

# PRESENT AND FUTURE DECENTRALIZATION AND CONCENTRATION OF FREIGHT TERMINAL LOCATIONS: FINDINGS FROM VÄSTRA GÖTALAND COUNTY, SWEDEN

---

## Jerry Olsson

Unit for Human Geography, School of Business, Economics and Law,  
University of Gothenburg, Sweden

[jerry.olsson@geography.gu.se](mailto:jerry.olsson@geography.gu.se)

## Johan Woxenius

Dept. of Business Administration, School of Business , Economics and Law,  
University of Gothenburg, Sweden

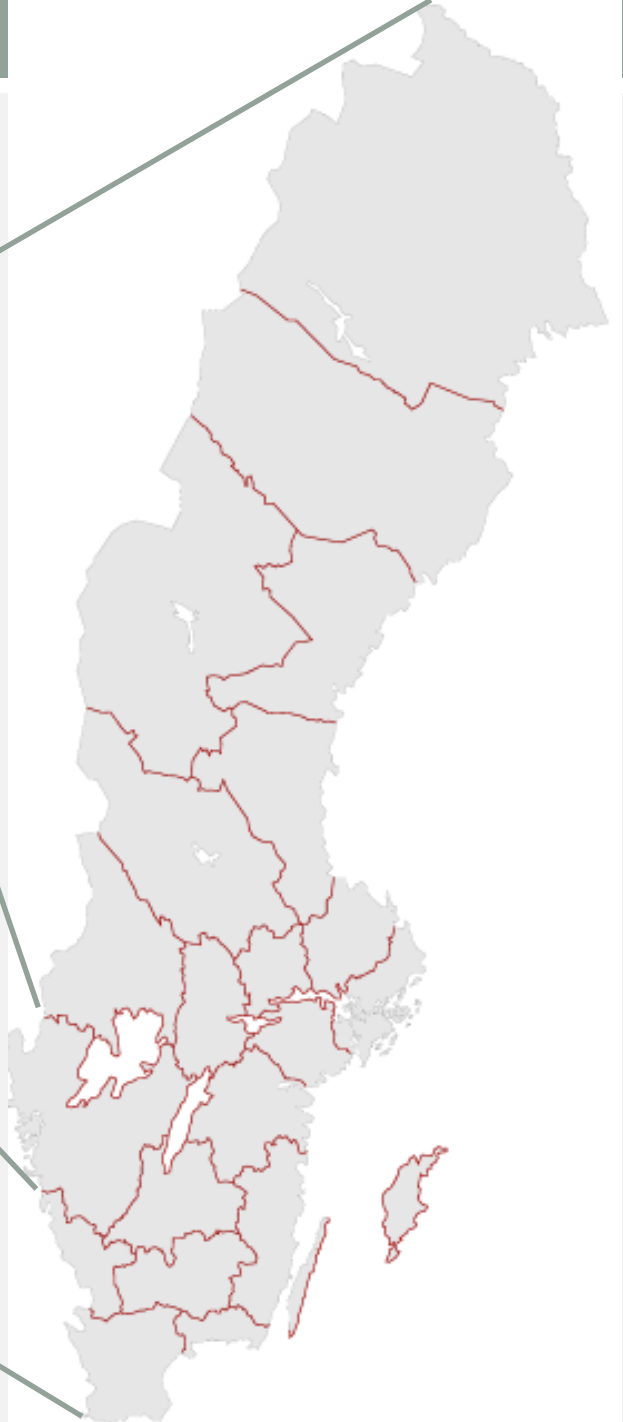
[johan.woxenius@gu.se](mailto:johan.woxenius@gu.se)

# Importance of freight terminals and other logistics facilities

- A large share of a company's total logistics costs goes on warehousing, goods handling, inventories
- Large fixed and long-lived assets within organizations supply chain and one of the most strategic decisions in the optimization of logistic systems
- Location of terminals influence a vast majority of freight movements, which in turn determine how freight flows through and between countries, regions, and cities
  - More and more people live, work, and consume in cities and urban areas
- Competition for land between different land-uses in [semi-]urban areas providing good accessibility

## Expected terminal trends: continued space expansion and structural changes due to

- I. Increasing e-commerce
- II. Reduced in-shop stocking
- III. Fewer but larger units: enabling further economies of scale
- IV. Enhanced emphasis on flow throughput (cross-docking)
- V. Real estate speculation
- VI. Multinational ownership and inter-linked global supply chains
- VII. Competition for land in urban and semi-urban areas providing good accessibility for 4 different freight flows:
  - a) *international flows* (very long distances)
  - b) *inter-regional flows* (long distances between urban areas)
  - c) *city distribution* (short distances/last mile distribution)
  - d) *e-commerce deliveries* (short distances)
- I. Concentration to and/or decentralization away from large urban areas??



