

# THE ECONOMIC CASE FOR THE MARITIME INNOVATION CENTER AT FISHERMENS TERMINAL

March 22, 2018

DRAFT:  
*For internal review only*

Prepared for:

Port   
of Seattle®

## ACKNOWLEDGMENTS

This report was prepared by the Maritime Alliance, Delawarde Consulting, and ECONorthwest for and under contract to the Port of Seattle. We received assistance and direction from the Alliance and the Port, as well as valuable information and perspectives from numerous individuals during stakeholder outreach events. That assistance notwithstanding, Delawarde Consulting and ECONorthwest are responsible for the content of this report.



[www.themaritimealliance.org](http://www.themaritimealliance.org)



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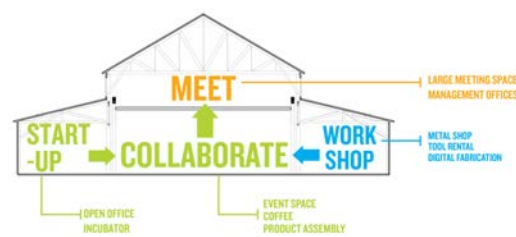
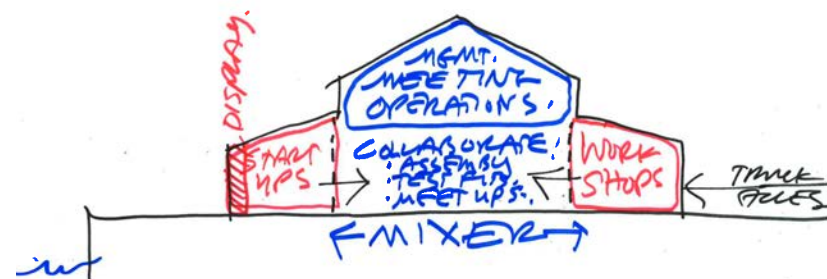


## EXECUTIVE SUMMARY

Maritime is one of the oldest industries in the world and is a major driver of a growing Blue Economy that includes both traditional maritime industries and new, innovative BlueTech technologies such as remotely operated vehicles, autonomous underwater vehicles, offshore renewable energy, sensors, and electrification. And yet very few regions are focused on the Blue Economy, but that is quickly changing as ports and regions around the world find themselves looking to promote sustainable ocean and water industries that optimize conservation and economic development.

The State of Washington is well-positioned to develop a strong BlueTech cluster through development of a strategy around the Washington Maritime BLUE initiative that has the vision of being the center for sustainable maritime industries in the United States by 2050. That strategy calls for the creation of a Maritime Innovation Center, which the Port of Seattle has identified as a strategic initiative that can be accomplished by renovating the Seattle Ship Supply building at Fishermen's Terminal, which is currently undergoing a larger redevelopment project.

The Maritime Innovation Center will raise the profile of maritime industries in a crowded media space, leverage regional expertise in high-tech software and data companies to introduce disruptive technologies in the maritime field, introduce young people to exciting new careers, and support early stage maritime companies with a hub-and-spoke model of collaboration across the entire maritime sector in Puget Sound.



## INTRODUCTION

The Port of Seattle hired The Maritime Alliance (TMA) to develop a business plan for the proposed Maritime Innovation Center and conduct outreach to generate and evaluate interest in the project. TMA also enlisted the services of Delawarde Consulting and ECONorthwest, collectively known as the Project Team, to help conduct this study and complete this report.

The Project Team reviewed materials provided by the Port of Seattle and other sources to assess the broader maritime sector in the State of Washington and developed a list of relevant contacts in academia, industry and government that should be included in outreach efforts.

Our outreach efforts started with a series of sector-based meetings organized by the Port in August 2017, followed by a Strengths-Weaknesses-Trends workshop facilitated by the McDowell Group in October 2017 to get a baseline perspective of the current state of maritime industries in Washington and start to develop a mission and vision. Based on additional outreach and meetings with maritime stakeholders around Puget Sound, the Team developed an online survey that was sent to about 400 relevant stakeholders to gather additional data that is summarized in this report and provided in the appendix. And finally, the Project Team participated in a design charrette organized by Miller Hull to develop a series of conceptual designs for the proposed Center, which the Team used to develop basic assumptions about the use and scale of available space for purposes of creating pro forma financial models.



“A fisher walks into the Innovation Center at Fishermens Terminal and walks out with...” then there could be several stakeholders that would suggest, for example 1) “a better fishing net to reduce bycatch” 2) “an alternative propulsion system to reduce carbon emissions and 3) “the confidence in knowing that the next generation of maritime workers are engaged, trained and ready to innovate!”

—*Fill-in-the blank challenge during the Strengths-Weakness-Trends workshop*

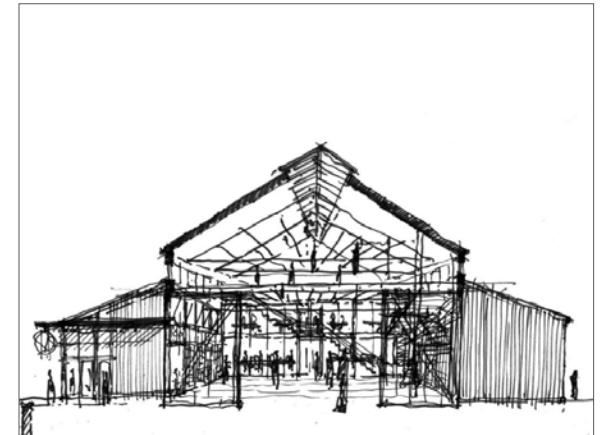


The 'Blue Economy' represents the sum of economic activity including ocean and water industries.

The innovation center is proposed to occupy a redeveloped Seattle Ship Supply building that honors and respects the rich history of maritime in Seattle and foster a new generation of entrepreneurs, fishers, inventors, supporters and workers to position Seattle and the larger Puget Sound region as a leading center for sustainable maritime innovations and technologies.

The innovation center would support next generation inventions that drive the competitiveness of Washington State's **Blue Economy**, and would be a key pillar of an effort led by the State of Washington Department of Commerce to develop a strategy for Washington Maritime BLUE: 2050 vision for a Sustainable Maritime Industry. The facility would bring together leaders from education, industry, and government to address challenges and opportunities within an organized maritime cluster and support classes, events, incubator activities, technical assistance, and research and development that ultimately helps the industry innovate and sustain its competitive advantage.

The scope of this report is to evaluate stakeholder interests, develop a vision and mission for the proposed Maritime Innovation Center, and suggest a business plan that can inform future decisions about how to manage and operate the space.



**Blue Economy Cluster** - A regional concentration of related ocean and water industries that helps increase its competitiveness globally through collaboration, events and promotional activities and usually managed by a non-profit organization.

The global 'Ocean Economy' is valued on a conservative basis by the Organization for Economic Cooperation and Development (OECD) at \$1.5 trillion (2010) and growing to \$3.0 trillion by 2030, on a "business as usual" basis.



*"If it's wet, it's Blue"*

#### 16 SECTORS OF THE BLUE ECONOMY

- Aquaculture & Fishing
- Biomedicine
- Boats & Shipbuilding
- Cables & Connections
- Defense & Security
- Desalination/Clean Water
- Marine Recreation
- Ocean Energy & Minerals
- Ocean Instrumentation
- Oceanography & Marine Science
- Ports & Maritime Transportation
- Professional Services
- Robotics & Submarines
- Telecommunications
- Very Large Floating Platforms
- Weather Science & Climate Changes



## GROWING ECONOMIC OPPORTUNITY IN WASHINGTON'S MARITIME SECTOR

The growing **Blue Economy** is just beginning to gain recognition globally as regions start to recognize the importance of the ocean for economic development, recreation, sustenance, and quality of life purposes.

