



ARCTIC PROJECT CLUSTERING

WHAT'S SO SPECIAL WITH THE ARCTIC?



NILS ARNE JOHNSEN

ARCTIC DIRECTOR

RAMBOLL

Arctic administrative areas

compiled by
Winfried K. Dallmann,
Norwegian Polar Institute

This polar projection map illustrates the administrative divisions of the Arctic region. The map uses a color-coded system to distinguish between different countries and territories. Key features include:

- Canada:** Labeled in large blue letters across the western Arctic.
- USA:** Alaska is shown in purple, while Yukon Territory and Northwest Territories are in light blue.
- Denmark:** Greenland is highlighted in green.
- Norway:** Various territories like Finnmark, Troms, Nordland, and others are labeled in yellow and orange.
- Russia:** Large orange areas represent Russian administrative regions such as Chukotka, Sakha (Yakutia), Tyumen Oblast, and others.
- Finland:** Labeled in red near the southern edge of the Arctic.
- Iceland:** Shown as a small island south of Greenland.
- Faroe Islands:** Located south of Iceland.

The map includes latitude lines at 60°, 70°, and 80° North, and longitude lines radiating from the North Pole. Numerous smaller islands and archipelagos are also depicted and labeled.

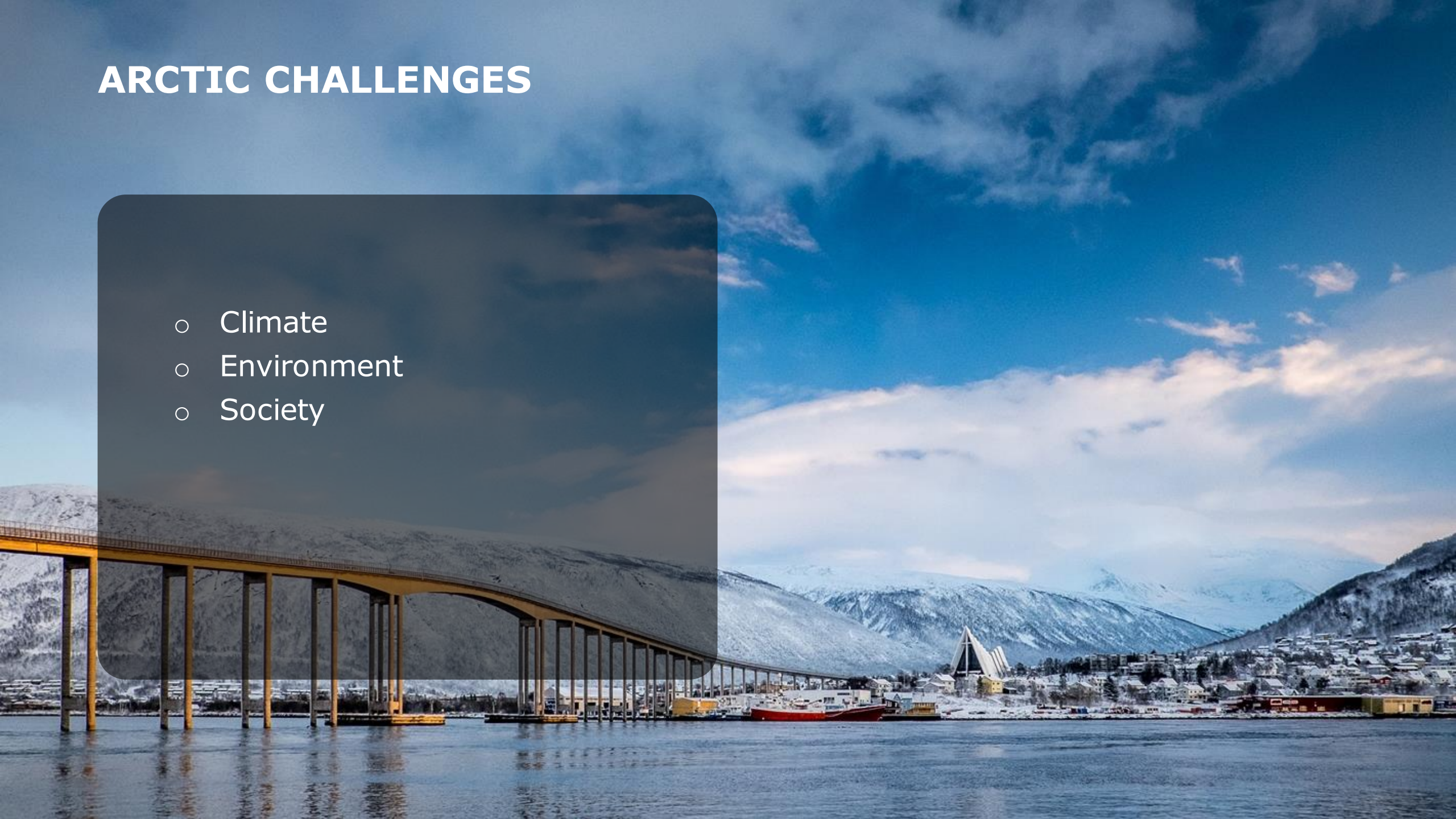
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RAMBOLL'S EXPERIENCE