# Study area: Västra Götaland (VG) county

- 49 municipalities
- North to south: 244 km                      West to east: 190 km
  
- Inhabitants
  - 1,6 million VG county                      850 000 Greater Gothenburg                      500 000 Gothenburg
  
- Port of Gothenburg (PoG), largest port among Nordic countries
  - 30 % of all cargo over quay in Sweden and 61 % in VG county
  
- Five major national trunk roads and three railway lines connect Gothenburg and go through VG
  
- No. of workplaces
  - 194 000 VG county:                      51.2 % Greater Gothenburg                      31.5 % Gothenburg
  
- No. of workplaces with >100 employees
  - 972 VG county:                      60 % Greater Gothenburg                      45 % Gothenburg

# Data and material

## ➤ Statistics Sweden 2014

- 274 terminals (workplaces) identified in VG county through 7 different SNI-codes
- 7 inter-modal terminals (4 within the PoG)
- 21 rail wagon load points

## ➤ Terminals in-/excluded

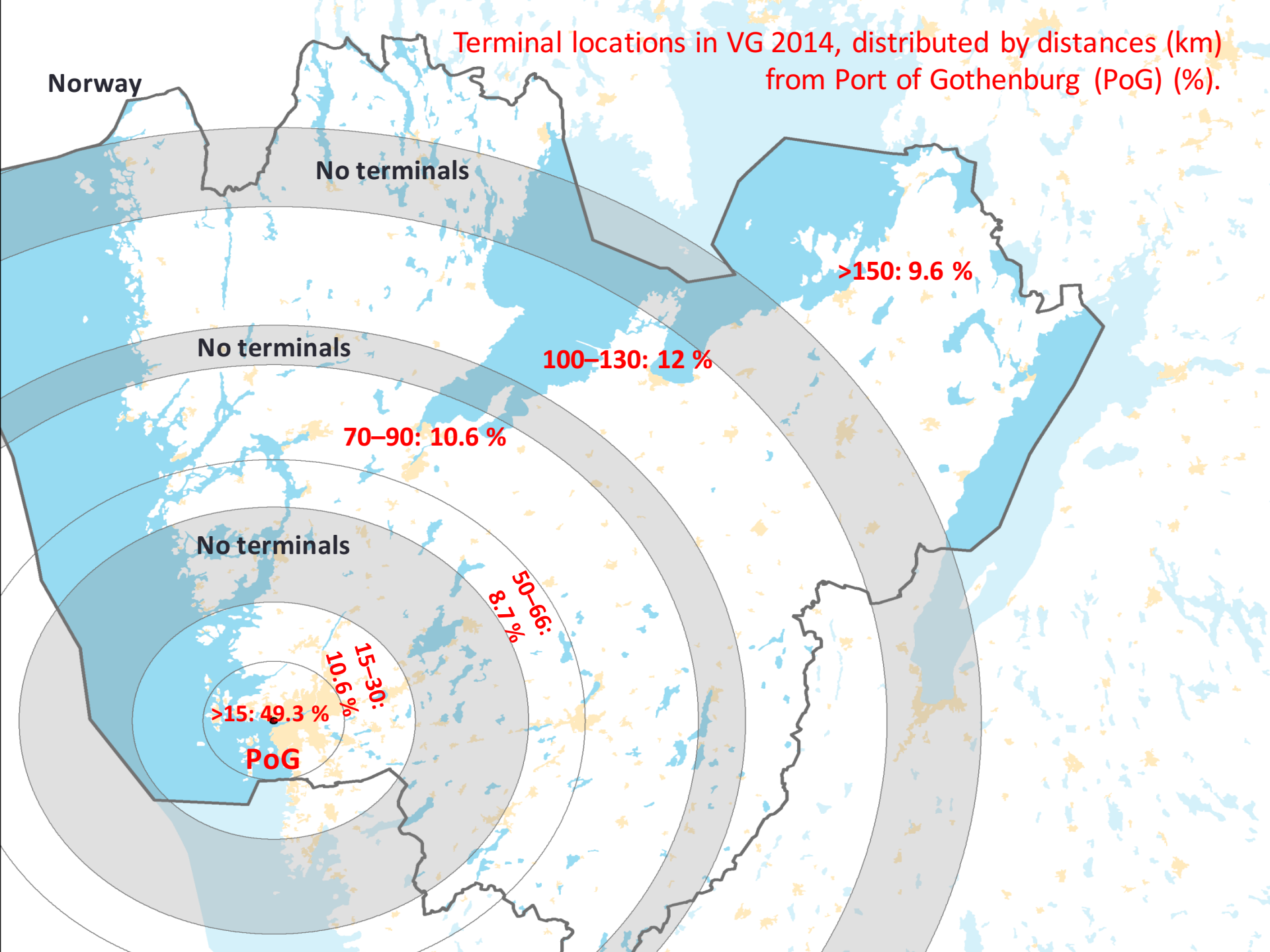
- *Included*: Intermodal, distribution, ports, warehouses
- *Excluded*: Proprietary, drop-off points, airports

