



Multimodal container transport

A bottom-up approach

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Co-funding by
eurostat 

Motivation

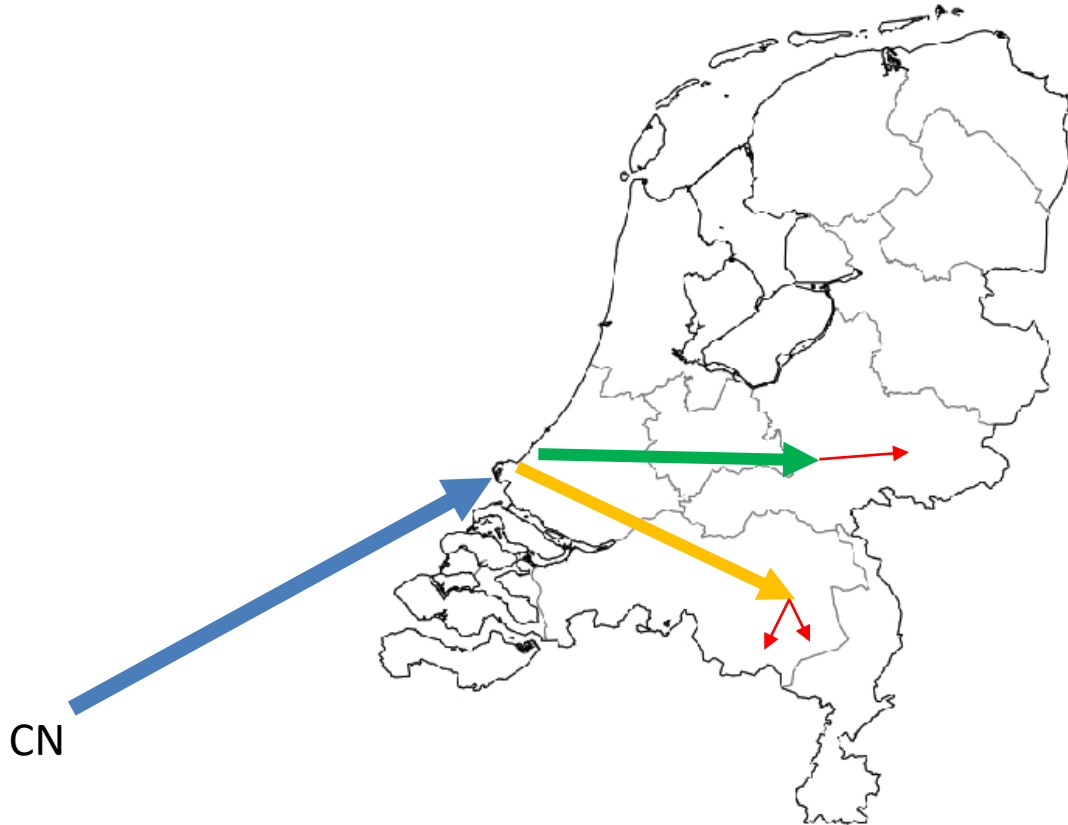


Multimodal transport chains

Economies and supply chains **entangled** on **global scale**

- **International events** influence transport flows NL
- Description **multimodal** transport chains challenging
- Important for **infrastructure planning** (BasGoed model Rijkswaterstaat)
- **European Green deal**: shift transport to ‘green’ modalities

