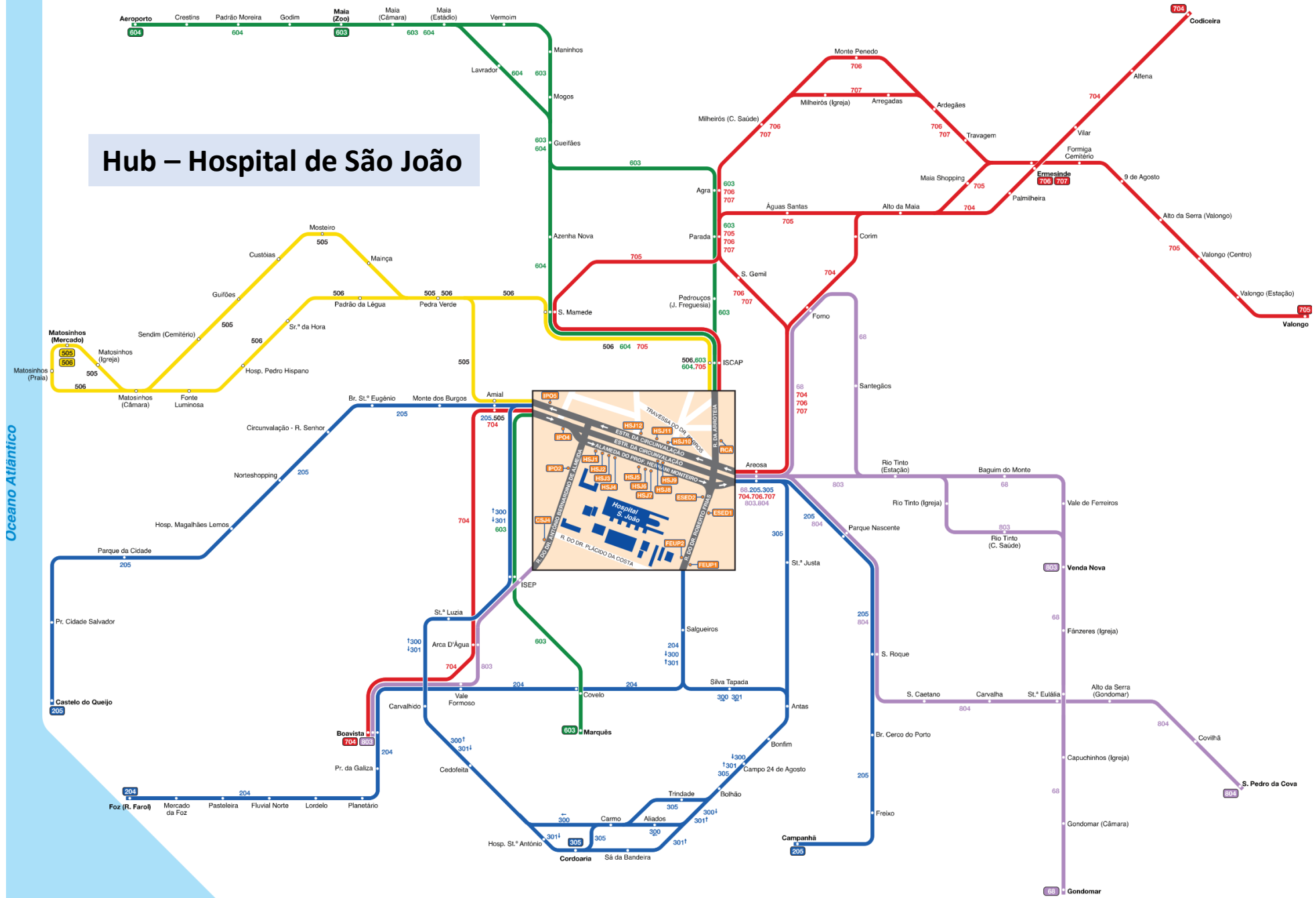
ABORDAGEM



INFORMAÇÃO AO PÚBLICO



Hub – Hospital de São João



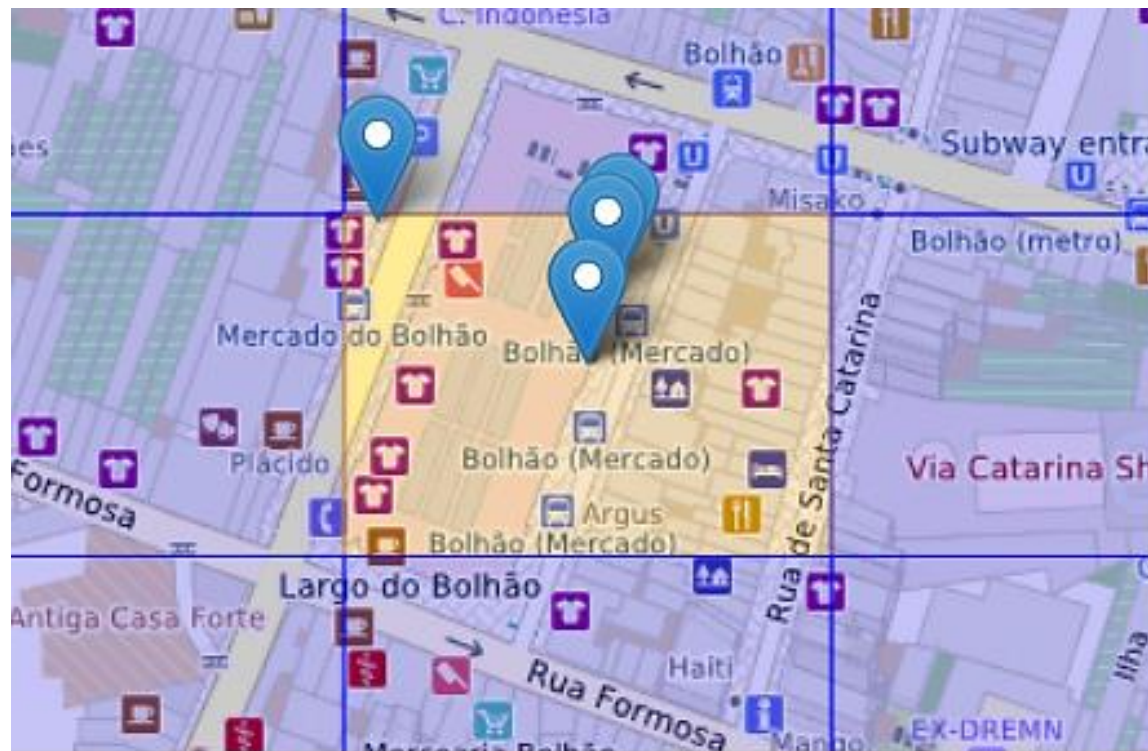
Oceano Atlântico

GERAÇÃO AUTOMATIZADA DE SPIDER MAPS

