

Workforce Development Pathway

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27 June 2018

Washington Maritime BLUE Strategy Framework

Washington State will be home to the nation's most sustainable and *competitive* Maritime Industry by 2050.

Blue Vision

Strategic Goals

What should success look like in 2050?

Development Pathways

How will we achieve the goals?

Initiatives & projects

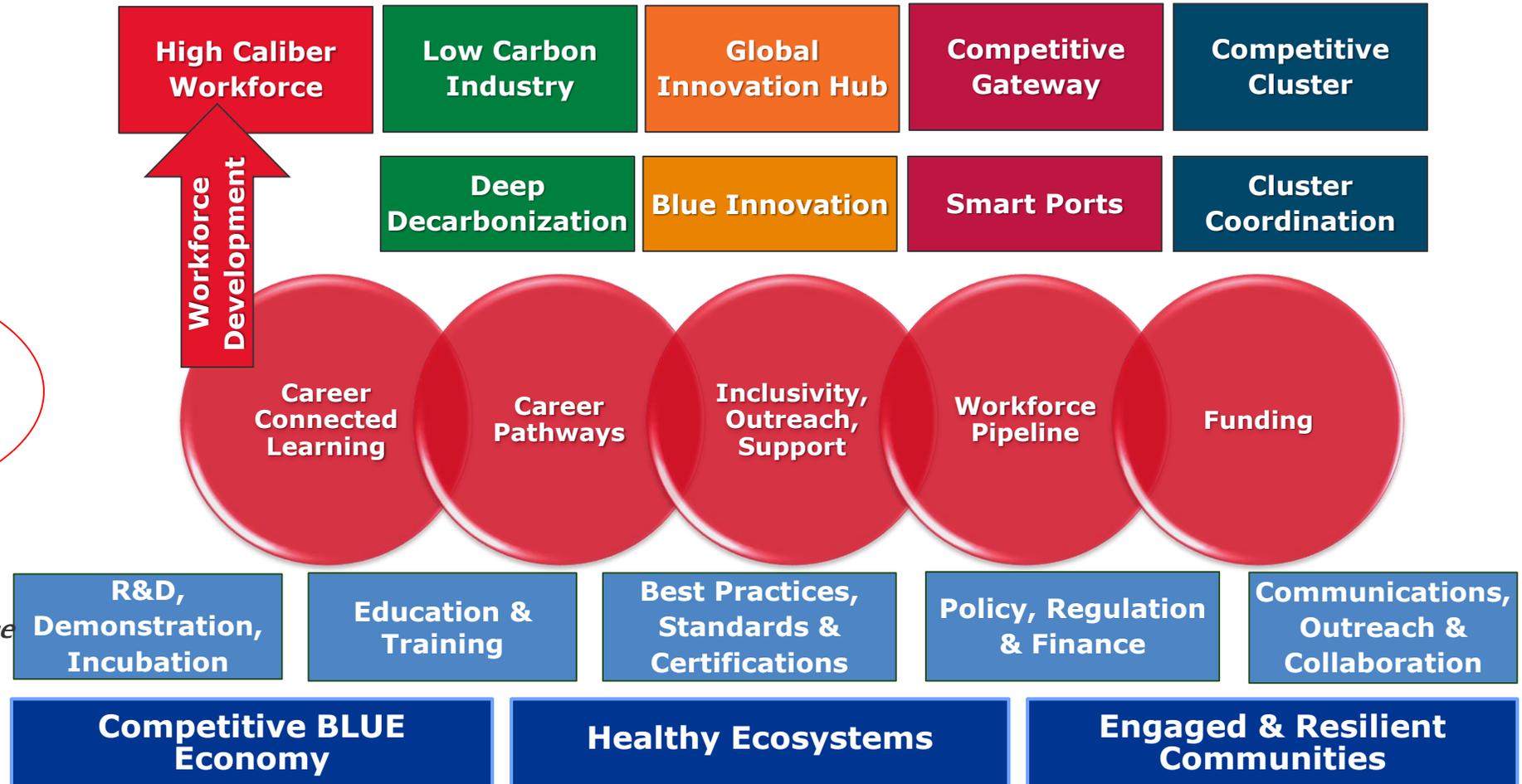
Pathways Work Groups will decide & prioritize the initiatives & demo projects.