➤ **Terminal variables used:** Location, terminal floor space, turnover, employees

## ➤ Swedish Transport Administration's National Road Database

➤ **GILDA**: Longitudinal database on population, industry, public sector etc.

Terminal locations in VG 2014, distributed by distances (km) from Port of Gothenburg (PoG) (%).

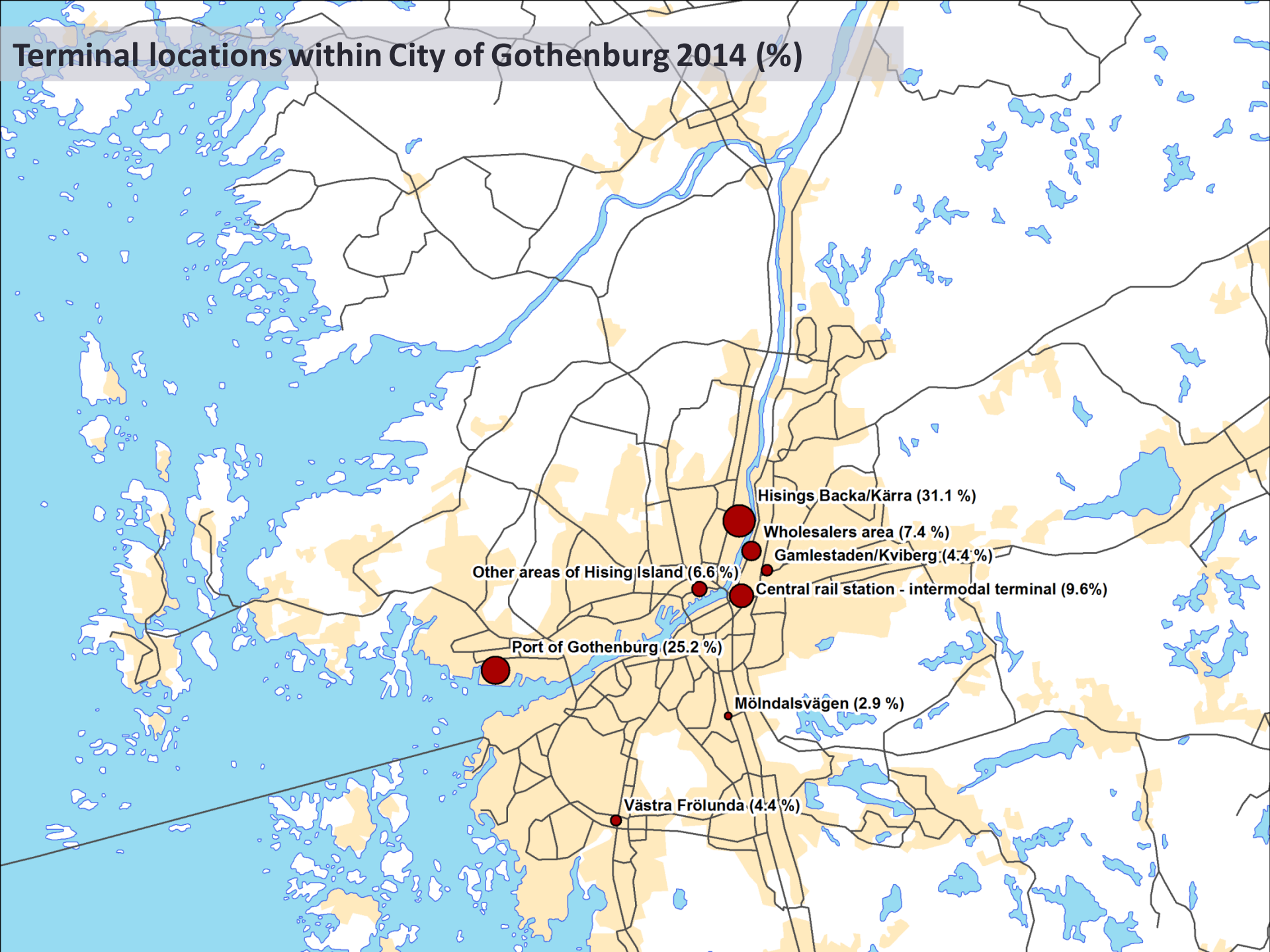


## Terminal locations in VG 2014, distributed by distances from PoG (%).

Distance from Port of Gothenburg (km)	Number	Share of VG %
<15	135	49.3
15–30	29	10.6
50–66	24	8.7
70–90	29	10.6
100–130	33	12.0
>150	24	8.7
Total	274	100