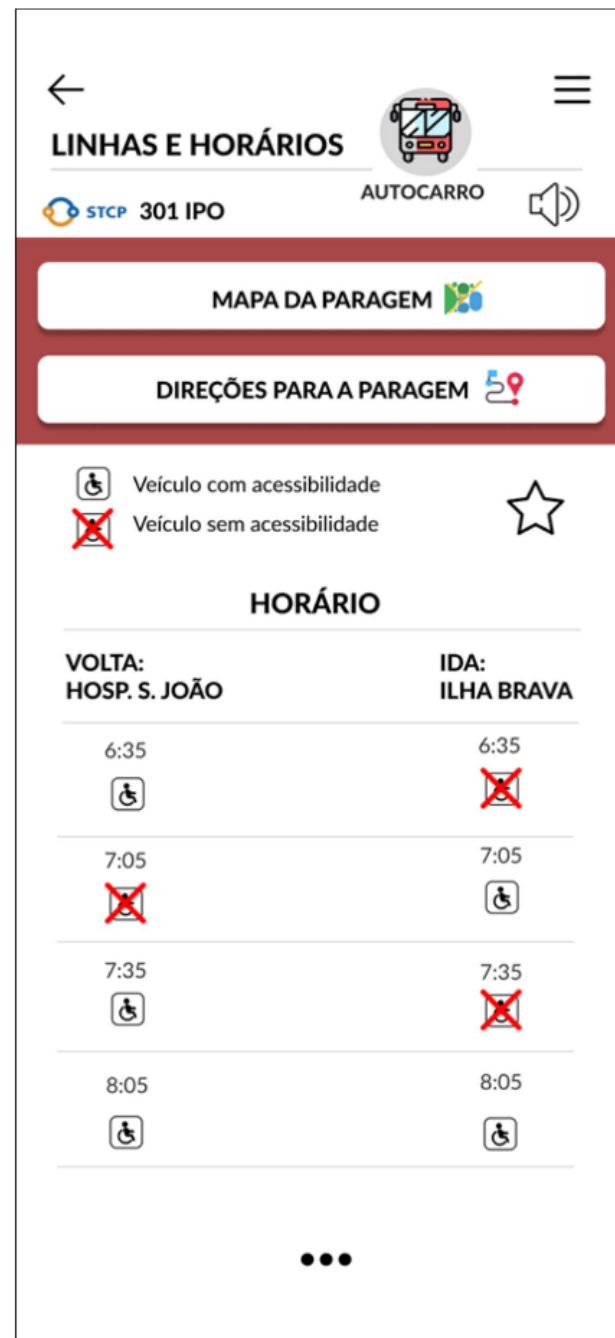


[Santos et al., 2020]

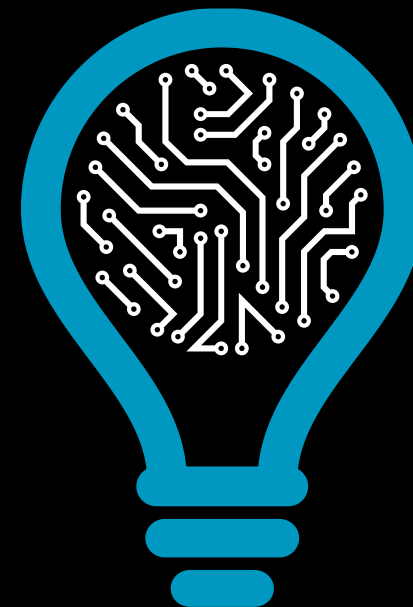
GERAÇÃO AUTOMATIZADA DE SPIDER MAPS



[Santos et al., 2020]