ARCTIC CHALLENGES

- Climate
- Environment
- Society



CLIMATIC CHALLENGES

- Framework for technology:
 - Transport
 - Buildings
 - Industry
 - Mining
 - Energy

CLIMATIC CHALLENGES

- Cold temperatures
- Strong polar wind
- Snow and ice
- Heavy precipitation
- Landslides
- Avalanches

ENVIRONMENTAL CHALLENGES

- Environmental Impact Assessment (EIA)
- Offshore and onshore
- Arctic Sustainable Cities
- Water and Waste Management

ENVIRONMENTAL CHALLENGES

- Vulnerability
- Risk
- Nature Values

SOCIETAL CHALLENGES

- Social Impact Assessment (SIA)
- Authority Management and Relations
- Stakeholders Relations and engagement
- Social economic feasibility analysis
- Financial cooperation private-public
- Local content & Benefit sharing

SOCIETAL CHALLENGES

- Remote areas
- Sparsely populated
- Lack of expertise
- Vulnerability
- Indigenous people
- Corporate challenges
- Authority and Governmental expectations and requirements

BARENTS REGION

- Since 1993



NORDKALOTTEN / CAP OF THE NORTH

- Nordkalottrådet / Cap of the North Council since 1967



TORNEDALSRÅDET / TORNE COUNCIL

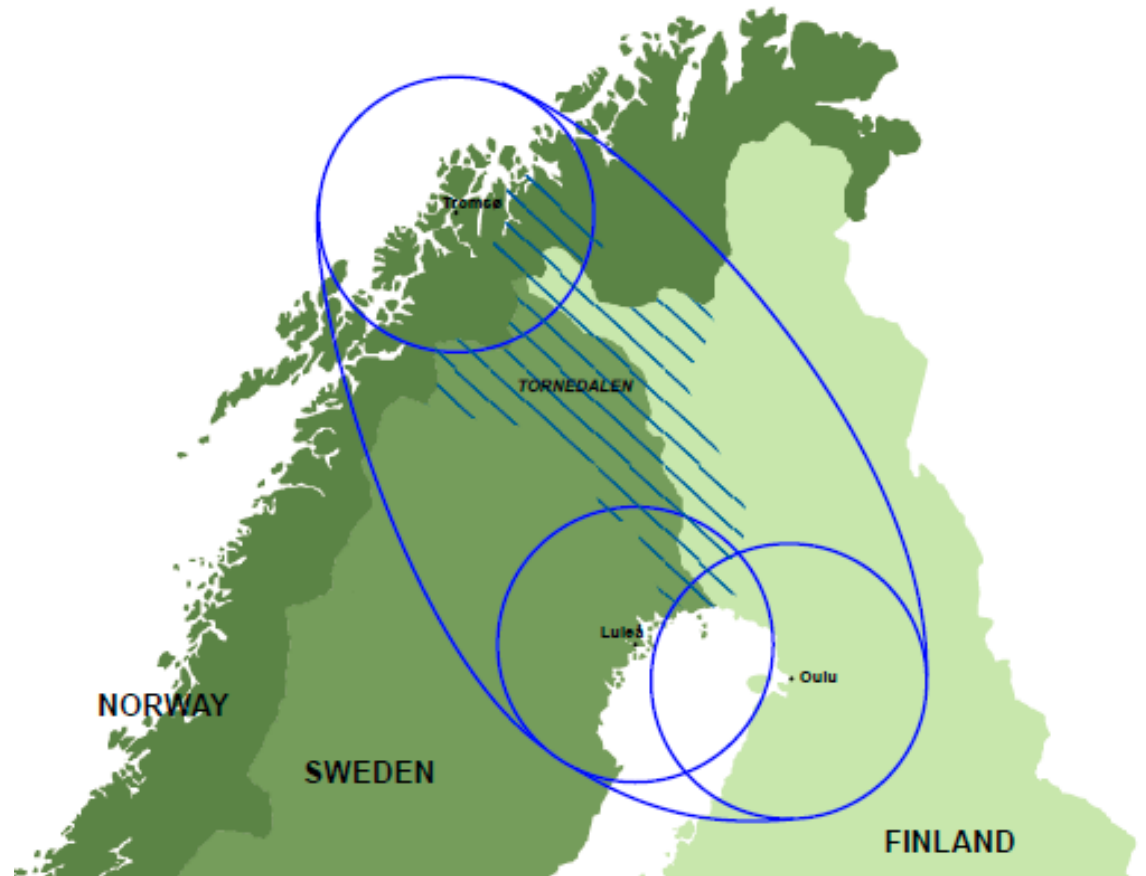
- Since 1987



ARCTIC DEVELOPMENT REGION

Initiative by Torne Council 2015

Arctic Smart Cities 2017



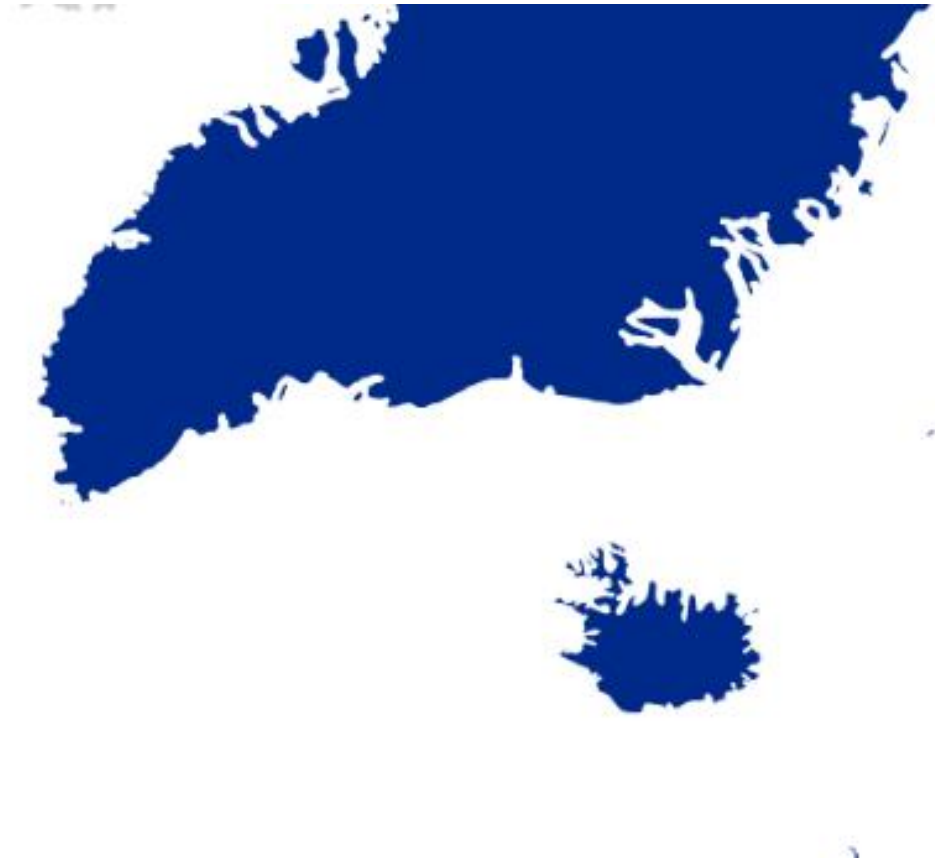
ARCTIC SCANDINAVIA

- Growth from the North 2015
 - Mining
 - Tourism
 - Energy
 - Cold climate solutions
- Arctic Cities Collaboration