The ocean will increasingly play a major role in our daily lives and when we think about the "Big 5" issues for human life—water, food, medicine, energy and "real estate"—we are really thinking about the ocean. The **Blue Economy** represents the sum of economic activity related to the ocean and water in all its forms, and there is increasing interest to further develop emerging industries in ocean observation, renewable energy, and other sustainable uses of the ocean to optimize conservation and economic development.

The global 'Ocean Economy' is valued on a conservative basis by the Organization for Economic Cooperation and Development (OECD) at \$1.5 trillion (2010) and growing to \$3.0 trillion by 2030, on a "business as usual" basis. The global water and wastewater technology industry is valued at approximately \$500 million for a total **Blue Economy** of \$2.0 trillion, and yet there is little recognition.

Today, there is no list of the top BlueTech clusters around the world, however when that list is created, the State of Washington would be well-positioned to be included given its available natural resources, maritime expertise and geographic concentration of companies, government research facilities, and university labs that are focused on developing innovative ocean technologies.



The proposed Maritime Innovation Center will build on the rich legacy of maritime industry and scientific discovery, and connect people and resources through a **hub-and-spoke** model to encourage innovation and promote BlueTech companies that will contribute to the vision of Washington being recognized as a leading center for sustainable maritime industries.

### THE ECONOMIC IMPORTANCE OF THE MARITIME SECTOR

Like many resilient industries that have evolved over time, Washington's Maritime market has adapted its industry to make a more encompassing impact across an increasingly diverse set of industry sectors.

According to the recent *Washington State Maritime Sector Economic Impact Study* (April 2017), "in 2015, Washington's Maritime industry supported 69,500 jobs, \$4.7 billion in wages, and \$21.4 billion in business revenue." Among the key maritime subsectors, commercial fishing and seafood processing, boat and ship building, repair and maintenance provided the greatest number of jobs and business revenue for Washington.

In addition to direct jobs supported, the Washington maritime sector supported an additional 121,600 jobs throughout the state economy; for every direct job in maritime, an additional 1.8 jobs were supported through indirect and induced impacts. Maritime sector wages had a ripple effect—every direct dollar in labor wages was associated with an additional \$1.06 in wages elsewhere in Washington. The multiplier effects of the Washington maritime sector activities also

### ANNUAL ECONOMIC IMPACT OF THE MARITIME INDUSTRY IN WASHINGTON STATE



### HUB AND SPOKE MODEL



Puget Sound has all the components needed to be a world leader in BlueTech innovation—a well-established maritime industry and a burgeoning tech sector. When you combine this with the institutional assets in education, research and defense, the only thing missing is a forum to connect it all.

supported significant bump of \$37.8 billion business revenues across Washington.

Washington's Maritime Sector is measured through monitoring:

- 1) Business establishments
- 2) Jobs, including workers covered by the unemployment insurance and those who are self-employed
- 3) Wages
- 4) Business revenues generated from maritime activities

The total number of sector employer establishments remained steady between 2012 and 2015 while the sector saw growth of total employment over the same time period, which suggests there is growth within each establishment but not significant levels of new firm formation. The reasons for the slower rate of firm formation is complex, yet it seems clear that intentional efforts to support entrepreneurs by targeting constraints and focusing on innovation may support continued wage and employment growth in the sector.

The total employment growth within the Washington maritime sector was about 2.6% between 2012–2015. Among the maritime subsectors, the largest increase of employment growth was observed within the self-employed workers in the Commercial

Fishing and Seafood Processing subsector. Overall, the largest subsector of total employment was the Maritime Logistics and Shipping subsector, which grew at a CAGR of 1.3% from 2012–2015.

After adjusting for inflation, wages among Washington's maritime industries increased by \$200 million, primarily due to the proportional impact of the Maritime Logistics and Shipping subsector, contributing \$1.5 billion in wage disbursements. The second largest contributor to wages and salary (during 2015) came from the \$1.2 billion within the shipbuilding, repair and maintenance subsector.

Business revenues from output generated by private sector operations within the maritime sector experienced meaningful growth between 2012–2015. After adjustments for inflation, the maritime sector increased business revenue by \$1.5 billion. Much of this business revenue was seen within the Commercial Fishing and Seafood Processing sub-sector, contributing the largest proportion of business revenue of about \$9.4 million.

While the system for accounting for U.S. economic activity in new BlueTech industries is not well supported, the Project Team notes that much of the economic activity is attributed to legacy or traditional maritime subsectors, and if Washington

is to remain competitive and develop new sustainable maritime industries, targeted public intervention is needed. It is also recommended that public agencies support efforts by the National Oceanic and Atmospheric Administration (NOAA) to develop new approaches to evaluating the Blue Economy, including the creation of satellite income accounts and new policies to update the North American Industrial Classification System (NAICS) codes and other standards to include BlueTech as a category so economists and investors have accurate data on this important area of the U.S. economy.

## **HARNESSING THE POWER AND OPPORTUNITY OF INNOVATION**

Maritime is one of the oldest industries in the world and for much of human history as explorers traveled by sea to discover new lands and opportunities, or nations battled in the high seas, maritime represented the height of human ingenuity, technology and innovation. Newspaper headlines and stories of heroic figures who conquered the sea were celebrated, attracting young and innovative talent to pursue careers in maritime. However, when humans discovered flight and developed a digital world where information and status are achieved at the



speed of sound, or light, we collectively lost our love for the sea and the world's innovators focused their attention on software for global commerce and consumer technologies. There is tremendous need and opportunity to bring maritime into the digital world and develop cleaner and more sustainable industries to promote renewed enthusiasm for this growing Blue Economy. With Seattle's global influence in digital commerce, information technologies and communications, there is a unique opportunity to marry the two in this region. A Maritime Innovation Center will serve as a catalyst.

Continued growth within the Washington maritime sector requires continued adaptation and innovation within its subsectors. Historical trends demonstrate the unique advantages within Washington's maritime sub-sectors—primarily the trends supporting the growth in self-employment and entrepreneurship. Leveraging the maritime sector's propensity for cultivating self-starting employment opportunities with the region's hallmark innovation and technology ecosystem positions this industry as a good fit for alignment with business incubator and startup programs. There is tremendous potential to align innovative technology development with education and workforce development programs, investment capital, research and outreach to promote further expansion of new sustainable industries in the Blue Economy.



## BENCHMARKING / CASE STUDIES

As mentioned in the previous section, the Project Team notes that other ports and other regions are taking steps to focus on promoting ocean technology innovations and entrepreneurship in ways that fit their own unique set of circumstances.

We highlight a few of the comparable efforts below in order to examine what other regions are doing and to help position the Port of Seattle to maximize its own opportunity to promote maritime technology innovation.



### ALTASEA—LOS ANGELES, CA

The Port of Los Angeles has a long term agreement in the form of a public-private partnership with the non-profit organization Alta Sea to manage a 35-acre waterfront site that includes space for a planned Engagement Center or Event Space, Science Hub for classes and education providers, and a Research Hub and Business Incubator (~10,000 sq.ft). The campus will initially focus on with space available to startups as well as large companies that want to locate adjacent to the water.

- Public/Private Partnership between the Port of Los Angeles and Alta Sea with a 50-year lease
- Repurposed 35-acre waterfront site for combined research, co-working/incubator, education, and public event space
- Focused on aquaculture and BlueTech sectors, including remotely operated vehicles (ROVs), autonomous underwater vehicles (AUVs), and autonomous surface vehicles (ASVs)
- Port provides extensive rent credits in return for educational programming. Rent credits lower the cost for tenants, which would pay:
  - \$9/SF/Yr for incubator tenants
  - \$18/SF/Yr for medium-sized tenants
  - \$22/SF/Yr for large-sized tenants

## COVE



### CENTRE FOR OCEAN VENTURES AND ENTREPRENEURSHIP (COVE)—HALIFAX, NOVA SCOTIA

- Converted an old Coast Guard facility into a hub for scientific research, events, incubator space, ocean technology tenants and workforce programming
- Significant government funding and support
- Focused on ocean technologies
- Governed by a nonprofit organization that is similar to a cluster, and its incubator is contracted out to another company that specializes in running incubators.