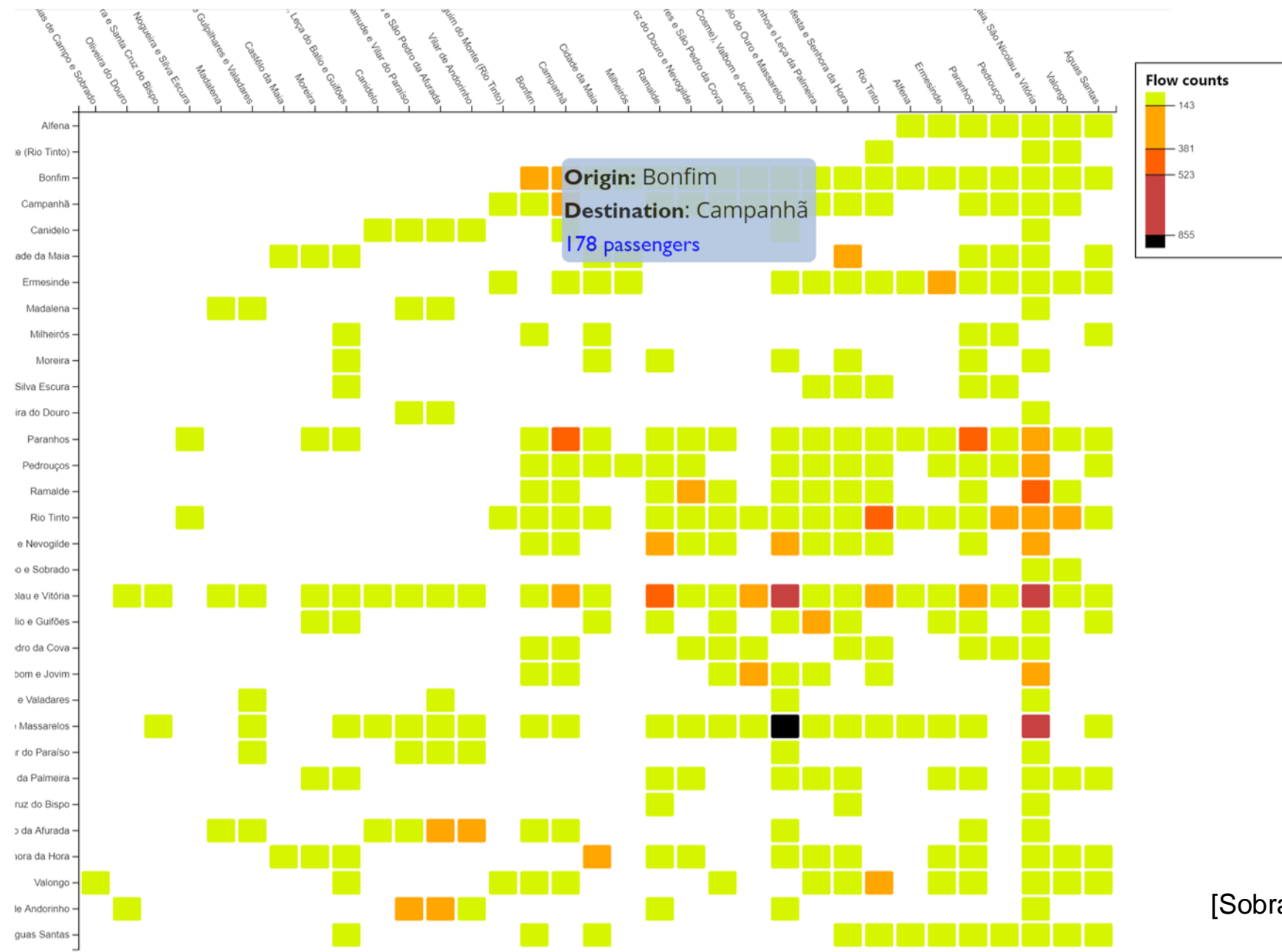


GESTÃO DA MOBILIDADE URBANA



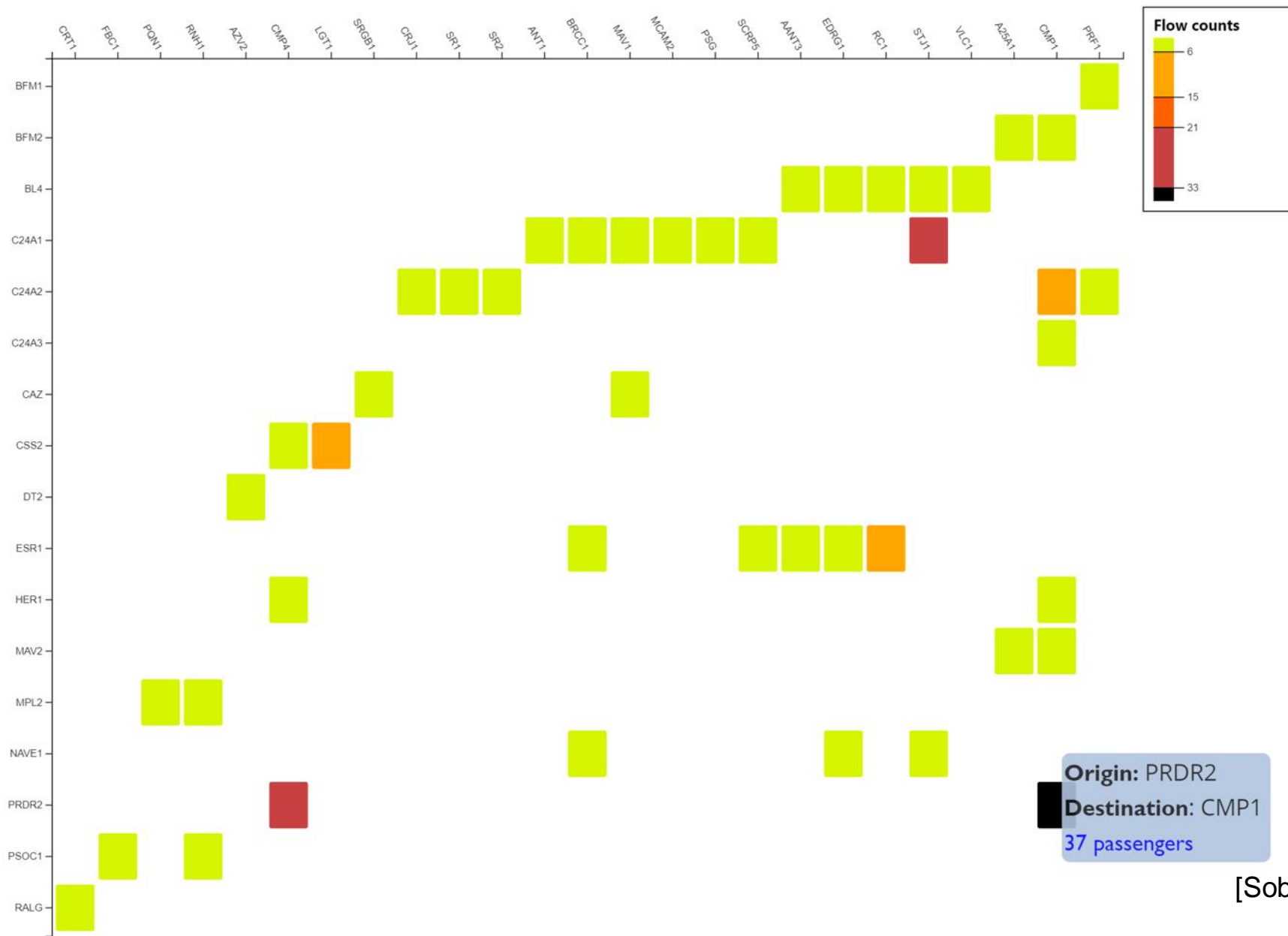
VISUALIZAÇÃO DE DADOS HETEROGÊNEOS

User: **CityHall Ops** | Spatial perspective: **Neighborhood** | Temporal perspective: **AMPeaks** | **QUERY** ➤



VISUALIZAÇÃO DE DADOS HETEROGÊNEOS