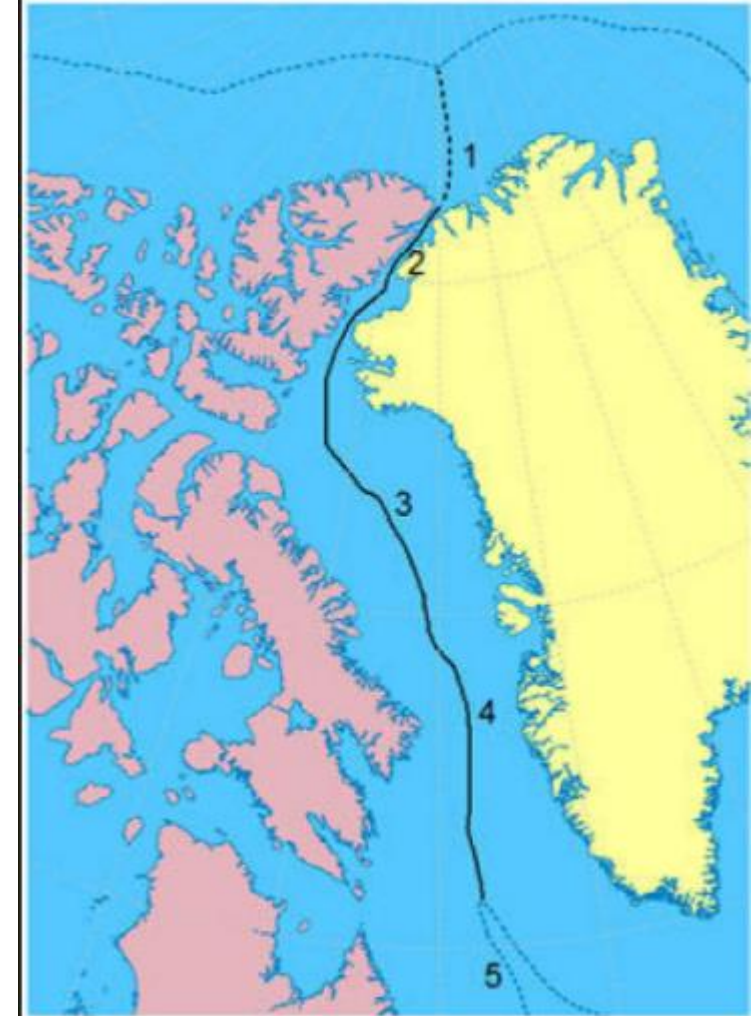
WEST NORDIC COUNCIL

- Since 1987



GREENLAND - CANADA

- Several bilateral agreements, but not on joint business development
- New Greenlandic governmental export program might change this



YUKON - ALASKA

- Land locked Yukon
- Collaboration agreement since 2012
 - Mining and Industrial training