# Terminal locations within City of Gothenburg 2014 (%)

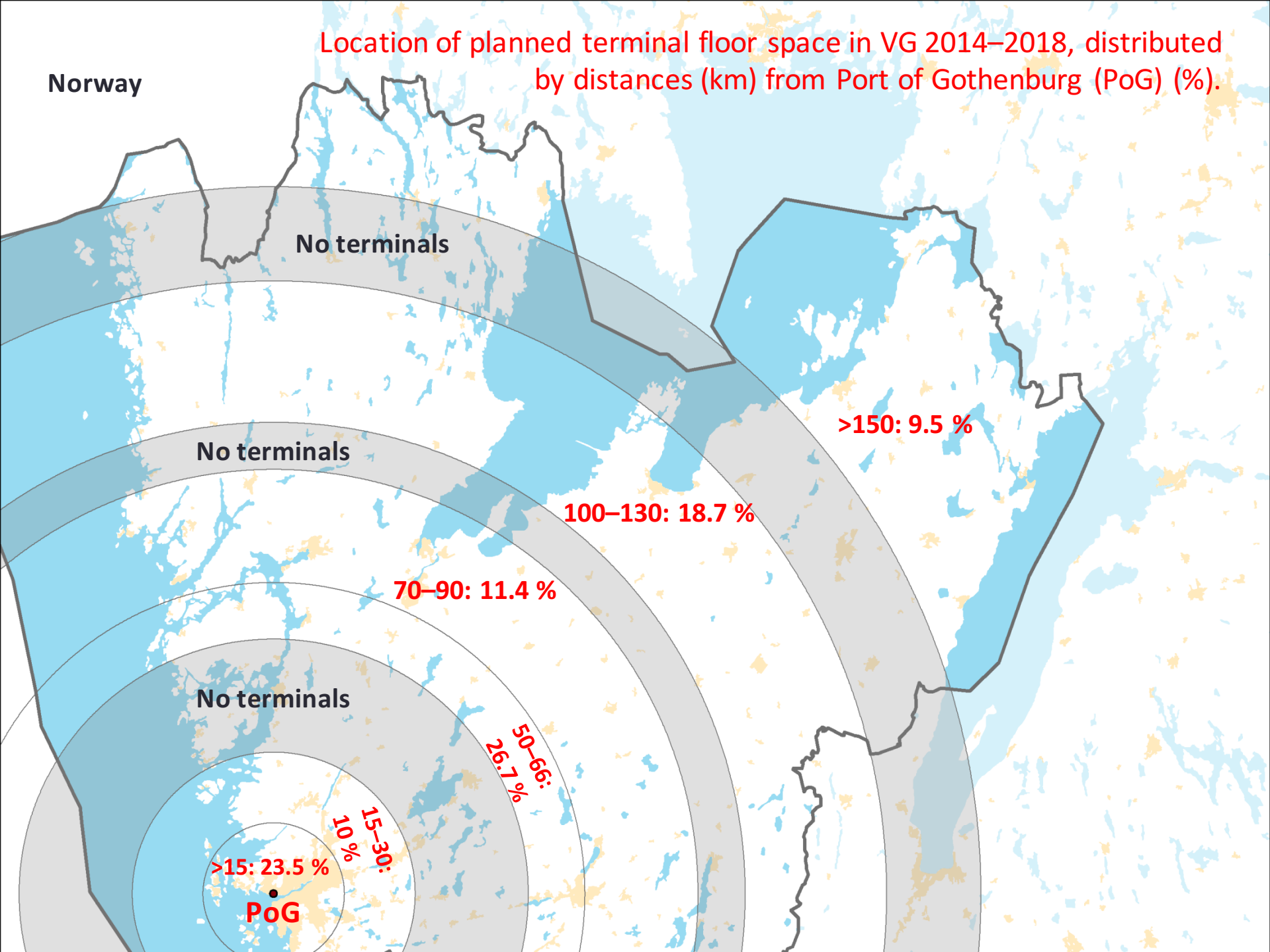


## Location of Gothenburg terminals in 2014 (no. and %).

Location/area	Number	Share %
Hisingen Island	85	63.0
<i>Hisings Backa/Kärra</i>	42	31.1
<i>Port of Gothenburg</i>	34	25.2
<i>Other areas of Hisingen Island</i>	9	6.6
Central railway station – intermodal terminal (Gullbergsvass)	13	9.6
Wholesalers' area (Partihallarna)	10	7.4
Kviberg/Gamlestaden/Kortedala/along road RV45	6	4.4
Västra Frölunda	6	4.4
Mölnadalsvägen	4	2.9
Other	11	8.1
<b>Total</b>	<b>135</b>	<b>100</b>

Location of planned terminal floor space in VG 2014–2018, distributed by distances (km) from Port of Gothenburg (PoG) (%).

Norway



No terminals

No terminals

No terminals

>15: 23.5 %

PoG

15-30: 10%

30-45: 26.7%

45-60: 26.7%

60-75: 11.4 %

75-90: 18.7 %

>105: 9.5 %

Land for logistics + industry in VG 2014–2018, distributed by distance from PoG, floor space, and location in relation to major road.