User: **CityHall Ops** | Spatial perspective: **Stop** | Temporal perspective: **AMPeaks** | **QUERY** >

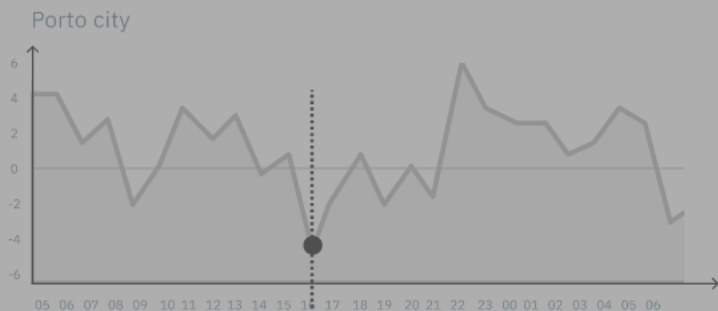


[Sobral et al., 2020-2021]

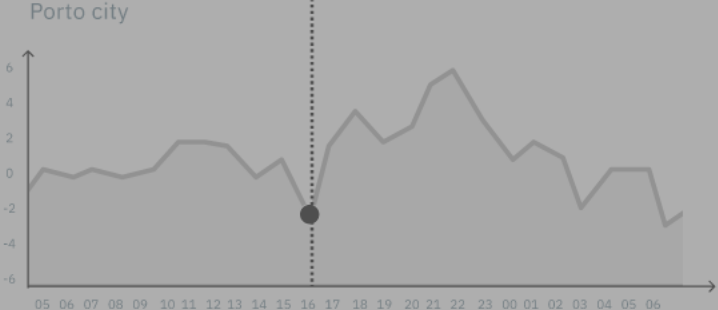
AVALIAÇÃO DA USABILIDADE TÉCNICAS DE VISUALIZAÇÃO



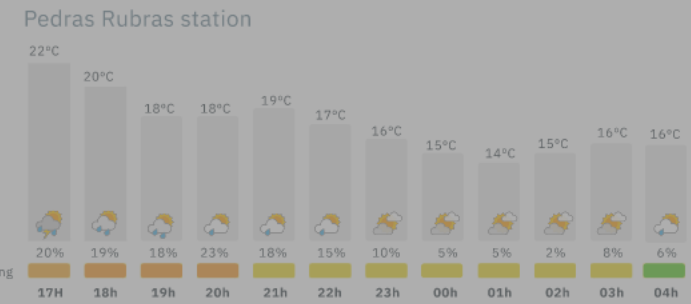
Demand (% of deviation from the mean)



Traffic congestion (% of deviation from the mean)



Meteorology



ALERT

Vehicle 236 (L705) break down on Augusto Simões road

VEHICLES

- On use: **403**
- Out of service: **50**
- Maintenance: **22**
- Break down: **5**