## NEWLAB

### NEWLAB (BROOKLYN NAVY YARD)

- Converted 84,000 square feet from an old Navy Yard in Brooklyn into an urban innovation space with prototyping, 3D printing, CNC machines, wood and metal shop with support staff.
- Inter-disciplinary focus on innovation and entrepreneurship, but no specific focus on maritime
- New York City Economic Development Corporation funded \$2.5 million to the private, for-profit company New Lab to operate the center for five years
- Also includes corporate sponsors and a mix of startup and mature companies that pay rent



## PORTXL

### PORTXL (ROTTERDAM, THE NETHERLANDS)

- “World’s first Port Accelerator” spun out of the Port of Rotterdam, runs as an independent for profit accelerator
- General co-working office space with fast-paced programming for startups that are selected through a competitive process in cohorts
- Value proposition is the connection to end-users and investors at one of the largest ports in the world, which are also sponsors of the program that take equity positions in the startup companies



### RDM ROTTERDAM (ROTTERDAM, THE NETHERLANDS)

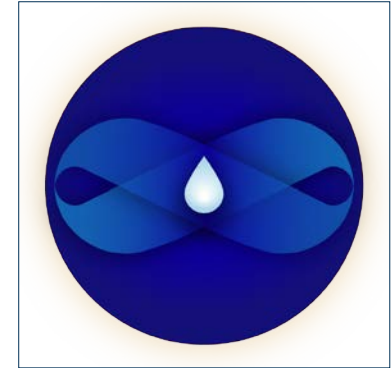
- Converted from an old, defunct shipyard into a new interdisciplinary space that supports events, technical training academy, an incubator, storage space with a wave tank and other testing facilities
- Co-located with a senior secondary vocational school and a higher professional educational program
- Supported with funding from the European Commission, the Port of Rotterdam, and other sponsors
- Focused on maritime technologies and other ocean related verticals including innovative housing concepts over water and design





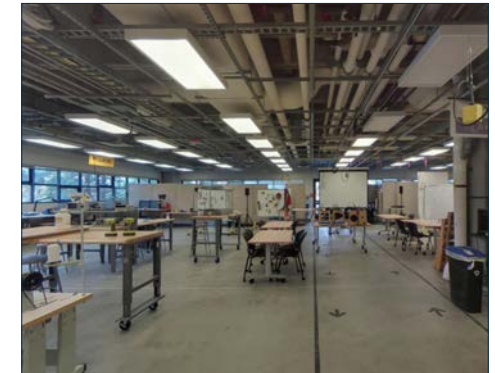
### PUREBLUE

- Seattle-based accelerator with programs across North America
- Specific sector focus on water related technologies
- Partially funded with grants from the U.S. Department of Commerce and an equity sharing arrangement with a private LLC
- Many parallels exist between the water industry and ocean/maritime with respect to the present level of innovation, degree of fragmentation, and attractiveness to investor



### CO-MOTION LABS

- Part of the University of Washington with three physical locations.
- Non-profit self-sustainability model
- Average 60–90 startups at any given time with a multi-industry approach
- Includes engineering, computer sciences, life sciences, clean tech and AR/VR for example
- Offers a wide degree of incubator and accelerator programs and networking with needed resources for business nurturing



### THE COLLABORATORY AT APL-UW

- Operated by the University of Washington Applied Physics Laboratory
- Specific focus on marine and ocean technologies
- Supports a synergistic ecosystem for marine technology research and development
- Hosted companies require demonstrated commercial capability
- Provides co-location space for 10–12 small-medium sized companies, events, meetings, shared access to APL resources and facilities
- Provides a forum to develop linkages between APL, industry and other institutions





## ANALYSIS OF CASE STUDIES

The diagram on this page showcases a continuum of some of the entrepreneurial hosting programs mentioned in this report. Along the horizontal line, programs to the right have an increasing degree of BlueTech focus while moving towards the top shows programs with a high level of programmatic content including seminars on topics such as accounting and finance, business plans, human resources, investment funding, and more.

It is important to note that the University of Washington has two exceptional entrepreneurial programs, each with a different area of focus. Co-Motion Labs offers well organized incubator/accelerator programmatic support across a broad range of industries with dedicated staff to support 60–90 companies at a time. The APL Collaboratory brings together 10–12 small companies focused on maritime technology co-located within a synergistic university ecosystem to provide a forum for advancing research and development and spur economic growth. Both programs are affiliated with the University of Washington and offer potential models for the Port of Seattle to consider as it develops a Maritime Innovation Center. It is possible to create a hybrid model, perhaps through a private-public partnership with the University or other organizations to operate the Center and serve as a convener that promotes collaboration and supports innovation in the maritime sector.



The above diagram shows the case studies discussed in this report along two dimensions chosen to depict comparisons specific for this Report. The cases shown are all highly successful against their own individual missions and their position on this graph should not in any way be interpreted as a measure of effectiveness or performance.

There is not a clear recipe for how to make business entrepreneurship and innovation programs successful. What is clear in our research of incubation programs around the world is that co-location of like-minded businesses or startups with collaboration from partners in academia, industry, and policy is critical to help facilitate the needed culture for innovation.

A cluster organization, like the one envisioned through the State of Washington's Maritime BLUE Strategy can be the glue that keeps partners working together, engaged, and able to project internationally. While the cluster organization can be a potential operator of the incubator, it is not necessary, but the cluster organizer should be actively engaged and ideally co-located with the incubator for the reasons mentioned above.

## NEEDS ANALYSIS

When considering a plan to build an activity system and program for increasing the likelihood for innovation, it is important to take note of assets already in place within the region. Being that the maritime sector is also quite complex with many subsectors, the supporting resources are equally complex with overlapping priorities in other areas. While by no means an exhaustive list, we make note of the following examples:

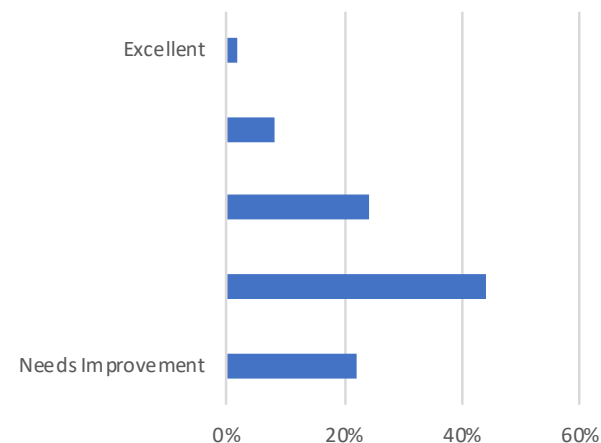
- Natural Resource
- Existing Entrepreneurial Assets
- Shipbuilding, Marine Architecture, and Marine Transportation
- University of Washington
- Other Educational or Institutional Assets
- Federal Assets
- Seafood & Fishing Industry
- Ocean & Marine Instrumentation Industry

### TOP FIVE BARRIERS TO GROWTH IN THE MARITIME SECTOR

Survey respondents were asked to assess a large range of business and innovation challenges in the maritime sector. The list shows the top identified challenges.

- 1) Lack of public policy & incentives support
- 2) Workforce talent, skills, & development
- 3) Understanding business/opportunities within the maritime sector
- 4) Access to investors & funders
- 5) Lack of research & development resources

The Washington State maritime sector needs to be more innovative: 2 out of every 3 respondents felt that the innovation performance is not comparable to other industries.



### NATURAL RESOURCES

The physical and geographic attributes of the Puget Sound Region is an enormous advantage that is often overlooked in its ranking of importance so we listed it first. Included in Puget Sound is:

- A large shoreline
- Deep water port
- Proximity to Alaska & Arctic
- Proximity to Asia/Pacific Rim/BC
- Protected freshwater harbor
- Sustainable fisheries
- Clean air and abundant energy and water resources

It is important for any plan going forward to leverage and showcase this.