Action Areas

What tools will be used to enable the pathways?

Value Statements

What will guide our actions?



Pathway Overview – Workforce Development

Pathway description

- Next generation of an Inclusive and Diverse maritime workforce with technological expertise and access to clean, healthy, living wage jobs.
- Enable workforce training that keeps pace with technological innovations to allow for opportunities and implementation across the maritime sector.
- Create broad opportunities for equitable and inclusive industry participation while promoting maritime careers in underrepresented communities to reflect the composition and diversity of the population as a whole within the industry.
- Remove policy and financial barriers to workforce engagement

Strategic Goal: High Caliber Workforce
A technologically adaptable and inclusive workforce with a sustained stream of high caliber entrants will be developed

Proposed Initiatives

- **Career-connected learning**
 - Learning strategies and education systems connected to maritime career opportunities
- **Career pathways**
 - Mapping the pathways in and through the industry
- **Inclusivity / support & outreach**
 - Create broader opportunities for equitable and inclusive industry participation.
 - Promote maritime careers in underrepresented communities
- **Workforce Pipeline**
 - Skill demand forecasting & strategy to ensure current & future workforce pipeline
- **Funding for programs/students**
 - **Domestic Center of Excellence:** Fed competition, funding for workforce development, apprenticeships
 - Funding for vocational scholarships

Initiative description – Career Connected Learning for Maritime Industry

Learning strategies and education systems connected to maritime career opportunities

- Experiences such as internships, job shadowing, and technical training programs that position students for careers.
- Foster career-connected learning with strategic partnerships between educational institutions and industry (including maritime academies).

Career connected learning can be as simple as a business person visiting a classroom, talking about what they do. Or a job shadow where a young person learns more about an occupation or business. Or in some cases it can be an internship, or a registered apprenticeship, where youth are paid while they learn hands-on skills.

--<http://www.wtb.wa.gov/careerconnectwa.asp>

- Governor Inslee's Career Connected Washington Task Force
 - Goal: Connect 100,000 Washington youth during the next five years with career-connected learning opportunities that prepare them for high-demand, high wage jobs.
 - Focused on identifying actionable and effective steps to drive awareness of a wide range of educational pathways that lead to rewarding careers for Washington's young adults.
 - Recommends dramatically upscaling public and private registered apprenticeships, internships, mentoring, and workforce training programs
 - Maritime specific recommendations are forthcoming, including; MJAC: Maritime Joint Apprenticeship council. Develop & support.
 - http://www.wtb.wa.gov/Documents/CCT2018_8PgFolio_Final.pdf

Initiative description – Career Pathways

Mapping the pathways in and through the industry

- **Career pathways** are an integrated collection of programs and services intended to develop students' core academic, technical and employability skills; provide them with continuous education, training; and place them in high-demand, high-opportunity jobs (wiki)
- Develop clear career pathways to inform students, parents, incumbent workers, and industry of maritime occupations in all regions
 - Program guides, mapping points of entry, pre-apprenticeship, experience through internship/ apprenticeship
 - Inclusion of maritime & trades in K-12 curriculum
 - Strategic partnerships between educational institutions and industry
- Funding to support the development and implementation of a comprehensive, interactive website and social media platform that highlights and defines maritime workforce education and training, including:
 - Workforce Plan, lifestyle, job descriptions, pathways, and links to job boards and training programs
- Support continued growth and development of the Youth Maritime Collaborative:
 - “Guiding youth toward adventurous careers in the maritime industry through meaningful high school internships, experiential events and thoughtful career exploration.”
 - Members from the Port of Seattle, regional maritime organizations, youth programs, industry leaders, education programs and local government agencies.
 - Works to create career pathways for youth pursuing careers in the maritime industry.
 - Youth Maritime Collaborative is committed to guiding today's youth toward maritime related careers. Through experiential events and high school internships, the Collaborative works to connect companies with the next generation of skilled workers.
<https://www.youthmaritimecollaborative.org/>