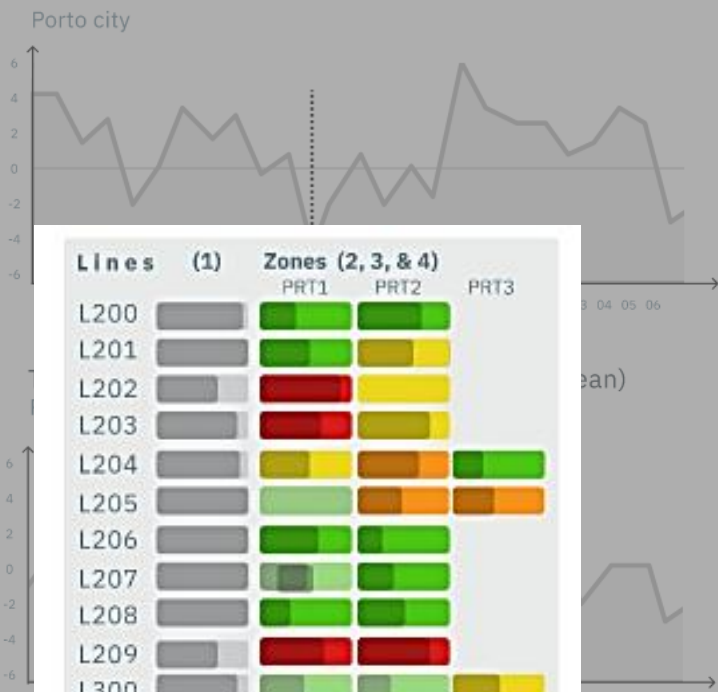
SAFETY

- Accidents: **3**
- Injured: **7**
- Deaths: **0**

AVALIAÇÃO DA USABILIDADE TÉCNICAS DE VISUALIZAÇÃO



Demand (% of deviation from the mean)



Lines (1)	Zones (2, 3, & 4)		
	PRT1	PRT2	PRT3
L200	Green	Green	Green
L201	Green	Yellow	Yellow
L202	Red	Yellow	Yellow
L203	Red	Yellow	Yellow
L204	Yellow	Orange	Green
L205	Green	Orange	Orange
L206	Green	Green	Green
L207	Green	Green	Green
L208	Green	Green	Green
L209	Red	Red	Red
L300	Green	Green	Yellow
L301	Orange	Yellow	Orange
L302	Green	Green	Green
L303	Green	Green	Green
L304	Green	Green	Green
L305	Green	Green	Green
L400	Orange	Orange	Orange
L401	Orange	Orange	Orange
L402	Red	Red	Red
L403	Orange	Orange	Orange

ALERT

Vehicle 236 (L705) break down on Augusto Simões road

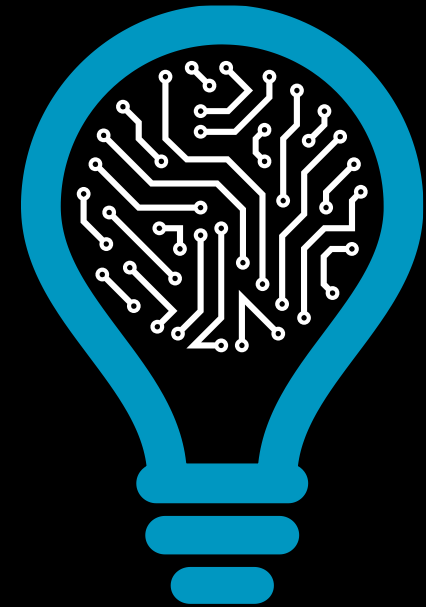
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CONCLUSÕES



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- No âmbito dos trabalhos desenvolvidos, destaca-se a importância de se:
 - Envolver os utilizadores durante a conceção e avaliação das ferramentas;
 - Garantir a interoperabilidade e qualidade dos dados;
 - Desenvolver técnicas de visualização adequadas aos contextos de uso.

Referências

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- Dias R., Fontes, T., Galvão, T. (2020). “Design of a Route-Planner for Urban Public Transport, Promoting Social Inclusion” In: Martins A., Ferreira J., Kocian A. (eds), Intelligent Transport Systems. From Research and Development to the Market Uptake (3th EAI Conference on Intelligent Transport Systems – INTSYS 2019), 4-6/12/2019, Guimarães, LNICST, 310:3-17, Springer. doi: 10.1007/978-3-030-38822-5_1
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- Sobral, T. , Galvão, T., Borges, J., (2020). An ontology-based approach to Knowledge-assisted Integration and Visualization of Urban Mobility Data, Expert Systems With Applications 150:113260. doi: [10.1016/j.eswa.2020.113260](https://doi.org/10.1016/j.eswa.2020.113260).

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