### EXISTING ENTREPRENEURIAL ASSETS

As one of the world's leading tech regions, Washington is fortunate to have a well-established culture of innovation. This is supported by over 40 existing entrepreneurial hosting programs (incubators, accelerators and the like) in Puget Sound alone. While this is encouraging from the overall standpoint of having a startup culture with the needed support structures across broad industries, there are none with specific focus on the maritime/oceanographic industry, with the exception of the University of Washington's APL Collaboratory. The Collaboratory's unique distinctions are explained in the benchmarking section.



### SHIPBUILDING, MARINE ARCHITECTURE, AND MARINE TRANSPORTATION

While Puget Sound is not unique in the US for having shipyards and Architects, it is unique in the variety of commercial activities supported. We note that not only are there existing skill sets and capabilities for well-known shipbuilders such as Vigor (Tacoma, Seattle, Port Angeles, etc), shipbuilding expertise also extends to the Naval Shipyard, aluminum boats, and the local craftsmen in Port Hadlock skilled in traditional wooden boat building.

Marine logistics companies such as Foss Maritime and Crowley Maritime have a large presence in the region and this large installed base can serve both as a needs source and where innovative technologies can be applied. In addition, Washington State operates the largest commuter ferry system in the country, which also creates opportunities of scale for clean alternative propulsion systems.

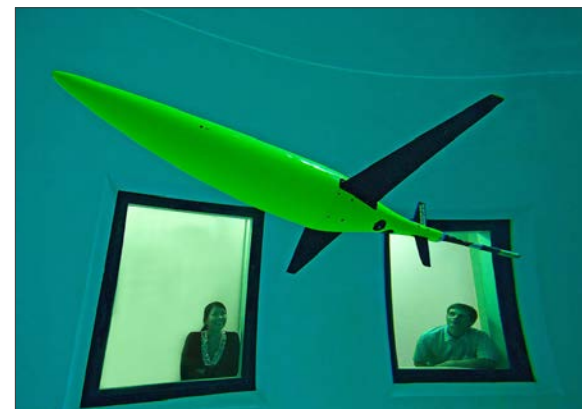


### UNIVERSITY OF WASHINGTON

UW is not the only educational institution involved in maritime or ocean activities;

however it clearly stands out because of the number and size of programs it has that are either supporting or can support maritime/oceanographic programs. This includes:

- Washington Sea Grant
- Applied Physics Lab (including the Collaboratory)
- School of Oceanography
- School of Marine and Environmental Affairs
- Pacific Northwest National Marine Energy Center
- Co-Motion Labs entrepreneurial hosting program



### OTHER EDUCATIONAL OR INSTITUTIONAL ASSETS

- Western Washington University (has programs in Marine Sciences, Energy, Autonomous Vehicles)
- Northwest Center of Excellence for Marine Manufacturing and Technology (Skagit Valley College)
- Seattle Maritime Academy (Seattle Central College)
- Northwest School of Wooden Boat Building
- Schmidt Ocean Institute.





### FEDERAL ASSETS

- NOAA Western Regional Center—Houses the largest variety of NOAA programs at a single location in the United States (Includes National Ocean Service, National Marine Fisheries Service, Office of Oceanic and Atmospheric Research & National Weather Service). It also employs the largest NOAA staff outside the Washington, D.C., metropolitan area
- US Navy—The Navy has a large presence in the region including major facilities in Bangor, Bremerton/Keyport, Everett, and

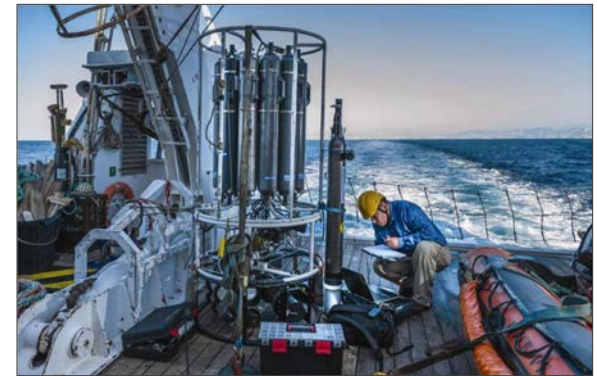


Whidbey Island—In particular the Naval Undersea Warfare Center (NUWC) facility in Keyport has a large testing range for underwater vehicles and expressed willingness to cooperate with interested users (entrepreneurs in early proof of concept stages)

- US Coast Guard District 13—D13's Area of Responsibility encompasses four states and the entire Pacific Northwest coast
- Pacific Northwest National Laboratory (PNNL)—Part of the Department of Energy, PNNL features many locations in the Pacific Northwest including a Research Center in Seattle and the Marine Sciences Laboratory in Sequim

### SEAFOOD & FISHING INDUSTRY

A significant portion of Alaska's fishing fleet has been based in Seattle for over 100 years. As a consequence, there are highly experienced shipbuilding, repair and maintenance services in close proximity to Fishermen's' Terminal. The Chittenden locks allows fishing boats to spend their off season on fresh water, which of course means less



corrosion of hulls and other equipment as well as unique opportunities for innovation and testing. After fishers harvest their catch the seafood must be processed, marketed, and delivered to consumers. Many of these companies are also present on the ship canal and elsewhere as the catch is processed and exported, with opportunities for innovation at each stage of the supply chain.

### OCEAN & MARINE INSTRUMENTATION INDUSTRY

Puget Sound is one of the leading parts of the country for underwater technology which includes robotics, sensors, and platforms for providing the necessary information for climate forecasters, ocean operators (industry), and public safety. While numerous, most of the companies in this segment are small and have close relationships with one or more of the groups listed above. Two of the better-known are SeaBird Scientific and Kongberg/Simrad.



## INNOVATION GAPS IN THE MARITIME SECTOR

To accelerate innovation, the creation of a supportive and nurturing environment is necessary. Four basic elements are required: ideas, people to make inventions, customers to purchase them, and a supporting culture to facilitate the process.

By drawing on results from the previous outreach section, we call out this synopsis of the higher-level gaps that need to prime in any Innovation Center design process:

- Lack of public awareness was the most commonly mentioned element as well as all the resulting issues it causes including lack of linkages, specific resources, workforce development programs, etc.

## FINDINGS OF PROJECT TEAM OUTREACH

One of the major assignments to the Project Team was to work with the maritime stakeholders in the region and establish entrepreneurial focus points for the proposed Maritime Innovation Center. As the maritime cluster is inclusive of many small and fragmented segments it is important to formulate the mission, vision, and goals of the Center in as simple a form as possible for proper focus.

In formulating our proposed mission and vision for the Center, we gathered information from four primary sources that was heavily biased on input from interested stakeholders as opposed to pre-existing literature. These sources are:





Innovation as described is an idea followed by invention combined with a commercial success.