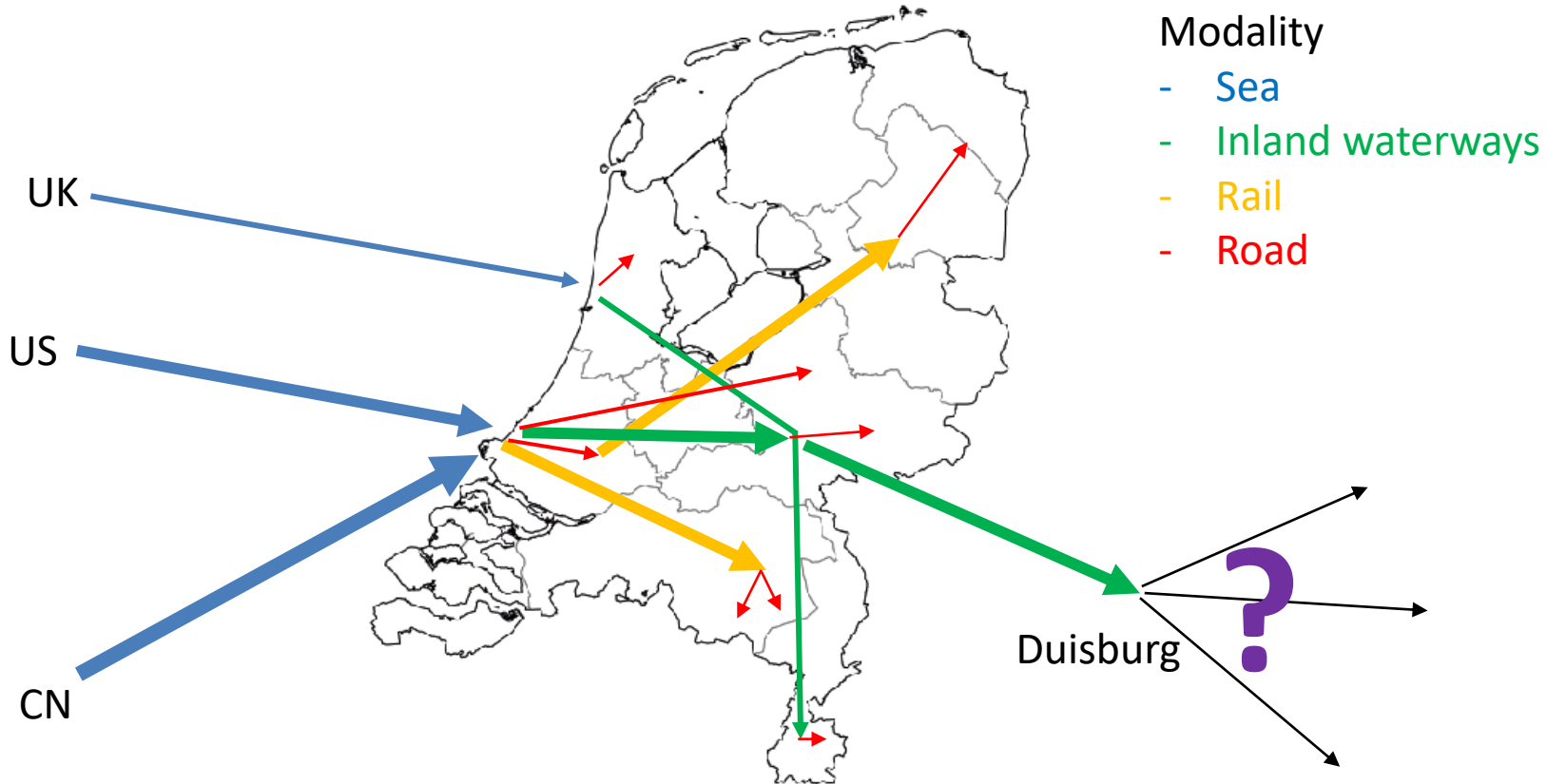
Multimodal transport chains



Modality

- Sea
- Inland waterways
- Rail
- Road

Multimodal transport chains



Why focus on containers?



Containers



Easy to switch transport mode
(multimodal optimisation)

Containers



Easy to switch transport mode
(multimodal optimisation)



CSQU3054383
Owner code Serial number Check digit
Category identifier



Unique identifier



Easy to track in
transport chains



Current status



StatLine: mono-modal container transport



Soort lading Container

Onderwerp Nederlandse zeehavens

Vervoerstromen

Overgeslagen brutogewicht

Periodes

Totaal Groningen Seaports Havengebied Amsterdam Havengebied Rotterdam Rotterdam Zeeland Seaports Overige zeehavens/onbekend

		1 000 ton						
		Totaal	Groningen Seaports	Havengebied Amsterdam	Havengebied Rotterdam	Rotterdam	Zeeland Seaports	Overige zeehavens/onbekend
Aan- en afvoer	2021*	135 372	79	1 162	131 495	127 429	2 613	25
Aanvoer naar Nederland	2021*	68 676	-	-	66 786	66 266	-	0
Afvoer naar buitenland	2021*	66 696	78	797	64 709	61 163	1 089	25

Bron: CBS

Onderwerp Soort lading

		Vervoerd ladinggewicht		Vervoersprestatie	Vervoerde containereenheden	
		Container	Container	Container	Container	
		1 000 ton	mln tonkm	1 000 teu		
Totaal	2021*	50 439	6 968	5 310		
Binnenlands vervoer	2021*	20 248	2 487	2 317		
Aanvoer	2021*	9 141	1 196	782		
Afvoer	2021*	9 612	1 215	1 190		
Doorvoer	2021*	11 437	2 068	1 020		