Initiative description – Inclusivity, Outreach, Support

Create broader opportunities for equitable and inclusive participation in the Maritime industry

- Reflect within the industry the composition and diversity of the population as a whole
- Promote maritime careers in underrepresented & rural communities through outreach & engagement activities:
 - Focus outreach to communities/sectors that are underrepresented, underserved, low-skilled, layoffs
 - Programs with experiences to see/touch/feel
 - Engage parents & students, early & often (K-College)
 - Middle and High School teachers and counselors
- Provide at risk support to ensure success
 - Address criminal history
 - Task Force on Maritime Sector Workforce Development to be formed; focus on increasing diversity
 - Outcomes: A statewide strategy for a more inclusive maritime workforce, resulting in a more diverse pool of potential pilots.



Initiative description – Workforce Pipeline

Skills demand forecasting & strategy (current & future)

- Grow specialties in advanced maritime education (e.g. sustainability, digitalization, ocean space focused postgrad)
 - Strategic planning for education / workforce future needs
 - Professional, technical and seafaring entry paths
 - Degree + short courses
- Need more focus on soft skills / work preparedness
- Start from technical post-secondary education skills requirements (2-year college, etc.)
- Partnerships with other institutions + industry opportunities



Initiative description – Ensure Funding for Programs & Students

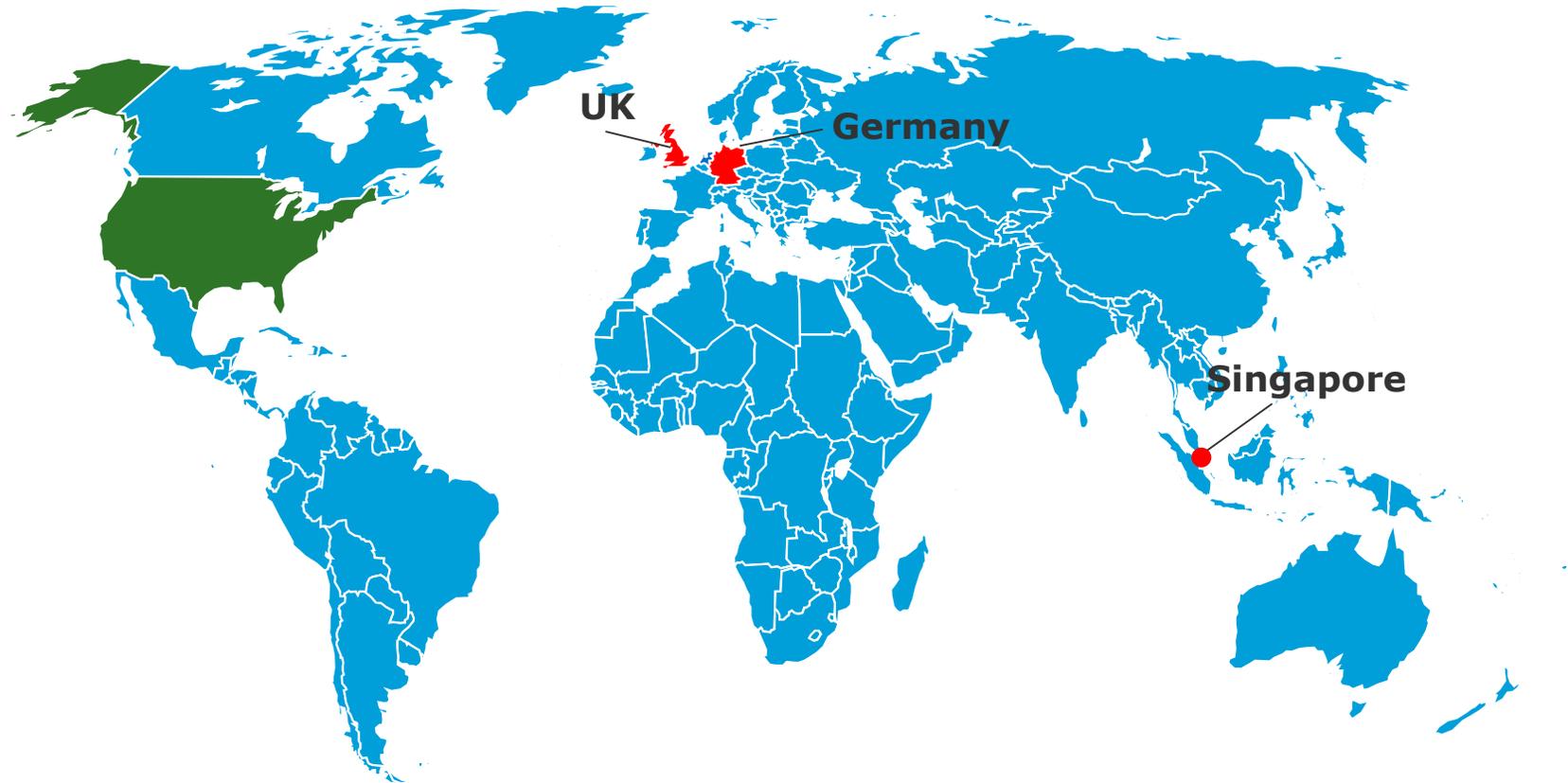
Secure funding for WA State program and student success in Maritime workforce development