1. Strength, Weaknesses, and Trends Workshop
2. Regional Outreach Events
3. Personal interviews
4. An online survey

As a diverse and fragmented industry steeped in many longstanding traditions it is expected that there would be considerable areas to address. In our analysis, we report on key findings from each source and articulate outcomes into two primary areas that support creation of the Center:

- Supportive elements needed to broaden maritime innovation ecosystem
- Idea Area Topic—identifies important gaps in the industry (note some of these are quite specific and others are rather open ended)

A synopsis of each source follows:

### I. SWT Workshop

*A workshop to discuss the region's maritime Strengths, Weaknesses, and Trends (SWT) in Seattle facilitated by Heather Haugland of the McDowell Group (See Summary in Appendix)*

The SWT exercise clearly indicated that the region has a vibrant marine industry built on strong heritage with world renowned local assets and institutions. However, the public awareness of maritime is not keeping pace with other better-known industries and this is believed to be slowing the pace of innovation and causing a workforce shortage and skills gap. Important trends in the industry include:

- Alternative low carbon vessel propulsion system
- Increasing use of surface and undersea robotics
- Climate change (with attention to changes in the Arctic)
- Numerous challenges to the seafood industry from both the resource collection and consumer product standpoint

### SWT Workshop Outcomes

| Elements to Broaden Maritime Innovation Ecosystem  | Idea Area Topics For Future Exploration  |
|--|--|
| <ul style="list-style-type: none"> <li>■ Public Awareness</li> <li>■ Workforce Development</li> <li>■ Specialized Investors</li> <li>■ Stronger linkages amongst existing resources (knowing where to go)</li> <li>■ Access to the right lab and testing facilities (having access to use them)</li> </ul> | <ul style="list-style-type: none"> <li>■ Ballast water solutions</li> <li>■ Alternative vessel propulsion</li> </ul> |



## 2. Public Outreach Tour

*Regional Outreach Events in Anacortes, Port Hadlock, and Bremerton facilitated by Heather Haugland of the McDowell Group (See Summary in Appendix)*

Regional outreach event findings aligned closely with the SWT Workshop. In the North Sound meeting, workforce development was emphasized along with leveraging local expertise on environmental sustainability. Some frustrations were expressed in getting some of the smaller local companies to think of themselves as collaborators as opposed to competitors. At Port Hadlock, the region's reputation for high quality, craftsmanship, and local cutting-edge laboratory research was emphasized. Concerns cited include:

- Plans for the working waterfront
- Transforming local innovations into longer term prosperity for the region by retaining successful companies that otherwise are acquired and/or move out of the region.
- Duplication of effort (i.e whatever is done in the Center should be complementary to other resources in the region and non-duplicative).

## Public Outreach Outcomes

| Elements to Broaden Maritime Innovation Ecosystem  | Idea Area Topics For Future Exploration  |
|--|--|
| <ul style="list-style-type: none"> <li>■ Gaining the cooperation of local micro –competitors to collaborate</li> <li>■ Dealing with the impacts of climate change (public recognition of)</li> </ul> | <ul style="list-style-type: none"> <li>■ Hybrid energy systems</li> <li>■ Renewable marine energy</li> <li>■ Undersea robotics</li> <li>■ Net-pen fisheries</li> </ul> |

## 3. Personal Interviews

*Interviews with approximately 40 individuals by Delawarde Consulting (See Personal Interview Summary in Appendix Item)*

Personal outreach focused more on specific needs for the Center to fulfill wants from a broad cross section of industry players. While most subjects had narrowly defined interests along their organizations' specific missions, there is a strong desire to accelerate the pace of innovation across the board in marine and ocean technology. One example that came up multiple times was the automation of the fisheries observer program.

Personal outreach focused more on specific needs for the Center to fulfill 'wants' from a broad cross section of industry players. While most subjects had narrowly defined interests along their organizations' specific missions, there is a strong desire to accelerate the pace of innovation across the board in marine and ocean technology. One example that came up multiple times was the automation of the fisheries observer program.



The key points from outreach informing the suggested mission and vision statements include:

- The Center will need to support entrepreneurs and established companies; raise the industry profile, attract investment; and forge stronger connections across the existing maritime/ocean tech industries and the broader tech industry in Puget Sound
- The region is rich in maritime resources and heritage, but this is under recognized by the general public and policy makers being overshadowed by high-tech
- A mechanism for driving innovation in this sector is widely supported
- The existing Seattle Ship Supply Building is recommended for becoming the central forum and organizing element within a hub and spoke model because of its location and surrounding resources and representation of heritage.

### Personal Interviews Outcomes

| Elements to Broaden Maritime Innovation Ecosystem  | Idea Area Topics For Future Exploration   |
|--|---|
| <ul style="list-style-type: none"> <li>■ Unique needs of the maritime industry: <ul style="list-style-type: none"> <li>■ Median entrepreneur age in 40s</li> <li>■ Fragmented market; limited Total Addressable Market (TAM) headroom</li> <li>■ Uneducated investors</li> </ul> </li> <li>■ Specific co-location spaces for BlueTech entrepreneurs</li> <li>■ Identified “step out” spaces for successful enterprises</li> <li>■ Hosting space with both hardware and software support for BlueTech</li> <li>■ Formal linkages so industry and academia/govt can work well together</li> <li>■ Public education about local seafood industry</li> </ul> | <ul style="list-style-type: none"> <li>■ Alternative propulsion systems</li> <li>■ Robotics</li> <li>■ “Pin boning”</li> <li>■ Fisheries observer program automation</li> <li>■ Modernizing the fishing fleet</li> <li>■ Fish net technology</li> <li>■ Higher margin seafood products for US consumers</li> <li>■ Decreasing environmental footprint and improving compliance</li> </ul> |

### 4. Online Survey

*An online survey was sent to over 400 stakeholders conducted by ECONorthwest (See Summary in Appendix section)*

The Maritime Innovation Center Survey was developed to gauge interest in and preferences for a proposed Center from a targeted population of maritime industry contacts and related stakeholders. The Center is proposed to comprise three programmatic elements: (1) An incubator/accelerator, (2) Active connections between industry and academia within a maritime focused “innovation network” (3) Education and training resources that would serve the maritime community. A model facility is anticipated to provide a full spectrum of services to growing maritime businesses while catalyzing innovation within its communities.

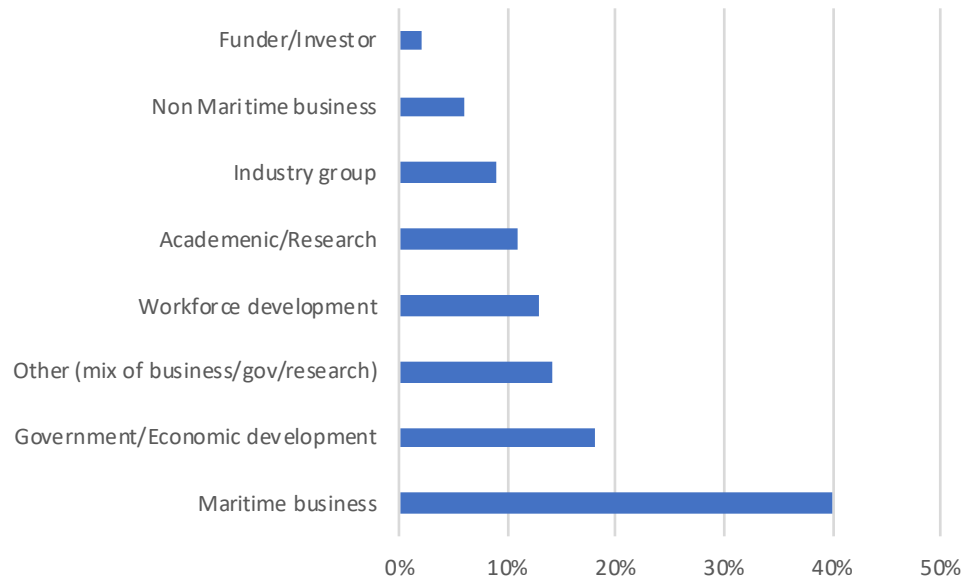
The survey was designed to generate broader recognition and understanding of the needs of targeted stakeholders. The survey questions allow the Port of Seattle to better understand the views of startups and SMEs in maritime and BlueTech sectors with a potential interest in a Maritime Innovation Center. The survey was sent to stakeholders who have been identified as potentially having an interest in a Maritime Innovation Center.