Bron: CBS



European mandatory statistics goods transport

Periodes 2021*

Onderwerp Vervoerstromen

Landen	Vervoerd ladinggewicht		Ladingtonkilometer		Vervoerde containers	
	Aanvoer	Afvoer	Aanvoer	Afvoer	Aanvoer	Afvoer
	1 000 ton		mln tonkm		1 000 teu	
Totaal	10 183	25 802	1 575	4 391	720	720
België	1 027	1 211	138	123	40	37
Duitsland	3 900	17 715	643	3 196	291	289
Frankrijk	117	329	14	30	5	7
Italië	2 456	2 894	302	378	220	221
Oostenrijk	502	1 007	68	155	43	40
Tsjechië	713	1 095	133	212	37	41
Zwitserland	295	419	46	66	28	29
Overig	1 171	1 133	231	231	57	55

Bron: CBS



Data quality insufficient



Multi-modal container transport?



Top-down



Bottom-up

Data collection bottom-up



Bottom-up monthly data collection

Large amounts of data required, every month!

Bottom-up monthly data collection

Large amounts of data required, every month!

Survey?



High administrative burden



(Government) registrations

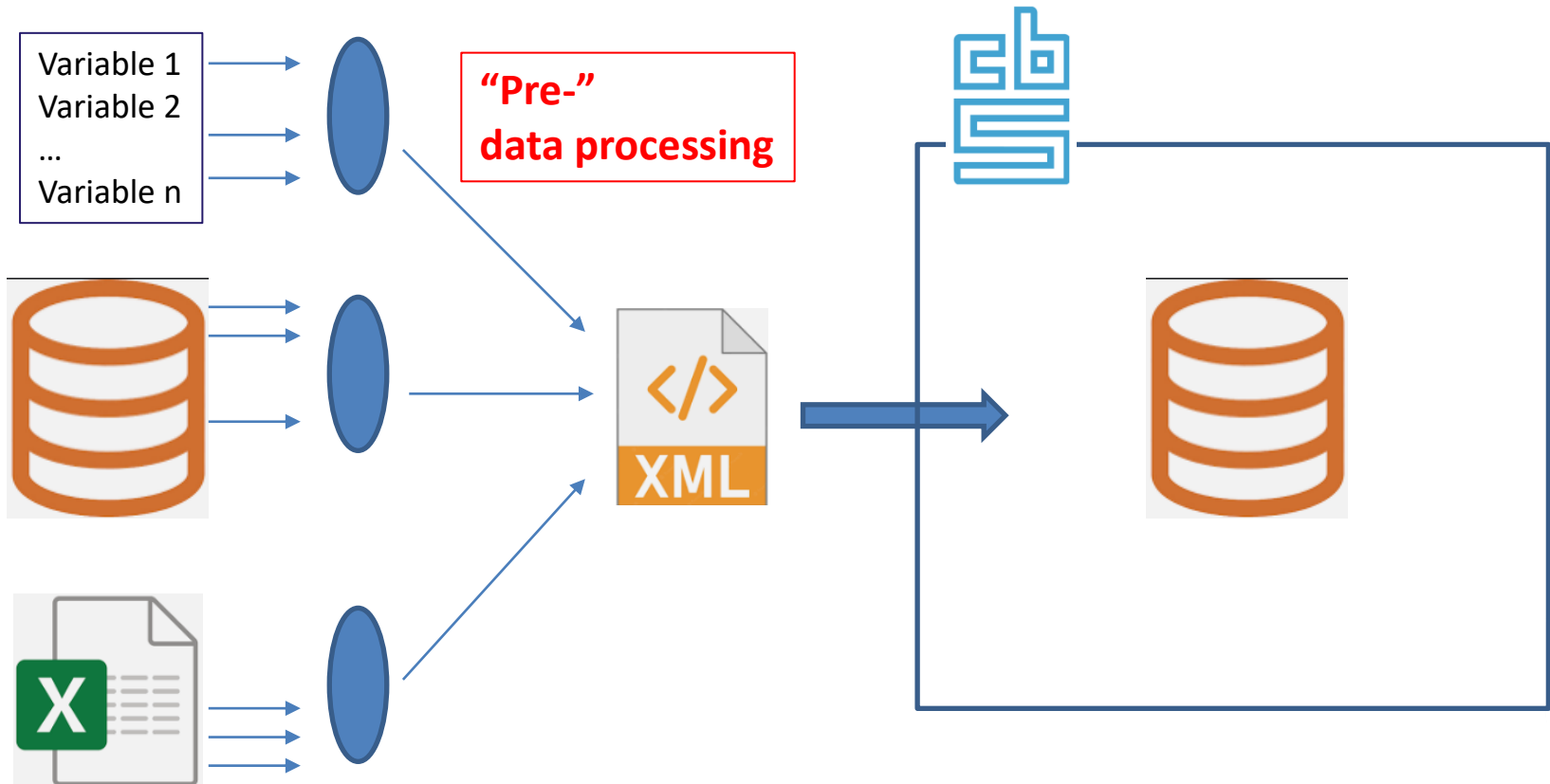


Not available

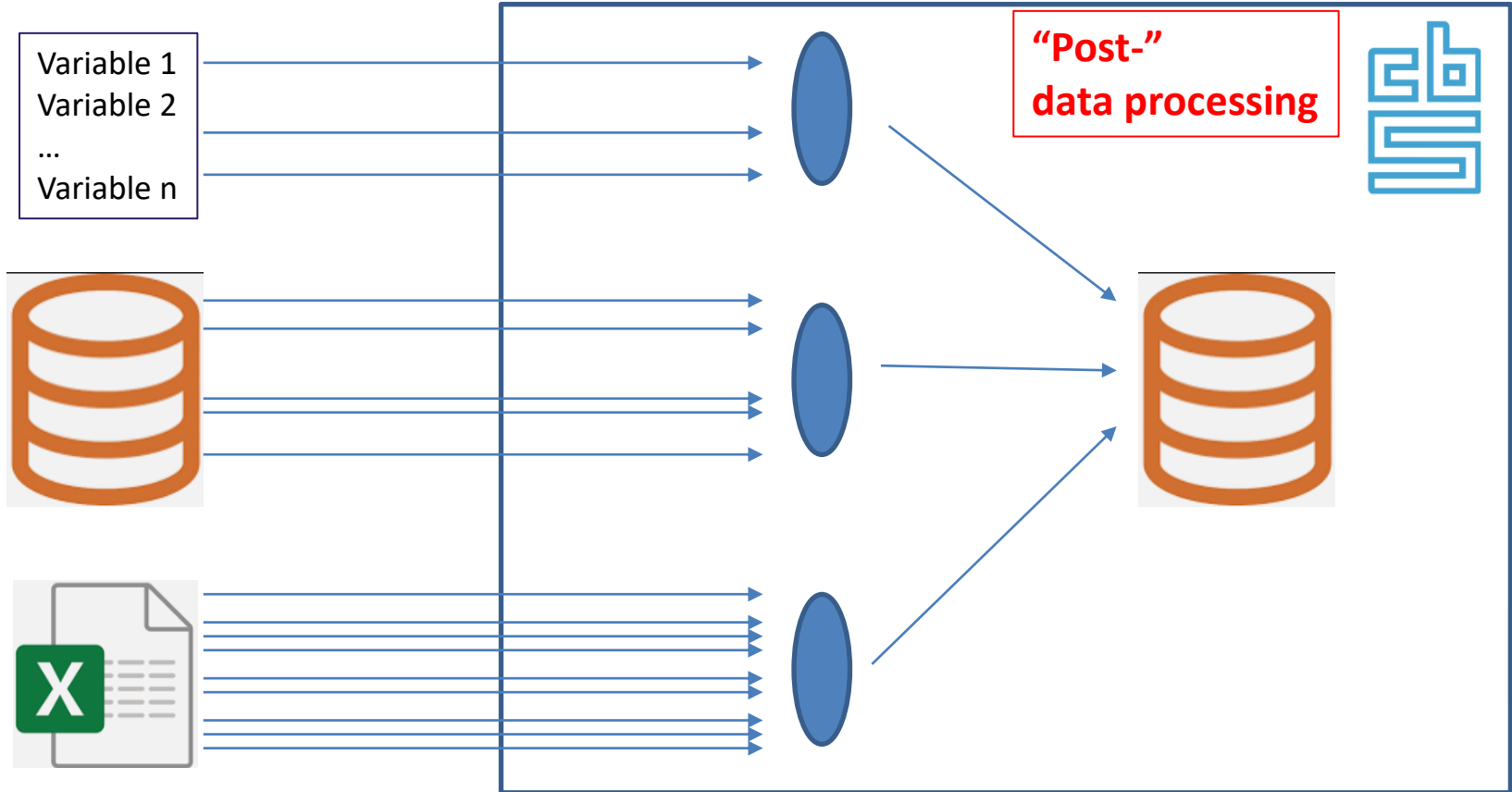


Alternatives?