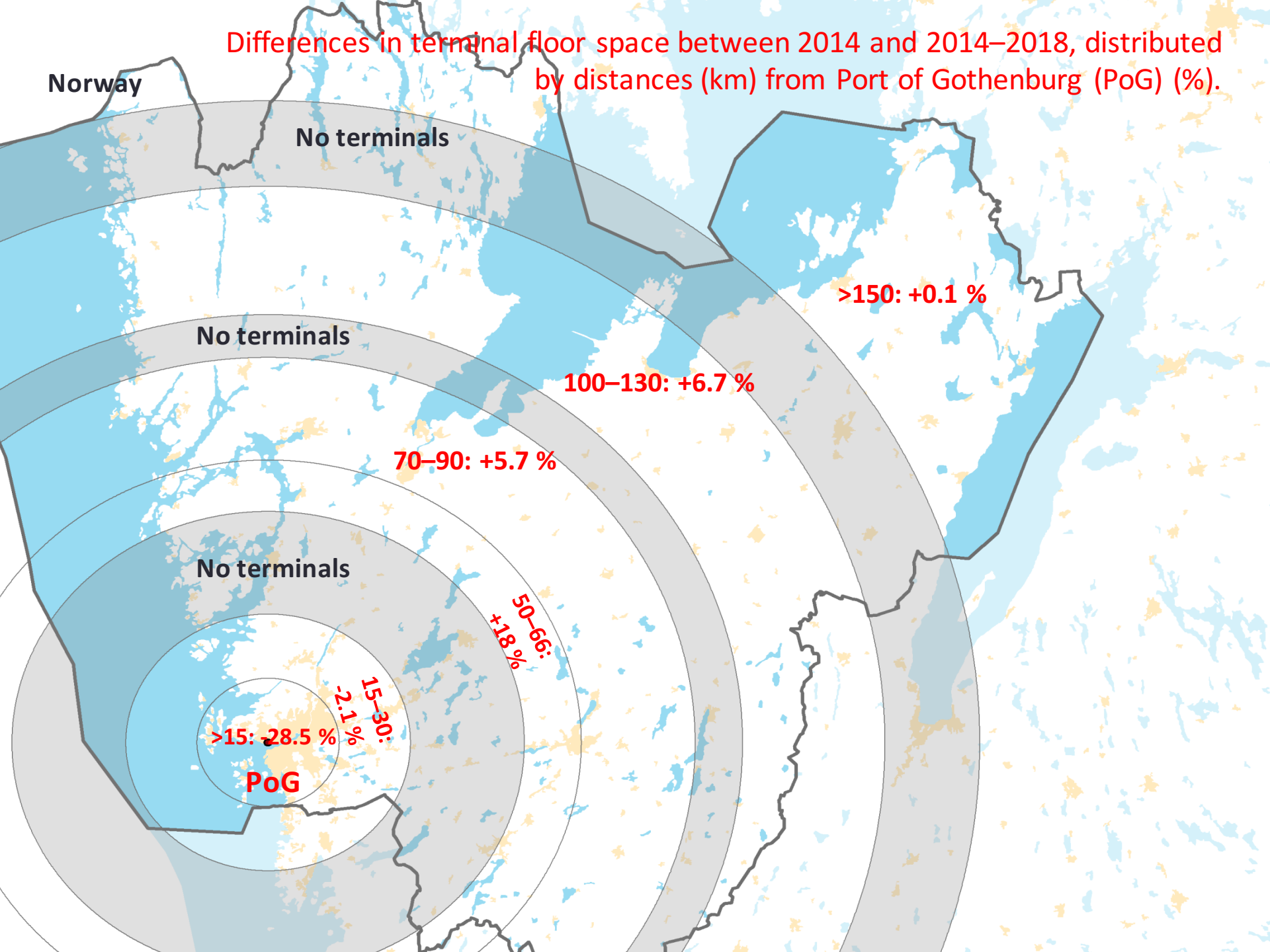
Distance from Port of Gothenburg (km)	Floor space		Major road
	000 m <sup>2</sup>	Share %	
<15 ( <i>whereof 100 % 0–2 km from PoG</i> )	1 788	23.5	R155/E6N
15–30	668	10.0	E20
50–66	2 030	26.7	E20 & RV40
70–90	860	11.4	E20, E6S, E45
100–130	1 433	18.7	E20, E6N & S, Rv40
>150	720	9.5	E20
<b>Total</b>	<b>7 599</b>	<b>100</b>	

Note: Pure industrial parks/estates are excluded.

Share of present and future planned terminal floor space in VG 2014–2020, distributed by distance from PoG (%).

Distance from Port of Gothenburg	Present floor space %	Planned floor space %	Change %
<15	52.0	23.5 <i>(whereof 100 % 0–2 km from PoG)</i>	-28.5
15–30	12.1	10.0	-2.1
50–66	8.7	26.7	+18.0
70–90	5.7	11.4	+5.7
100–130	12.0	18.7	+6.7
>150	9.5	9.6	+0.1
<b>Total</b>	<b>91.7</b>	<b>99.8</b>	

Differences in terminal floor space between 2014 and 2014–2018, distributed by distances (km) from Port of Gothenburg (PoG) (%).



Norway

No terminals

No terminals

>150: +0.1 %

100–130: +6.7 %

70–90: +5.7 %

No terminals

50–66:  
+18 %

15–30:  
-2.1 %

>15: -28.5 %

PoG

# Conclusions

- **A dual freight terminal location process: simultaneous concentration & decentralization**
  - Concentration in/around Port of Gothenburg
  - Decentralization further away from City of Gothenburg, beyond its neighbouring municipality
- **Increased concentration:**
  - to four urban areas
  - along four major trunk roads (previously five roads)
- **Trend is likely to continue beyond 2020, due to short-, medium-, long-term processes**
  - Government funded transport infrastructure investments
  - Land-use regeneration and redevelopment in City of Gothenburg
  - Continued population, industry and economic concentration towards large urban areas

## Next step

- Scaling up geographically – include southern part of Sweden
  - Longitudinal survey of approx. 13 000–15 000 terminals in 2000, 2007, and 2014
- Structured questionnaire: terminal operators in ? Municipalities
- Survey of municipal land-use planning policies
  - Are municipalities following the Swedish Traffic Administration's recommendations based on the 4-step principle