# REMOVINGTHE SLAND BARRIER

Socio-economic impacts of tunnels

2022

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### **FAROE ISLANDS**

Location Geography Geology Population GDP per capita Sovereign state Legislature Capital Language Currency Climate Main industries Stretch of road Infrastructure

Archipelago in the North Atlantic Ocean 18 islands, all but one are habited Basalt series 54,000 inhabitants 54,000 EUR Kingdom of Denmark Løgting (Parliament) Tórshavn Faroese Faroese króna (DKK) 3°C winter, 11°C summer Fishery, fish farming and tourism 1,000 km country road 18 mountain tunnels, 3 bridges, 3 subsea tunnels





OVERVIEW







**1. OVERVIEW** 

2. A NEW APPROACH

3. FINANCING







### **VISION Faroe Islands – One City** Commuting time within **1 hour**

**1. OVERVIEW** 

2. A NEW APPROACH

3. FINANCING







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### VISION Faroe Islands – One City Commuting time within **1 hour**

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### VISION Faroe Islands – One City Commuting time within **1 hour**

**1. OVERVIEW** 

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**1. OVERVIEW** 

2. A NEW APPROACH

3. FINANCING





**0.** Streymin bridge 0.22 km (1973)

**1. OVERVIEW** 

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2. A NEW APPROACH







- **0.** Streymin bridge 0.22 km (1973)
- **1.** Hvannasund dam 0.22 km (1975)

**1. OVERVIEW** 

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2. A NEW APPROACH







- **0.** Streymin bridge 0.22 km (1973)
- Hvannasund dam 0.22 km (1975) 1.
- **2.** Haraldssund dam 0.35 km (1986)

**1. OVERVIEW** 

12

2. A NEW APPROACH







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- **2.** Haraldssund dam 0.35 km (1986)
- **3.** Vágatunnilin 4.9 km (2002)

**1. OVERVIEW** 

13

2. A NEW APPROACH







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15

2. A NEW APPROACH







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- 6. Sandoyartunnilin 10.8 km (2023)

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2. A NEW APPROACH







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- Sandoyartunnilin 10.8 km (2023) 6.
- Suðuroyartunnilin around 25 km (planning stage) 7.







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- Suðuroyartunnilin around 25 km (planning stage) 7.

### Price per km: Around €24 million







# Infrastructure anno 2022

- 8 sea routes (and two helicopters)
- 1.000 km country road
- 18 mountain tunnels
- 3 bridges
- 3 subsea tunnels
- 6 islands are connected to the main road network.
- Number 6 is under construction and number **7** is in the planning phase





# **ANEW APPROACH**

1. OVERVIEW

20

2. A NEW APPROACH





# **ANEWAPPROACH** The preliminary study

### **SUÐUROYTUNNEL**

• About **25 km €730** million • Corresponding to **15** "The Great Belt Bridge" • A **MEGA** project

1. OVERVIEW

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**2. A NEW APPROACH** 

3. FINANCING

### **ANALYSIS FRAMEWORK** UN's Sustainable Development Goals







1. OVERVIEW

2. A NEW APPROACH

3. FINANCING

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# SOCIAL Decriptive statistics





# Impact on population

Relative population size in regions with ferry connections, 1985-2019



Regions with ferry connections tend to decline compared to the rest of the Faroes

1. OVERVIEW

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2. A NEW APPROACH





# Impact on population



The impact of the tunnels on regional populations is quite strong 

1. OVERVIEW

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Relative average age in selected regions, 1985-2020



The average age of Vágar was also increasing until the tunnel connection. After the tunnel came the average age went from being 6% higher to 2% lower than the total population.

25

**2. A NEW APPROACH** 



Relative average age in selected regions, 1985-2020



The impact of the tunnels on average age in Vágar has been quite strong

1. OVERVIEW

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Relative average age in selected regions, 1985-2020



The average age in Norðoyggjar was also higher than in the total population and declined after the tunnel. However, the situation was never as bad as in the other regions.

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**2. A NEW APPROACH** 





Relative average age in selected regions, 1985-2020



The impact of the tunnels on the average age in Norðoyggjar is significant, but smaller than Vágar

1. OVERVIEW

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The relative income in Vágar was until 1992 around 90% of the national average, after which it fell to 85%. Since the tunnel opened it has steadily increased to around 93% of the national average.

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# Impact on income per capita

Relative income per capita, 16-66 years old, 1985-2019



The impact of the tunnels on the relative income in Vágar has been quite strong 

1. OVERVIEW

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3. FINANCING







# Impact on income per capita

Relative income per capita, 16-66 years old, 1985-2019



The relative income in Norðoyggjar took a dive just when the tunnel opened because the largest fish factory in the Faroe Islands situated in Norðoyggjar closed. Afterwards the relative income increased and is now around the national average.