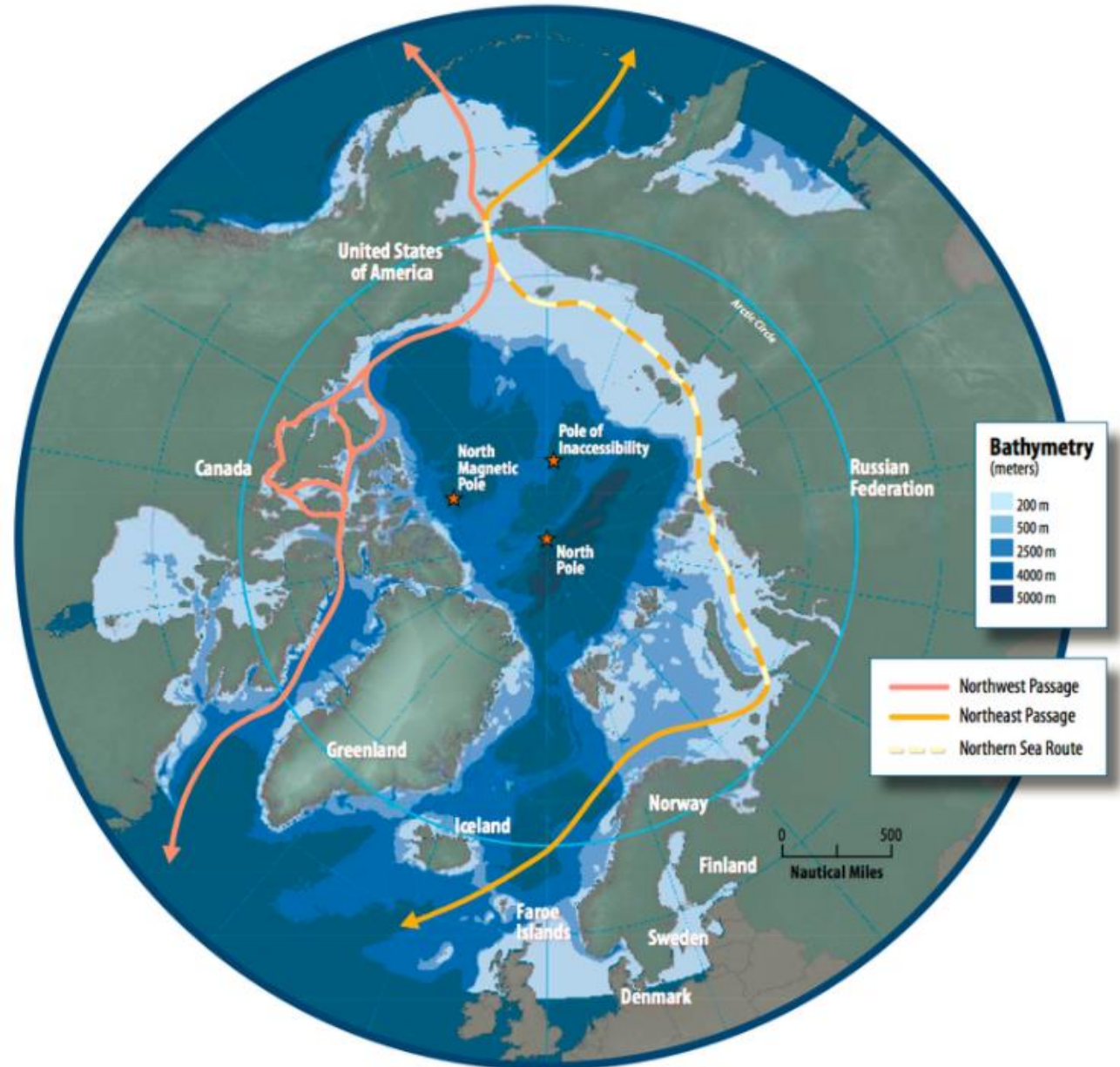


BERING STRAIT



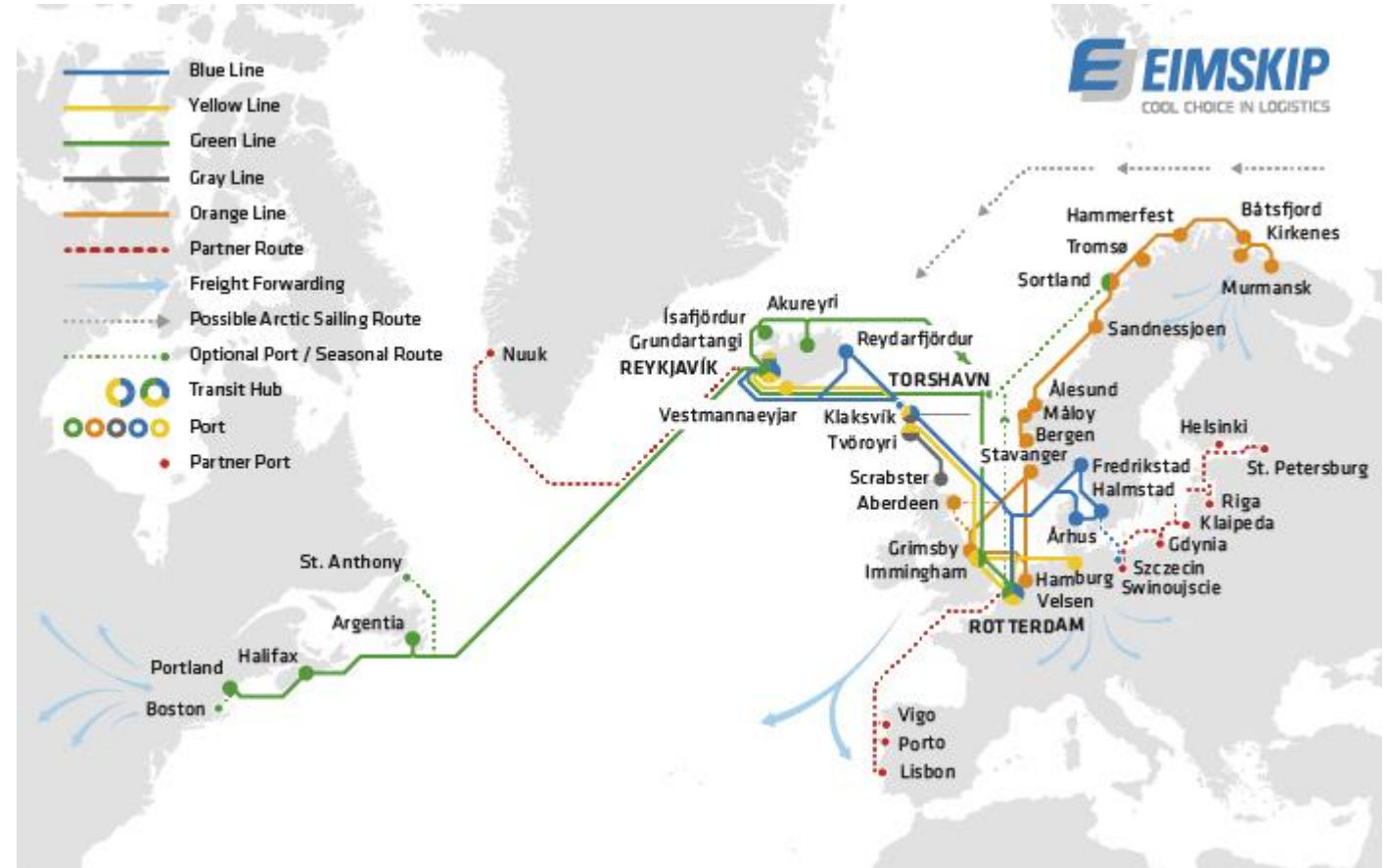
NEW SHIPPING ROUTES

- Northern Sea Route
 - Significant for national transport in Russia
 - Possible significant transit route Asia - Europe
- Northwest Passage
 - Cruise