- Position WA State for success in competitive Federal funding opportunity for Centers of Excellence (CoE) for Domestic Maritime Workforce Training and Education
 - Under the provisions of the Domestic Maritime Centers of Excellence Act, the U.S. Maritime Administration (MARAD) can support community and technical college centers of excellence by providing funding and support, technical assistance, and donating surplus federal assets for maritime education – such as marine vessels for use in training programs.
 - The Secretary of Transportation, acting through the Maritime Administrator, may make CoE designations and enter Cooperative Agreements with CoE designees.
 - Current opportunity to comment on MARAD application process to designate training entities as CoE. Comments must be received on or before July 2, 2018.
 - <https://www.federalregister.gov/documents/2018/05/31/2018-11682/centers-of-excellence-for-domestic-maritime-workforce-training-and-education>
- Identify additional funding pathways/opportunities for programs & students
 - Funding for scholarships (short courses, vocational, academy, advanced degrees)
 - Pipeline of paid apprenticeships/internship opportunities
 - Programmatic funding to ensure inclusion of maritime in K-College
- Remove policy and financial barriers to workforce engagement
 - e.g. Transportation Worker ID Card (TWIC) access

Case Studies

Case Study	Code	Initiative	Sub cluster
Singapore's Maritime Education and Training	S1.1	S1. Education and skills development Initiatives	Maritime Support Services
UK's Leadership in University degrees and qualifications	S1.2		
Germany's Maritime Agenda 2025: Strengthen expertise	S1.3		
EU Blueprint: Developing careers and skills	S1.5		
New geotechnical engineering and industrial tech centre	S1.4		
Ocean Technology Council of Nova Scotia			
Oceans Advance		L5. Fostering Innovation	Ocean Science
BlueStem CTE Pathway			
Maritime Singapore Green Technology Initiative	S2.1	S2. Collaboration Promoting Initiatives	Maritime Support Services
Naval Architecture initiative: Green Coastal Shipping Program	S2.2		
Maritime by Holland – Innovation	S2.3		
Public-Private Partnerships: Horizon 2020	S2.4		

Leading Education & Training Initiatives around the world



Singapore's Maritime Education and Training

Initiative Overview

Background

The Singapore government and the private sector have implemented a comprehensive range of programmes aimed at growing Singapore's pool of maritime professionals. The maritime industry strongly supports the development of talent. Scholarships and sponsorships are available from various organisations such as MPA, industry associations and private companies.

Description of the Initiative

To ensure that Singapore's marine community continues functioning like a well-oiled machine, it needs well-trained people equipped with the relevant skills. As the private sector champion of the maritime industry, the Singapore Maritime Foundation is constantly on the look-out for new partners to collaborate on new **scholarships**, maritime-related courses and initiatives, raise awareness of the exciting job opportunities in the industry and facilitate interaction between prospective maritime employers and the students and ultimately attract them to the industry.