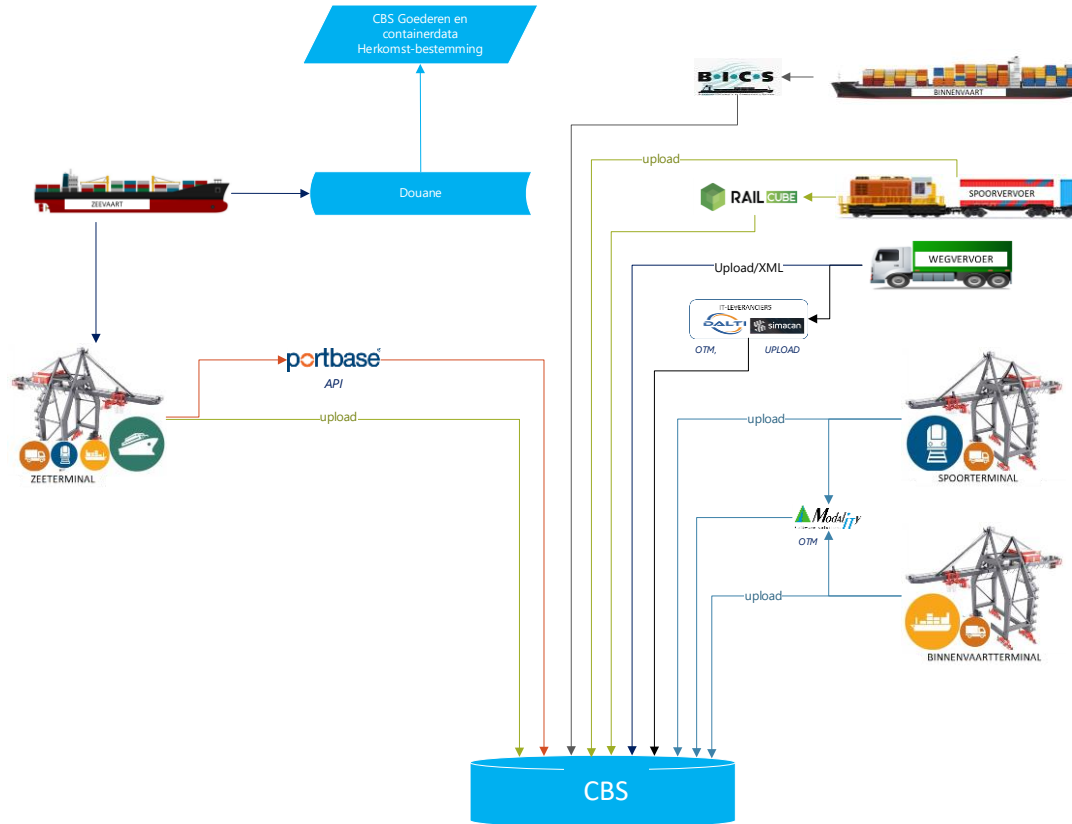
Transport management systems



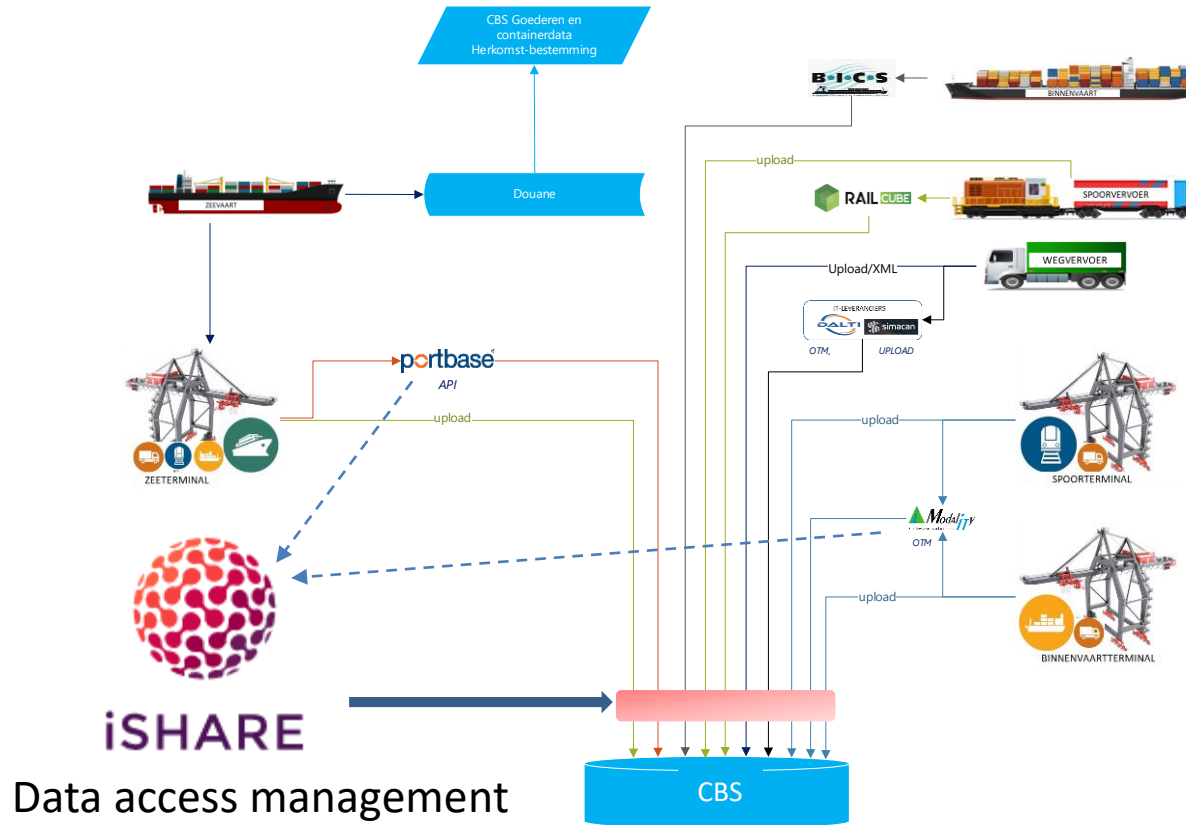