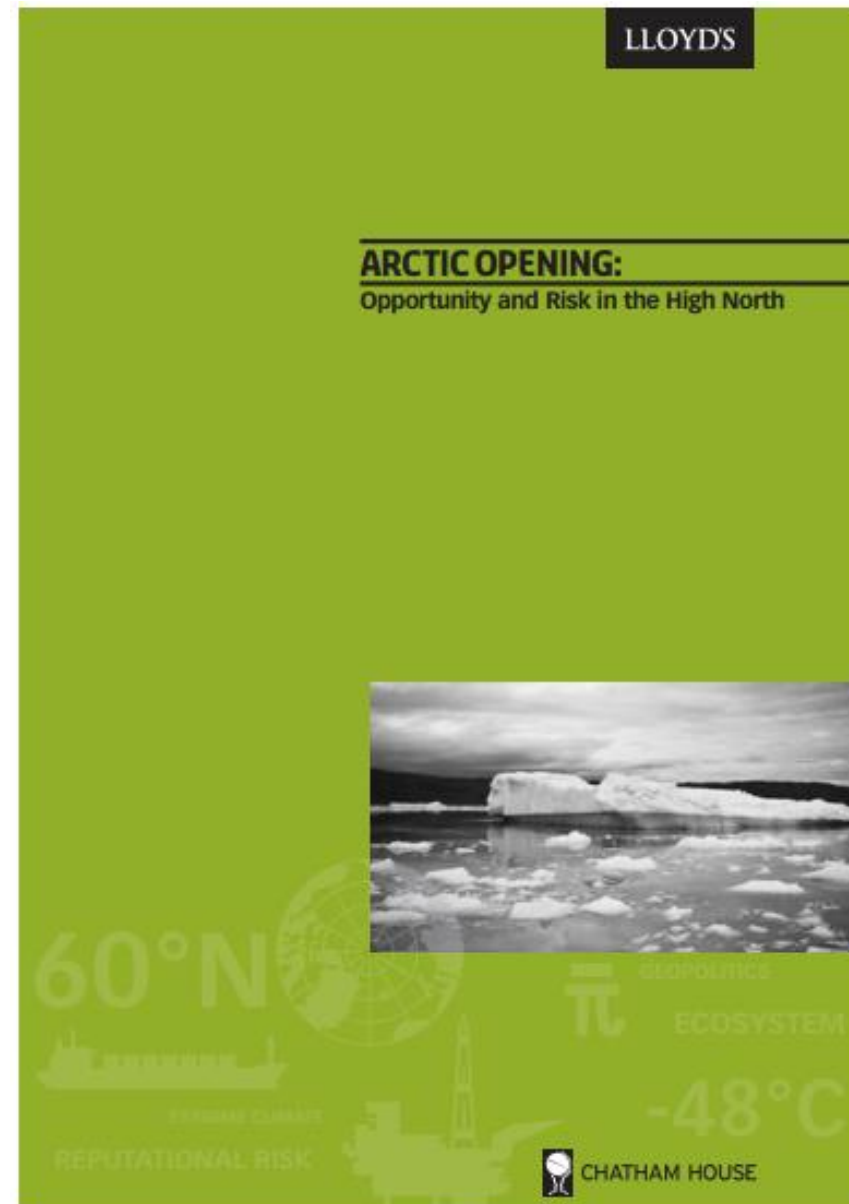
HIGH NORTH ATLANTIC

- Shipping lines
- Partnership Eimskip and Royal Arctic Lines 2017
- Ramboll Project 2016/17: High North Atlantic Shipping and Trade
- 2017 – High North Atlantic Development Forum



OPPORTUNITIES, SETBACKS AND NEW OPPORTUNITIES

- Lloyd's Arctic Report 2012: 100 bn USD 2012-2021



OPPORTUNITIES, SETBACKS AND NEW OPPORTUNITIES

- Less trade and business relations with Russia
- Decline in the mining industry
 - Northland
- Oil industry's withdrawal 2015-16
 - Shell
 - Statoil
 - Alaska
 - Greenland



The screenshot shows the top portion of a news article from ADN.com. The header includes the ADN logo and navigation links for Alaska News, Obituaries, Arctic, Politics, Outdoor/Adventure, and Opinion. Below the header is a row of social media sharing icons. A secondary navigation bar lists links for Alaska Legislature, President Donald Trump, All ADN stories, Nation/World, Calendar, and E-edition. The article is categorized under 'Energy' and has the title 'Shell isn't the only oil company leaving Alaska's Arctic'. The author is Yerehth Rosen, and the article was updated on September 28, 2016, and published on May 10, 2016. The text of the article discusses Royal Dutch Shell's decision to abandon its offshore oil exploration program in Alaska and its recent move to relinquish its leases in the Chukchi Sea, noting that this is part of a larger trend of oil companies withdrawing from the region.

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Energy

Shell isn't the only oil company leaving Alaska's Arctic

✍ Author: Yerehth Rosen ⓘ Updated: September 28, 2016 📅 Published May 10, 2016

Royal Dutch Shell's decision last fall to abandon its offshore oil exploration program in Alaska -- and its recent move to relinquish its leases in the Chukchi Sea -- may be the highest-profile exit from the United States' Arctic offshore region, but it's not the only one. A quiet exodus of other companies that once held leases in the remote Chukchi has taken place in recent months.

ConocoPhillips, the only company besides Shell to have submitted a formal Chukchi exploration plan to federal regulators, got rid of its Chukchi leases in April, a company spokeswoman said Tuesday.

OPPORTUNITIES, SETBACKS AND NEW OPPORTUNITIES

- Arctic Investment Protocol 2015
- Arctic Infrastructure Inventory 2017, Guggenheim Partners
 - Infrastructure requirements in the Arctic region alone are expected to reach nearly \$1 trillion over the next 15 years
- WWF's Arctic Program 2016-
- Not political correct to invest in the Arctic
 - Gates' Foundation

Arctic Investment Protocol Guidelines for Responsible Investment in the Arctic

December 2015



NOT ONE ARCTIC

- Norway
- Russia
- Finland
- Sweden
- Iceland
- Greenland
- Canada
- Alaska

ARCTIC SOLUTIONS FOR THE WORLD MARKET

- (Smart) Technology
- Mining
- Oil & Gas
- Food
- Tourism
- Data Center
- Transport
- Telecom/broadband
- Earth-to-space



PAN-ARCTIC INDUSTRIES

All 8 Arctic countries' Arctic regions:

- Energy
- Mining
- Tourism
- Telecom
- Engineering and design
- Financing

- Shipping
- Fishery



RAMBOLL'S ARCTIC ACHIEVEMENTS 2016-17

Value based partnerships

- ASRC
 - Pan-Arctic capacity and capability
- Norwegian Shipowners' Association
 - Vertical business development engagement project
- Maine Business Community
 - Connecting equal sized business communities
- Kaisa Consulting
 - Tool for international Arctic Industrial Development, possible to "go global"