Since the survey was not administered to a random sample of the population, these results cannot be extrapolated beyond the respondents that completed the survey. However, the individuals that responded

indicated a large amount of interest in the Maritime Innovation Center, and these results can be very informative of the preferences for individuals most likely to become involved with the facility at some point in the future. A narrative summary of major takeaways is included below:

- Overall, a plurality of the respondents self-identified as being affiliated with the Maritime Business sector (40%), with the second largest category self-identifying as Government (17.7%). Responses from these sectors largely mirrored the remaining sample throughout the survey, with minor variations highlighted below.
- In regards to views of the maritime industry, the Maritime Business sector has a slightly lower opinion of maritime industry visibility than the remaining sample, while the Government sector felt that the maritime industry had lower “innovation” performance.
- Across the entire survey sample, the top three business and innovation barriers for firms trying to grow in the maritime industry were 1) Lack of public policy and incentives support, 2) Workforce talent, skills, and development, and 3) Understanding of the business/opportunities within the maritime sector.
- The Maritime Business sector was less concerned with understanding business/opportunities, and more concerned with access to investors and funding. The Government sector was more concerned with a lack of research and development resources.

### Survey Demographics

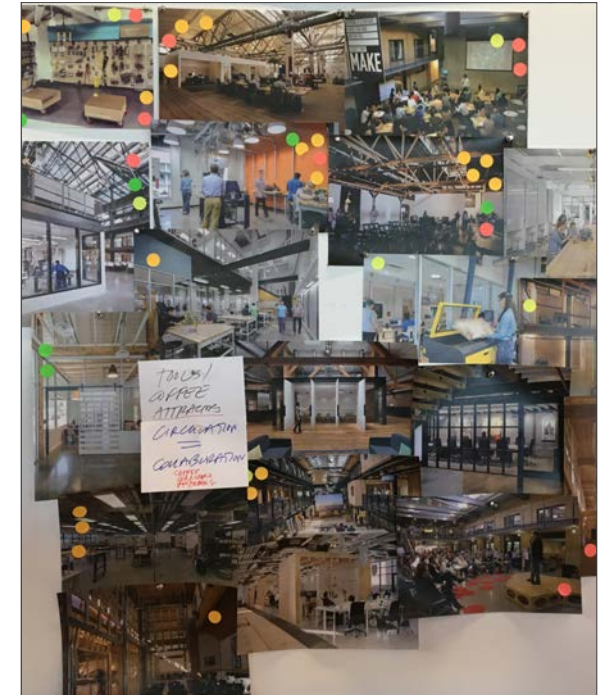


*Of the hundreds of people that took the survey, people in the maritime business were the largest group. In addition, the survey had representation from other major stakeholders in the innovation space.*

- The top three trending technology issues transforming maritime businesses were: 1) Electrification, 2) Ship and vessel design innovation, 3) Marine renewables. The Government sector identified these same issues, while the Maritime Business sector saw autonomous and underwater vehicle and systems development as more transformative than marine renewables.
- In regards to the proposed Maritime Innovation Center itself, all sectors indicated that the facility should promote knowledge transfer, business incubation, and workforce development roughly equally, while hosting public events was seen as less important.

- There was no single overwhelming emphasis in response to open-end questions focused on specific components of the Maritime Innovation Center itself, however, respondents provided additional detail in areas of maritime economic development, facility configuration, incubator/accelerator services, and public policy objectives.
- Both the Maritime Business and Government sectors saw themselves getting involved predominantly in workforce development, while the remaining sample was most likely to become involved with knowledge transfer and joint applied research activities.

### Charrette Collage



- In terms of the common incubator features, the most important across all sectors was access to laboratory, fabrication, or testing space, with event space and office space identified as the least important. This theme continued to appear in the question about specialized incubator features, with equipment-related features ranking at the top of the list for all sectors.



## VISION AND MISSION STATEMENT

### VISION STATEMENT

Puget Sound in Washington State becomes the world's leading hub for sustainable maritime and ocean related innovation and technology by creating a thriving ecosystem of collaboration among academia, industry and government.

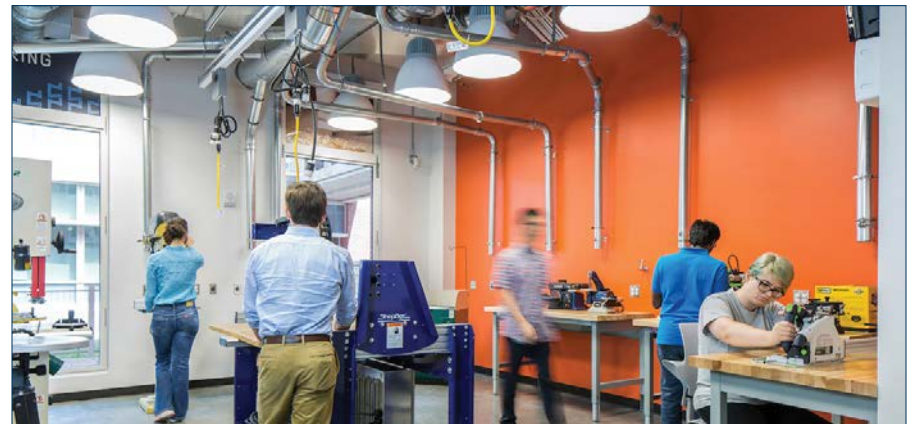
*When people think about sustainable BlueTech industries, we want them to think about Puget Sound in the same way the world equates finance with New York or technology with Silicon Valley.*

### MISSION STATEMENT

To provide relevant, timely, and targeted support for early stage marine and ocean-oriented companies in the creation of new innovations to modernize the industry and create good-paying Blue Jobs. This will be achieved by leveraging local assets and providing the necessary linkages to leverage the collective strength.

### STRATEGIC OBJECTIVES

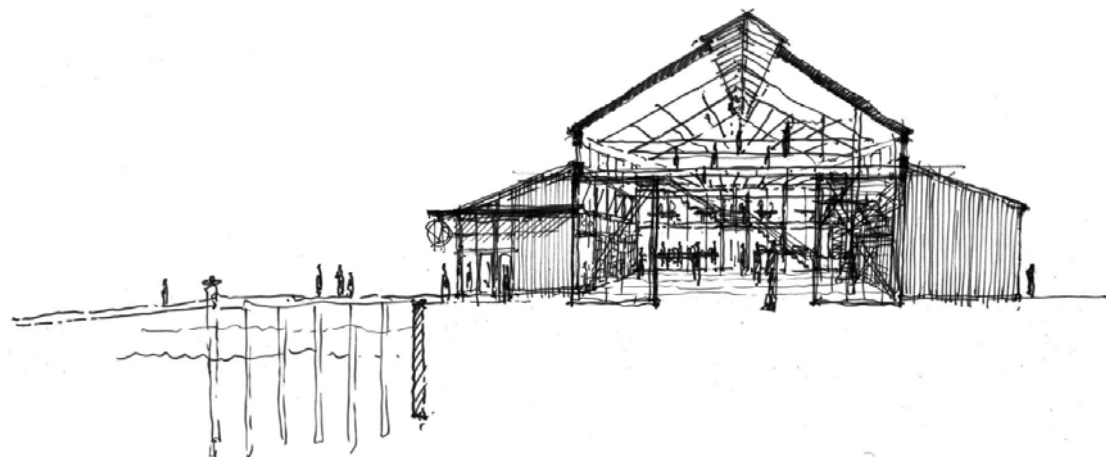
- Create local economic development
- Build the necessary linkages (hub and spoke) and accelerate industry growth
- Attract new entrepreneurs to BlueTech
- Retain local companies and talent
- Leverage the region's orientation towards environmental sustainability, technology innovation, and maritime heritage
- Attract investment



# BUSINESS PLAN

## OVERVIEW

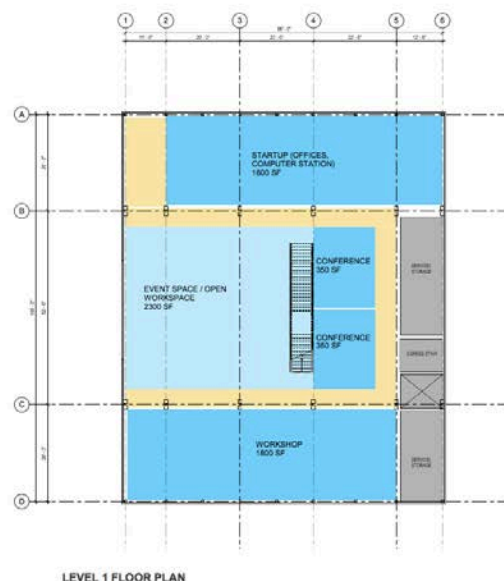
The Port of Seattle owns the Seattle Ship Supply building at Fishermen's Terminal (FT) and is renovating the 12,000 sq. ft. structure as part of a broader redevelopment effort at FT. The Port of Seattle has an unrealized opportunity to renovate the existing property into a Maritime Innovation Center that would include incubator office space, fabrication space, and event space for workforce development programs and public outreach that would support the region's and state's efforts to grow the maritime sector.