Mechanisms to set up

An example is the MaritimeONE Scholarship, sponsored by maritime companies and administered by the Singapore Maritime Foundation, and supports various local and overseas diploma and degree programmes. For new entrants to the industry, or existing maritime employees, there are also attachment programmes to give you a taste of this dynamic industry from a different perspective. Through internships and industrial attachments, you can gain new experiences in this global industry, either locally or abroad. For ship officers and crew, the Integrated Simulation Centre (ISC) has a range of advanced simulators to provide realistic training.

Monitored by

Singapore Maritime Foundation



Implemented in
Singapore

Weighted Relevance Criteria Scoring for WA



Results/ Gains

- Impact on education and training
- Maintaining a trained workforce
- Attracting more talent to the industry

Costs

xx

Timeline

Ongoing

Relevance to WA

WA state can boost its scholarship system targeting professional training courses to encourage new talent in the industry.

UK's Leadership in University degrees and qualifications

Initiative Overview

Background
 The education and training sector is a particular strength within the UK's maritime services. Although its primary role is to keep UK's maritime organisations supplied with talented and highly qualified people, it is also part of the global offering through internationally known centres of excellence such as The Costas Grammenos Centre for Shipping Trade and Finance at Cass Business School in the City of London, the Institute of Maritime Law at Southampton University, Henley Business School and Warsash Maritime Academy.

Description of the Initiative
 The range of provision is very wide and includes professional training and updating as well as certification and award-bearing **programmes** in subjects as diverse as oceanography, marine engineering, naval architecture, maritime business and maritime law. The range of courses on offer makes the UK particularly attractive to those wishing to study at postgraduate level, or to take the very highest **professional qualifications**.

Mechanisms to set up
 Most of the universities situated in or near to the UK's major ports have specialist maritime departments, and industry-specific qualifications are available from professional bodies such as the Institute of Chartered Shipbrokers, Association of Average Adjusters, and IMarEST.

Monitored by
 xx



Results/ Gains

- Impact on education and training
- Maintaining a trained workforce
- Attracting more talent to the industry
- Attracting students from all around the globe to study in the country

Costs

xx

Timeline

Ongoing

Relevance to WA
 WA can target more national and international students to its universities, collaborate with the industry for internships and offer more certificates for technical marine professions.

Implemented in

United Kingdom

Weighted Relevance Criteria Scoring for WA

WIP

Germany's Maritime Agenda 2025: Strengthen expertise

Initiative Overview

Background

Training of qualified professionals is the key to securing the viability and competitiveness of the German maritime industry. Germany has excellent professional training infrastructure thanks to its **dual system of vocational education and training and its high-performing universities**.

Description of the Initiative

The Alliance for Training and Employment in Maritime Shipping is the ideal platform from which to shape national shipping policy together with maritime industry stakeholders. In the past years, positive impetus has been provided in many ways, for instance through government funding for training and employment opportunities. Competitive conditions are continually changing. Safeguarding maritime expertise in Germany remains a priority task of the Maritime Alliance. With the support of the maritime sector, the aim is to offer young people secure prospects in maritime professions.

Mechanisms to set up

The employers have agreed to provide 20,000 more apprenticeship positions in 2015 than were registered with the Federal Employment Agency (BA) in 2014. This level will serve as a benchmark for the coming years. Each year, every young person seeking an apprenticeship who has not signed an apprenticeship contract by 30 September will be guaranteed three apprenticeship offers. The federal states have agreed to improve career guidance in schools by giving teachers further training.

Monitored by

German authorities



Implemented in

Germany

Weighted Relevance Criteria Scoring for WA



Results/ Gains

- Impact on education and training
- Maintaining a trained workforce
- Attracting more talent to the industry
- Attracting students from all around the globe to study in the country

Costs

xx

Timeline

Started in 2014, ongoing

Relevance to WA

WA can build on the existing educative and training system and implement a dual vocational system, bringing supply closer to demand.