ARCTTM

REGTECH

**A unique Decision Support Tool
to manage Risk, Compliance and Social Expectations
in the Arctic**

ARCT SOLUTION

Do it right the first time

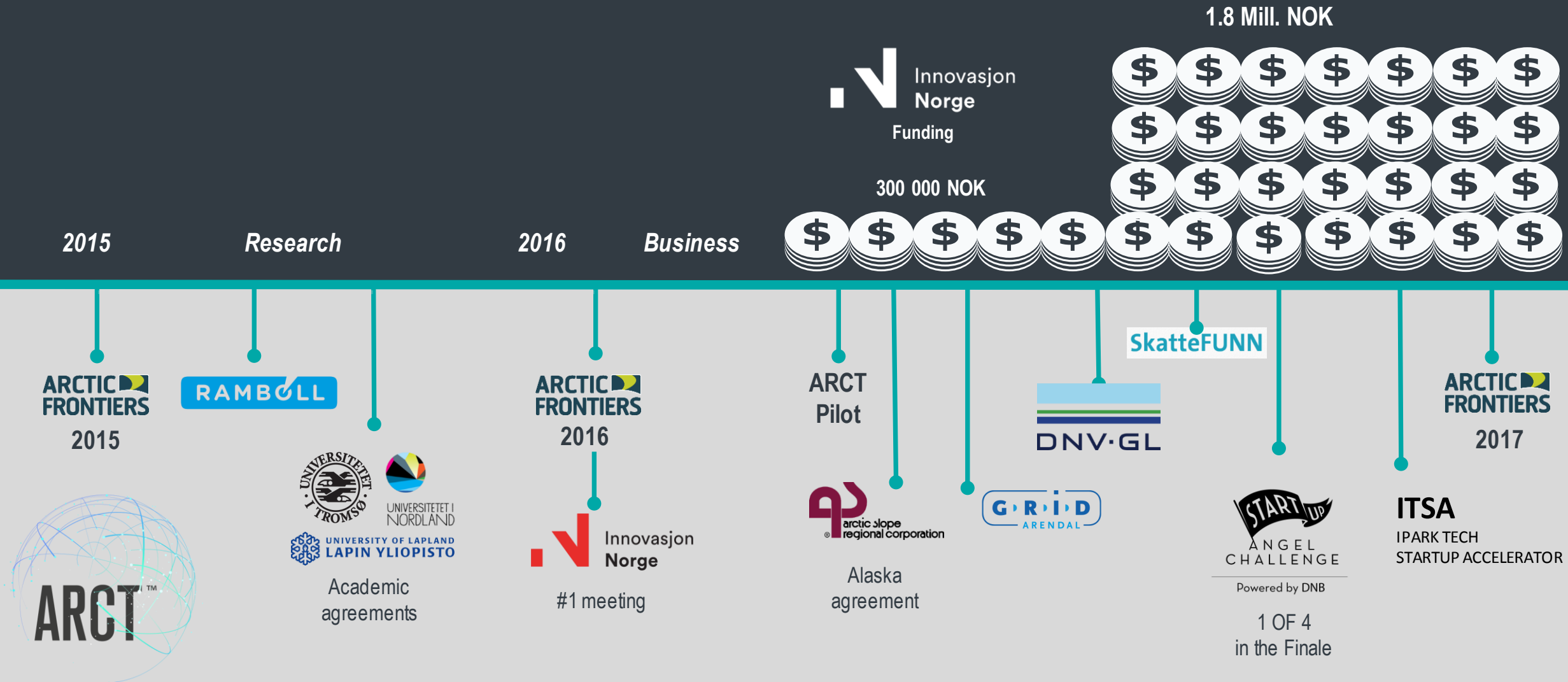
Better informed decisions

Stop «no-go» projects earlier



ARCT ACHIEVEMENTS

From Research to Business



Advisory Board and Project Team

Karin Berentsen
FOUNDER AND CEO

ACADEMIC RESEARCH

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Betsy Baker, Professor, VERMONT LAW SCHOOL and
UNIVIVERSITY OF WASHINGTON SCHOOL OF LAW

NGO/Native repr. (TBC)