Transport management systems



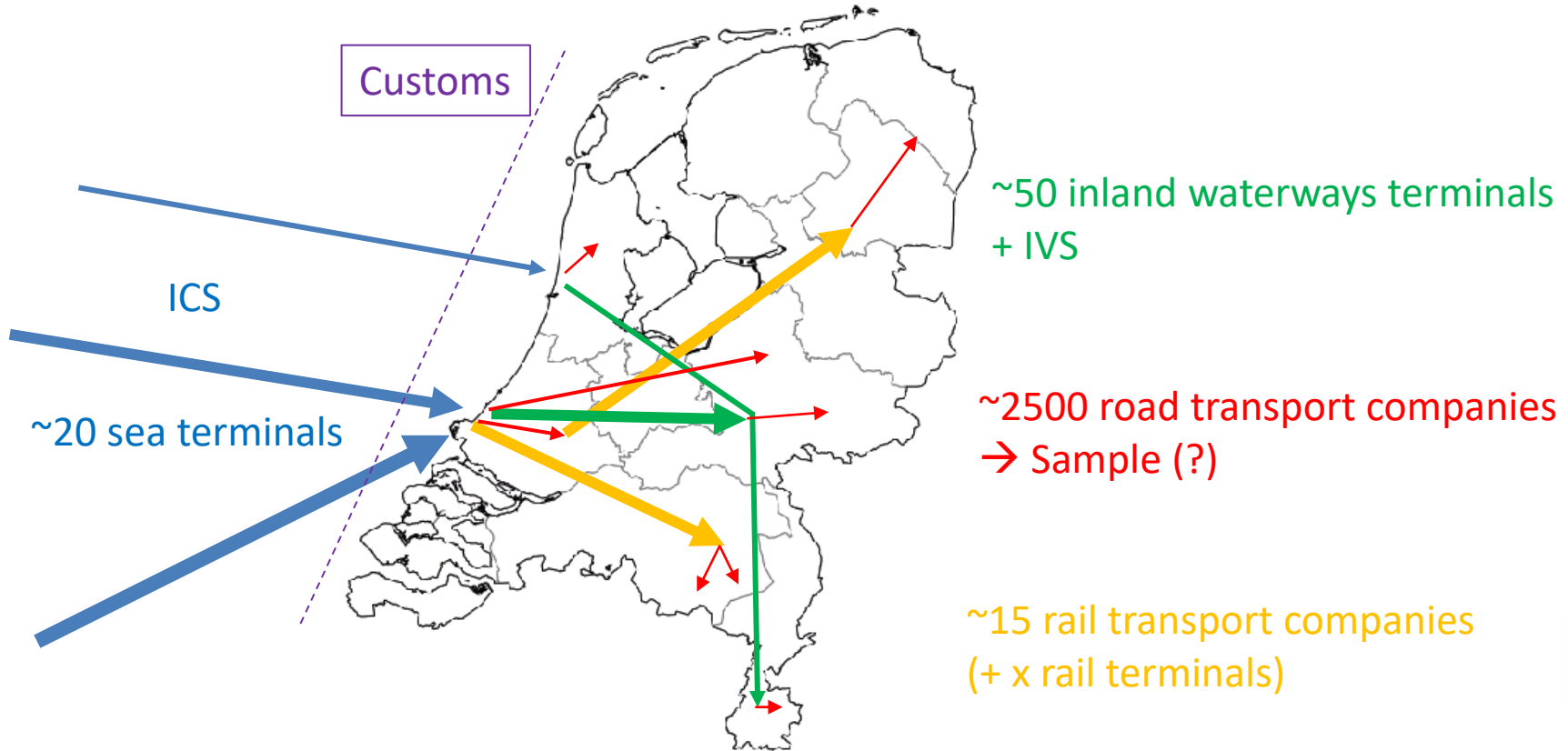
Safe infrastructure



Safe infrastructure



Data sources (import)