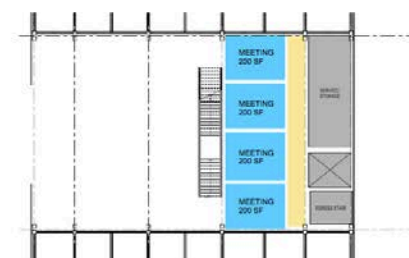
## POTENTIAL OPERATING AND GOVERNANCE STRUCTURES

This proposal suggests a strategic move forward by the Port of Seattle to invest in renovating the existing building into the symbolic and functional home for the future of the region's maritime industry and innovation center. To support the project, the Port of Seattle should consider the following issues regarding its role in hosting a physical space, and partnerships with the broader public and private interests in the maritime industry. There are a number of operational and governance structures under which the proposed Maritime Innovation Center might operate.

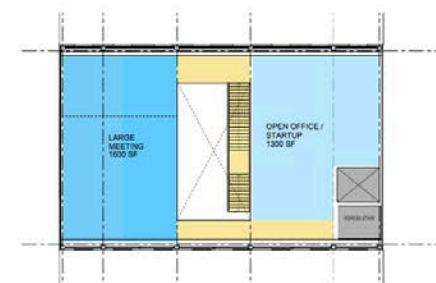
These range from direct provision models including Port management of the Center to forming one of many types of formal partnerships with either public or private organizations. Deciding the appropriate model requires an evaluation of their tradeoffs with respect to several key criteria that would be



LEVEL 1 FLOOR PLAN



MEZZANINE FLOOR PLAN



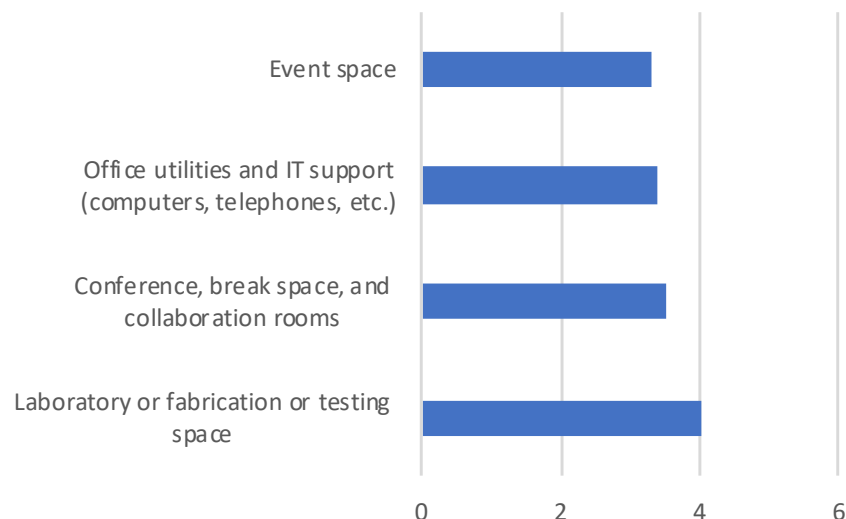
LEVEL 2 FLOOR PLAN

### TOP FIVE RATED INCUBATOR SERVICES

Survey respondents were asked to assess a large range of incubator services. The list shows the top identified challenges.

- 1) Shared resources with research centers, testing facilities, universities and private companies
- 2) Guidance and mentorship from business leaders/investors
- 3) Business support service provider assistance (e.g. HR, legal, marketing)
- 4) Access to general equipment for testing or fabrication of prototypes
- 5) Classes/training for workforce and skills development

Access to specialized spaces will be key elements of the innovation center: People who took the survey felt that access to lab, fabrication, and testing space should be priority offering for the innovation center.



related to executing on the Center's mission. The key criteria to consider include:

- Facilitate access to capital: different types of entities (i.e., public, private, nonprofit) will have different sources of capital that they can access at different costs and legal limitations
- Financial exposure: tax exempt status and ability to realize economies of scale or leverage in-kind contributions are both factors that influence the financial viability of the proposed Center and differ among ownership and operating models

- Operational flexibility: the ability to deliver Center activities via contracts, partner with other academic and peer institutions, and engage in a mix of public and private activities
- Accountability: each entity will have unique success metrics and accountability mechanisms

The best model will be one that facilitates access to low cost capital, minimizes operating costs (is tax exempt and able to achieve economies of scale on the operations side), and is mission-driven and accountable to stakeholders for the achievement of this mission to serve as an innovation and economic development hub for Seattle's maritime industry.

Given these issues, there are options available to the Port that it could employ to operate and govern the center. These include:

- Port of Seattle governed and operated by a contractor (i.e. private group, economic development agency or university-affiliated enterprise)
- Non-profit governed and operated by a contractor (i.e. private group, economic development agency or university-affiliated enterprise)
- A public-private partnership that includes desired aspects of other models



## INCUBATOR AND ACCELERATOR PROGRAM ACTIVITIES

A key component of the Center will be the business incubator and accelerator program. It is anticipated to be a provider with special expertise in serving early state business ventures operate the center. These related programs will provide space, facilities, and business mentorship programs to support growth in maritime oriented business. The incubator space and accelerator services would create tailored programs to meet the needs of participating businesses. The incubator would cater to entrepreneurs developing early stage business ideas and technologies in search of viable business ideas. The accelerator program would cater to businesses with defined products and business plans trying to scale their efforts.

The Center could be fitted out to provide for the following space capabilities and amenities, however, final decisions would need to be made regarding service breadth and program requirements:

- 24/7 access for participating companies to offices and co-working spaces
- Conference, break space, and collaboration rooms
- Event space
- Laboratory or fabrication or testing space, such as a tool workshop and 3-D printers
- IT support (computers, telephones, etc.)
- Flexible space environments (easily reconfigured office furniture, rolling doors, cubes, private “phone booths,” etc.)
- Access to water/marine infrastructure and equipment

The incubator / accelerator program will feature the following programmatic elements:

- Advice (e.g. legal, accounting, marketing, permitting) and assistance (including support for obtaining access to private and government loans)
- Business training (writing plans, budgeting.)
- Classes, seminars, and/or on-the-job training
- Guidance and/or mentoring from business leaders or investors
- Help with hiring (entry-level employees or experienced professionals)
- Industry events and promotions
- Shared resources with research centers, universities, test facilities, and private companies

## MARITIME AND TECHNOLOGY TENANTS

The Center could also offer access or a satellite office for anchor tenants from existing maritime sector businesses that want to co-locate with and support early stage innovations. The Center should also have a strategy for “step-out” space as companies grow and mature, as well as “step-in” space available to companies from outside the region that want to test the local market.