**2. A NEW APPROACH** 



# Impact on income per capita

Relative income per capita, 16-66 years old, 1985-2019



The impact of the tunnels on the relative income in Norðoyggjar is smaller than in Vágar, but still quite strong

32

2. A NEW APPROACH





# Socio-economic Preliminary study: Conclusion



Population and demographies

Labour and unemployment



wages

### **ENVIROMENTAL**

Reducing CO<sub>2</sub> omissions

**2. A NEW APPROACH** 

3. FINANCING

### **ANALYSIS FRAMEWORK** UN's Sustainable Development Goals







# Socio-economic Preliminary study: Conclusion

### ECONOMIC

- Savings in ferry investments and operation costs
- Higher user gains
- But the tunnel investment is too high

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**2. A NEW APPROACH** 

### **ANALYSIS FRAMEWORK** UN's Sustainable Development Goals







# Socio-economic Preliminary study: Conclusion

### **ADDITIONAL EFFECTS**

- Integrated labour and housing market
- More efficient electronic infrastructure
- Not affected by weather conditions
- Access to new stone material

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**2. A NEW APPROACH** 

### **ANALYSIS FRAMEWORK** UN's Sustainable Development Goals



![](_page_34_Figure_12.jpeg)

![](_page_34_Picture_13.jpeg)

# FINANCING

1. OVERVIEW 36

2. A NEW APPROACH

**3. FINANCING** 

![](_page_35_Picture_4.jpeg)

![](_page_35_Picture_6.jpeg)

![](_page_35_Picture_7.jpeg)

# Wo finance models

1. OVERVIEW

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2. A NEW APPROACH

and the second second

**3. FINANCING** 

![](_page_36_Picture_5.jpeg)

![](_page_36_Picture_6.jpeg)

![](_page_36_Picture_7.jpeg)

# Wo finance models

### Financing by the **Annual Finance Act**

All mountain tunnels and fixed link bridges

1. OVERVIEW

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2. A NEW APPROACH

**3. FINANCING** 

![](_page_37_Picture_7.jpeg)

![](_page_37_Picture_8.jpeg)

![](_page_37_Picture_9.jpeg)

### Wo finance models

### Financing by the **Annual Finance Act**

All mountain tunnels and fixed link bridges

### **Public-Private** Partnership (PPP) owned by the state

All subsea tunnels

![](_page_38_Picture_5.jpeg)

1. OVERVIEW

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2. A NEW APPROACH

**3. FINANCING** 

### **ALARMAN**

![](_page_38_Picture_10.jpeg)

![](_page_38_Picture_11.jpeg)

![](_page_38_Picture_12.jpeg)

# Financing

Tunnel	Share capital from government	Public guarantee for the loan	Payback time	Capital market
1	54%	NO	15 years	Local
2	59%	NO	15 years	Local
3&4	15%	YES	25 years	Global

40

1. OVERVIEW

2. A NEW APPROACH

**3. FINANCING** 

![](_page_39_Picture_6.jpeg)

![](_page_39_Picture_7.jpeg)

![](_page_39_Picture_8.jpeg)

# Traffic development Vágatunnel

### Traffic figures

![](_page_40_Figure_2.jpeg)

In 2002: 110.000 vehicles crossed with ferry Threefold the first year and around fivefold after five years

1. OVERVIEW

2. A NEW APPROACH

![](_page_40_Picture_8.jpeg)

![](_page_40_Picture_10.jpeg)

# Traffic development Norðoyatunnel

### Traffic figures

![](_page_41_Figure_2.jpeg)

In 2005: 100.000 vehicles crossed with ferry More than fourfold the first year and sevenfold after three years

1. OVERVIEW

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![](_page_41_Picture_7.jpeg)

# Average toll prices

DKK per round trip

![](_page_42_Figure_2.jpeg)

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2. A NEW APPROACH

![](_page_42_Picture_7.jpeg)

![](_page_42_Picture_8.jpeg)

# FERRY VS. FIXED LINK Why the expensive choice?

![](_page_43_Picture_2.jpeg)

![](_page_43_Picture_3.jpeg)

# FERRY VS. FIXED LINK Why the expensive choice?

### Long term **SOCIAL** and **ENVIRONMENTAL** investment

![](_page_44_Picture_4.jpeg)

# Faroese Tunnelling Society

### **MEMBERS & PARTNERS**

![](_page_45_Picture_3.jpeg)

![](_page_45_Picture_4.jpeg)

![](_page_45_Picture_6.jpeg)

tunnelling.fo | info@tunnelling.fo

![](_page_45_Picture_10.jpeg)

![](_page_46_Picture_0.jpeg)

### REMOVING THE ISLAND BARRIER

Pilot Study for a **New Route** to Suðuroy, Faroe Islands

![](_page_46_Picture_3.jpeg)

**Download** reference here ~

# Thankyou

![](_page_46_Picture_6.jpeg)