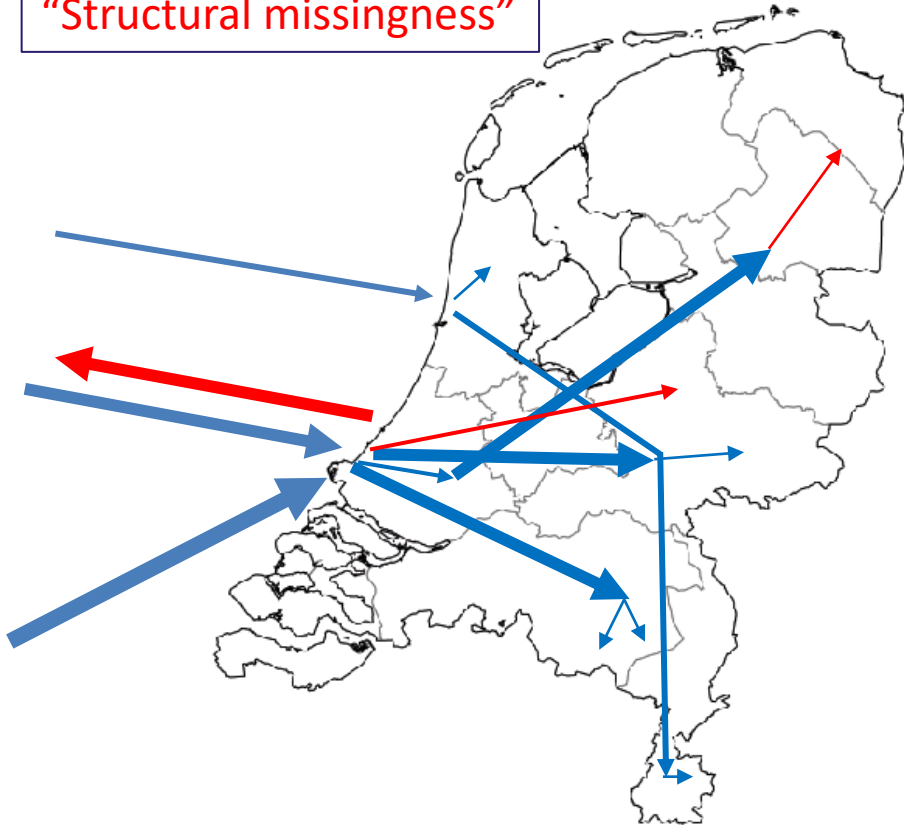


Data integration

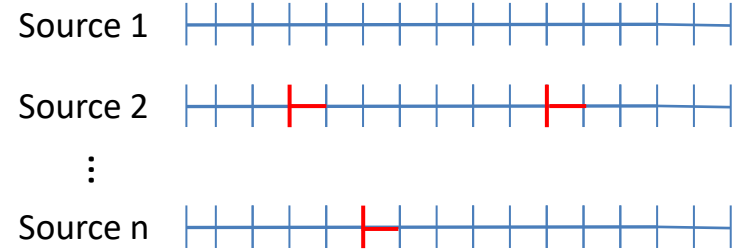


Methodological challenges

“Structural missingness”

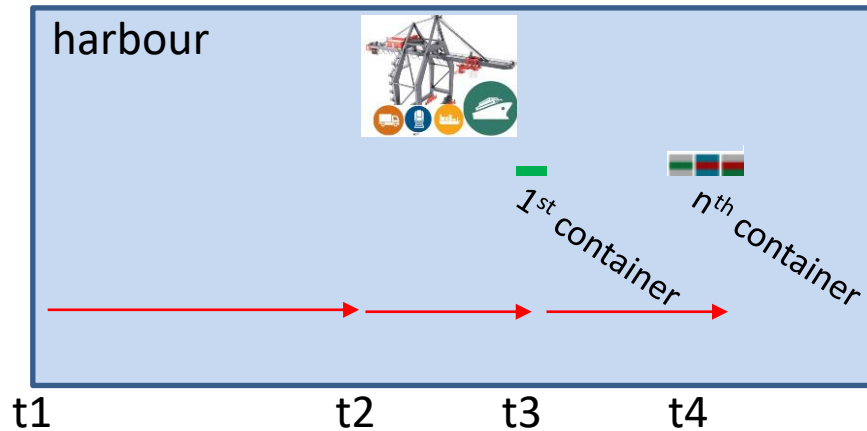


“Incidental missingness”