EU Blueprint: Developing careers and skills



Initiative Overview

Description of the Initiative

The Blue Careers projects work programme 2016 aim to establish platforms for cooperation between business and education at local/regional or transnational level to develop and implement concrete actions to close the skills gap, tackle the unemployment challenge and raise the attractiveness of "blue careers" among students. Seven projects covering both higher education and vocational training have been selected and have started at the beginning of 2017. Among the 10 concrete measures supporting the implementation of the Skills Agenda for Europe is the Blueprint for sectoral skills cooperation. The Blueprint serves as a framework to develop a comprehensive strategy and concrete actions at European level with an action plan to be then implemented at national/regional level. It is organized into 3 phases.

Mechanisms to set up

Setting up a sectoral skills partnership at EU level: the partnership will translate the industry's sectoral needs in terms of skills into a comprehensive strategy for skills development and policy recommendations as well as concrete solutions, such as designing or updating curricula and qualifications. The EU partnership platform will be industry-led and will gather key stakeholders from different maritime technology segments, education providers (both Vocational Education and Training (VET) and higher education) and industry.

Selecting sectors where the Blueprint can bring added value: this is based, amongst others, on evidence of skills gaps and their potential impact on growth, innovation and competitiveness.

Rolling out at national and regional level: Building on the results achieved at EU level, the Blueprint will be progressively rolled out at national and regional level, in cooperation with national and regional authorities, and key stakeholders according to national/regional needs.



Results/ Gains

- Impact on industry growth and workforce development
- Identification of skills gaps
- Collaboration with many stakeholders to improve education and training
- Targeted approach



Costs

\$4.3 million



Timeline

Start: 2016

Relevance to WA

WA needs to establish a dedicated platform to identify the skills gaps and then match the demand with supply through targeted education and training and raising awareness in students.



Implemented in

EU

Weighted Relevance Criteria Scoring for WA

Ocean Technology Council of Nova Scotia



Initiative Overview

Background

The Ocean Technology Council of Nova Scotia (OTCNS) is an industry association representing the ocean technology and industry sector in Nova Scotia. The mandate of the Council is to **advance economic opportunities for Nova Scotia's ocean technology companies.**

Description of the Initiative

OTCNS acts as a facilitator, linking members to each other and to government partners. Our purpose is to identify, promote and support the development of opportunities for our member companies and to the sector as a whole. We accomplish this through member activities, learning sessions, **workforce retention and training activities**, supplier development events, strategic advocacy with respect to domestic and international supply chain opportunities, innovation and productivity improvement.

OTCNS is a key resource for Nova Scotia businesses to access information on ocean technology related procurement, business and **academic linkages.**

Mechanisms to set up

Partnering with provincial and federal governments, academic institutes and research establishments to create opportunities for their members to participate in targeted international business missions and trade exhibitions with the purpose to investigate and maximize international market development and engagement in appropriate global supply chains.



Results/ Gains



Income



Timeline



Implemented in

Canada

Weighted Relevance Criteria Scoring for WA

Relevance to WA

Oceans Advance

Initiative Overview

Background

OceansAdvance is the voice of the Newfoundland and Labrador Ocean Technology Innovation Cluster.

Description of the Initiative

OceansAdvance's membership consists of more than 90 export-driven companies, research and technology organizations; highly engaged municipal, provincial and federal governments plus a number of **post-secondary academic institutes** and trade associations **focused on producing the next generation of ocean leaders.**

OceansAdvance is led by groups of professionals who are leading in oceans research and growing expertise in operating safely and efficiently in Arctic marine conditions; leaders in the global Blue Economy; and who lead an impressive innovation ecosystem.

OceansAdvance ocean technology cluster are active in the following sectors:

- **Ocean Observation & Science (Oceanography, ocean modelling, etc.)**
- **Ocean Energy**

Mechanisms to set up

A group of Newfoundland and Labrador (NL) Research, Academic, Industry and Government leaders converged to create an ocean technology cluster management organization. Its mission is to unite and excite the development of an ocean technology sector in NL, by aligning industry, academia, research and government toward a shared long-term vision of economic diversification



Results/ Gains

Income

Timeline

 **Implemented in**
Canada

Weighted Relevance Criteria Scoring for WA

Relevance to WA

BlueSTEM CTE Pathway

The Maritime Alliance and the San Diego Unified School District launched the pilot BlueSTEM CTE Pathway in October 2017 at Pacific Beach Middle School and Mission Bay High School with the goal of creating a model that can be replicated.