Methodological challenges

Overlapping data
(errors, different definitions)



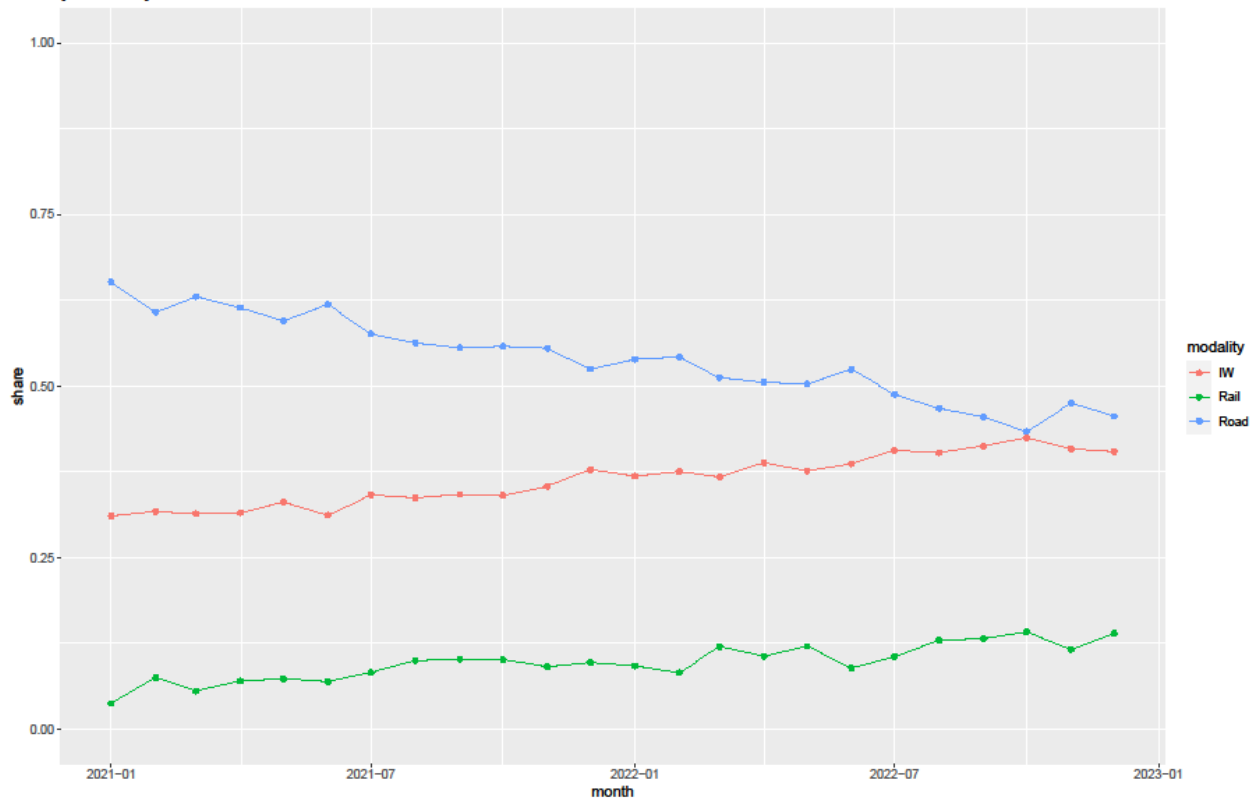
actual time of arrival?

Expected output (examples)



Modal split

Modal split vs time (on Dutch hinterland)
[share in km]

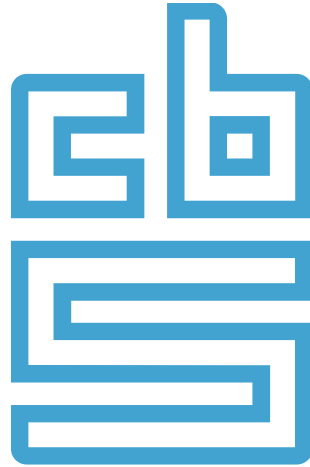


Outlook



Outlook

- Extension to other **cargo types** like liquid and solid bulk
- Share methodology Eurostat
- **Data sharing cross-border** (privacy preserving data sharing: join at micro-level, safe dissemination at macro level)



Facts that matter