The BlueSTEM Pathway is a Career Technical Education (CTE) program that aims to provide students with:

- A continuum of courses related to marine, ocean or water sectors
- Project-Based Learning (PBL) and Work-Based Learning (WBL) experiences in coordination with industry partners
- Opportunities to build relevant skills through paid internships
- Career pathway videos to build awareness of the breadth of career opportunities
- Site visits and industry speakers



If you have any questions about the BlueSTEM CTE Pathway or would like to get involved, please contact The Maritime Alliance Program Manager, Christine Pereira (cpereira@themaritimealliance.org) or visit www.themaritimealliance.org.

New geotechnical engineering and industrial tech centre

Initiative Overview

Background

The centre will help Singapore's engineering ecosystem advance its adoption of new technology and innovative methods.

Description of the Initiative

Ryobi Kiso Holdings, a specialist ground engineering solutions provider, has launched its centre for geotechnical engineering and industrial technology in Singapore to build new competencies in ground engineering technologies. Through its **research** at the centre, which is supported by the Singapore Economic Development Board (EDB), the company aims to **solve engineering challenges**, raise productivity and promote **sustainable construction**, and will also explore research and development partnerships with local research institutes and universities in the future.

Mechanisms to set up

Housed within Ryobi Kiso's existing facility at Sungei Kadut Loop, the centre's focus will be developing deep industrial technology capabilities in areas such as geotechnical engineering and heavy machinery, through research.

Monitored by

Ryobi Kiso Holdings and the Singapore Economic Development Board (EDB)



Results/ Gains

- Innovation
- Edge in geotechnical engineering
- Equip workforce with skills
- Job opportunities created for locals

Costs

xx

Timeline

Start: March 2018
End: N/A

Implemented in

Singapore

Weighted Relevance Criteria Scoring for WA

Relevance to WA

WA needs to secure the education of new talent to utilise its existing institutions to promote research and innovation.

Maritime Singapore Green Technology Initiative



Initiative Overview

Background

The Maritime Singapore Green Technology Initiative seeks to reduce the environmental impact of shipping and related activities and to promote clean and green shipping in Singapore.

Description of the Initiative

This initiative encourages local companies to develop and adopt green technologies. The projects should meet criteria, like resulting in a verifiable reduction of emissions (SOx, NOx, Co2) that comply with industry performance guidelines and the installation and retrofitting should be done in Singapore.

Mechanisms to set up

The Green Technology Programme provides grants of up to 50% of total qualifying costs to **co-fund the development and adoption of green technologies**. Grants are capped at US\$1.5 million per project.

Monitored by

The Maritime and Port Authority of Singapore (MPA)



GREEN
TECHNOLOGY
PROGRAMME



Results/ Gains

- Clean and Green technologies promoted and adopted
- Impact in the environment from shipping and shipping-related activities is reduced



Costs

MPA: US\$76 million



Timeline

Start: 2011
End: December 2019



Implemented in

Singapore

Weighted Relevance Criteria Scoring for WA

Relevance to WA

WA can also promote innovation by providing grants and incentives to start-ups or local companies.

Naval Architecture initiative: Green Coastal Shipping Program



Initiative Overview

Background

55% of emissions in Norway come from domestic shipping. With such a high proportion of emissions coming locally, and therefore falling under the regulation of the national government, Norway is well-positioned to target emissions from these particular ships and to approach how it might modify its economy for the good of the local (and global) environment.

Description of the Initiative

The national government aims to reduce domestic shipping emissions by 50% by 2040. The Green Coastal Shipping Program (GCSP), a **collaboration between government authorities and the private sector** (including DNV GL), aims to create a future Norwegian fleet run entirely or partly on batteries, LNG (liquefied natural gas) and other eco-fuels, even bio-fuels; everything from offshore vessels, ferries, container ships, tankers, and aquaculture and fishing vessels, to tug boats.

Mechanisms to set up

The program has four phases with phase one jointly funded by 25 industry partners plus Innovation Norway. In its first phase it evaluated the emission reduction potential for biofuel, battery, LNG and hydrogen-based transportation. In its second phase, the program is following up on those projects already carried out, but is also establishing new pilots like a plug-in hybrid biofuel vessel. A large number of ferry connections are up for renewal in the next four to five years.

Monitored by

The National Government. The declaration has been signed by a total of 18 companies and organisations so far, together with the Norwegian Ministry of Trade, Industry and Seafood policy and Ministry of Climate and Environment.



Implemented in

Norway

Weighted Relevance Criteria Scoring for WA



Results/ Gains

- A complete ecosystem for the development and adoption of green technologies
- Environmentally-centred design
- Public ferry connections will have low or zero emissions by 2030



Costs

xx



Timeline

Start: January 2015
End: 2040

Relevance to WA

WA can also promote innovation and green technologies through public private collaborations.

Maritime by Holland - Innovation

Initiative Overview

Background

The maritime sector has been a significant part of the Dutch business community for centuries thriving on the core principles of cooperation, innovation and entrepreneurship. Over the years, the sector has become a global leader in delivering innovative solutions to the international markets.

Description of the Initiative

Stichting Nederland Maritiem Land (NML) is an organisation that connects twelve maritime sectors. NML facilitates the Dutch maritime network. It is a market-driven initiative that was created following a re-energised national shipping policy. Its core aim is to **join-up the various maritime sectors and link them with government and academia**. Doing this allows the creation of joint initiatives which strengthen individual sectors and promote the Netherlands as a significant maritime nation. Knowledge sharing across the network is facilitated to mutual advantage.

Mechanisms to set up

A privately funded organisation, NML seeks to co-finance a range of projects to further the interests of the Dutch maritime community. It is governed by a board of directors selected from the network to provide a range of skills that reflect the entire spectrum of the membership.

Monitored by

Stichting Nederland Maritiem Land (NML)



Results/ Gains

- Cooperation between sectors and also with government and learning institutions
- Up-to-date information about the Dutch maritime sector which is made available to the entire network
- Dutch maritime business will prosper, become more competitive and attract new talent

Costs

XX

Timeline

Established: 1997

Implemented in

Netherlands

Weighted Relevance Criteria Scoring for WA

Relevance to WA

WA can encourage government, academic and business collaborations for the development of innovations.

Public-Private Partnerships: Horizon 2020



Initiative Overview

Description of the Initiative

Horizon 2020 is the Commission proposal for a 80 billion euro research and innovation funding programme (2014-2020). A core part of Europe 2020, Innovation Union & European Research Area is about responding to the economic crisis to invest in future jobs and growth, addressing people's concerns about their livelihoods, safety and environment and strengthening the EU's global position in research, innovation and technology. This initiative couples research to innovation and simplifies the access, for all companies, universities, institutes in all EU countries and beyond. The successful applicants will get working very quickly, since the time to grant will be reduced to only 250 days.

Mechanisms to set up

The funding will be targeted towards three priorities. **Excellence in science**, promoting collaborative research to open new fields of innovation, providing opportunities for training and career development and ensuring access to world-class facilities. Secondly, **Industrial Leadership**, will promote strategic investments in key technologies, leverage private finance and venture capital for research and innovation and provide a base for more innovative SMEs to create growth and jobs. The **Societal Challenges** part will aim to tackle environmental and energy concerns through innovation and promote breakthroughs through multidisciplinary collaborations.

Monitored by

European Commission



Results/ Gains

- Impact on efficiency, innovation and growth
- Public private partnership
- Cooperation between sectors
- Research base
- Private venture finance



Costs

\$100 billion



Timeline

2014 - 2020



Implemented in

EU

Weighted Relevance Criteria Scoring for WA

Relevance to WA

WA can encourage government, academic and business collaborations for the development of innovations.

www.dnvgl.com

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