Table 2: Maritime Innovation Center Program Concept

| PROGRAM ELEMENT                  | RENTABLE SF   |
|----------------------------------|---------------|
| Incubator space                  | 3,600         |
| Anchor office space              | 1,300         |
| Accelerator space                | 800           |
| Event space                      | 2,300         |
| Common area/<br>Conference/Admin | 4,000         |
| <b>TOTAL</b>                     | <b>12,000</b> |

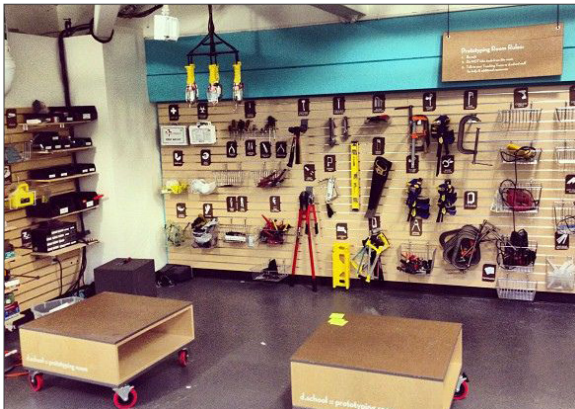
Source: ECONorthwest, 2018

## MARITIME INNOVATION CENTER SPACE CONCEPT

The Port of Seattle has completed preliminary space and design concepts to map out the potential space program within the Seattle Ship Supply Building at FT (*See Summary Report and Conceptual Drawings by Miller Hull in Appendix Section*). The concept for the facility is for a 12,000-square foot building that includes five programmatic components:

- Incubator office and fabrication shop space
- Accelerator office space;
- Other tenant office space;
- Event space
- Shared tenant space; conference rooms, and Center administrative office space

Table 2 above shows the facility space needs by component and informed by a design charrette coordinated by the Port of Seattle's architect. ECONorthwest describes each component in detail following the table.



This space program serves as a guide for future physical planning and financial assessments.

Collectively, the Center office space, other tenant office space, and incubator/accelerator space comprise the office areas within the Center.

#### **Center office space**

This component includes the office space for Center administration office space and operations.

#### **Incubator and Accelerator tenant office space**

This component includes a mix of rentable co-working, independent stations, and dedicated office space needed to support the individuals and firms in the Center's programs.

#### **Incubator and Accelerator tenant fabrication/flex space**

This component includes a mix of fabrication and flex space that can be used as a workshop and/or office space depending on the needs of the current program tenants.



#### **Anchor tenant office space**

This component includes office space for additional tenants that would benefit from colocation within the Center. These tenants might include other more established businesses in the maritime sector that can lend advice and guidance while having access to innovations and startups.

#### **Shared tenant space**

The shared tenant space includes common areas that would be available to all office tenants and their guests. These shared spaces include: a reception area, a mailing, printing, and production station, a storage room, a break room with a full kitchen, and a conference room that seats at least fifteen.

#### **Event space**

The event space is a venue for the Center and industry groups to host events. The space should be flat and open, allowing for a variety of uses including meetings, audio/visual events, and gatherings. The specific design of the event space should also allow it to do double duty as flex space for office and incubator tenants.

## OPERATING PLAN

This section presents an operating forecast for the Maritime Innovation Center. An operating forecast shows revenues and expenses associated with operations only. It does not include investment items (e.g. capital costs) or finance items (e.g. debt service payments, both of which factor into the feasibility of a project) that are assumed to be a condition of Port of Seattle investment in the Ship Supply Building. This forecast describes facility operations, presents revenue forecasts, breaks down costs by segment, and concludes with an operating income forecast. The forecast is built upon:

- Data gathered on performance benchmarks, models and best management practices and an inventory of specialized equipment from other similar incubators or innovation centers
- Real estate market data
- Information on comparable facilities
- Consultation with industry associations.

### REVENUE SEGMENTS

This model assumes that the Proposed Maritime Innovation Center will generate revenue from the following sources:

- Incubator tenants—Revenue estimates assume that tenants will pay on average \$20 per month for memberships. Under the space program above, the Center might have space for 50 dedicated spaces at full utilization. However, it might overbook the site to account for time of day fluctuations on utilization. These rents reflect that this is

a new facility with state-of-the-art offerings in office, fabrication, and event space (current co-working space in this part of the office market range between \$150 to \$300 per membership).

- Accelerator tenants—Revenue estimates assume that tenants will pay on average \$200 per month for memberships for dedicated office space capable of holding 3-4 employees.
- Office tenants—Revenue estimates assume that office tenants will pay \$25 per square foot per year (triple net rents). These rents reflect that this is a new facility with state-of-the-art offerings in office, fabrication, and event space (current office rents in the immediate range between \$25 to \$35 per square foot per year).
- Fabrication space—The facility will include fabrication spaces to be managed by the proposed Maritime Innovation Center. This space would be covered by individual memberships.
- The event space—ECONorthwest estimated event center revenues using per square foot rental revenues from the proposed event space. It assumes that the Center would generate revenue from 30 paid events paying current market rents for event space in the area (it will also likely host unpaid events).

In total, the Proposed Maritime Innovation Center is anticipated to generate \$228,000 in revenues per year, or \$19,000 per month.



## OPERATING EXPENSES

This section summarizes the operating expense assumptions used in the financial forecast for two program assumptions. First, the program will likely need to run on a very lean budget at start up and make choices about enhancing its services as the center and its programs mature. At the time of this report, it is assumed that the Port will operate the facility with specialized staff knowledgeable about business startups in the maritime sector. The analysis also assumes that the Port will use 1) its existing staffing and operating capacity in the Fisherman's Terminal area to provide gap coverage for events and other building maintenance; and 2) rely on in-kind contributions from project sponsors to supplement basic operations of the center. This would be outside of any firmer financial commitments.

The operating expense model does not include three essential cost items that are assumed to be covered by the Port of Seattle: cost to lease the land, start up and tenant improvement cost to fit out the space, and debt service to support facility construction.

Table 3 lists the operating expense categories and their annual estimated expenses. Each category is discussed in more detail as follows.

The calculations for the four operating expenses are:

- **Payroll and Benefits**—Currently, it is estimated that the facility will need 1 full-time and limited hourly staff and would scale staffing based on need and economic conditions

- **Utilities**—ECONorthwest estimated the Proposed Maritime Innovation Center utilities on a per square foot basis at its current location and applied this cost to the number of square feet at the new location that are not leased to tenants
- **Maintenance/Janitorial/Grounds**—The model segments this expense item into three sections: the fabrication space, event space and office space. The fabrication additional professional service assistance that will be needed
- **Marketing**—Our analysis assumes that the proposed Maritime Innovation Center will need to have a budget for marketing the site to prospective tenants and to advertise events
- **Event/Programming**—Our analysis assumes that the proposed Maritime Innovation Center will need to have a budget for hosting and programming events
- **Consumable Materials and Supplies**—The proposed Maritime Innovation Center will need to purchase general office supplies to maintain its operations as well

## FINANCIAL FORECAST— NET OPERATING INCOME

The table shown on the following page outline the financial performance of the proposed Maritime Innovation Center for its first 10 years of operations allowing time for ramp up. ECONorthwest anticipates that the Center will not generate a net-positive operating income. This is the purely financial outlook; it does not take into consideration the important economic, fiscal, and community development

benefits generated by the facility. The financial performance of the facility could be improved through more aggressive rent structures of office tenants or through public and private support of its mission.

## RESERVE/CAPITAL FUND

The facility will need to fund operating reserves as well as a capital replacement fund. Generally, a capital replacement study will need to be undertaken to determine a replacement schedule and cost obligation estimate; however, a rough standard of \$1 per square foot per year (seen in other similar facilities) would be needed to target approximately \$12,000 per year for the fund.

## OTHER FUNDING CONSIDERATIONS

Many incubator facilities are governed in such a way that allows outside revenue support from government and industry sources. Given their unique mission, finding opportunities for corporate sponsorship, government grants, philanthropic, or industry support is a reasonable basis for funding. For the Port of Seattle and their economic development mission, there are several funding considerations they may seek to explore:

- Direct support through their existing tax levy
- Indirect support through charges on its existing or future maritime real estate holdings

Further work by the Port would need to be conducted to test the feasibility and revenue adequacy of any of the options listed above.

Table 3: Net Operating Income

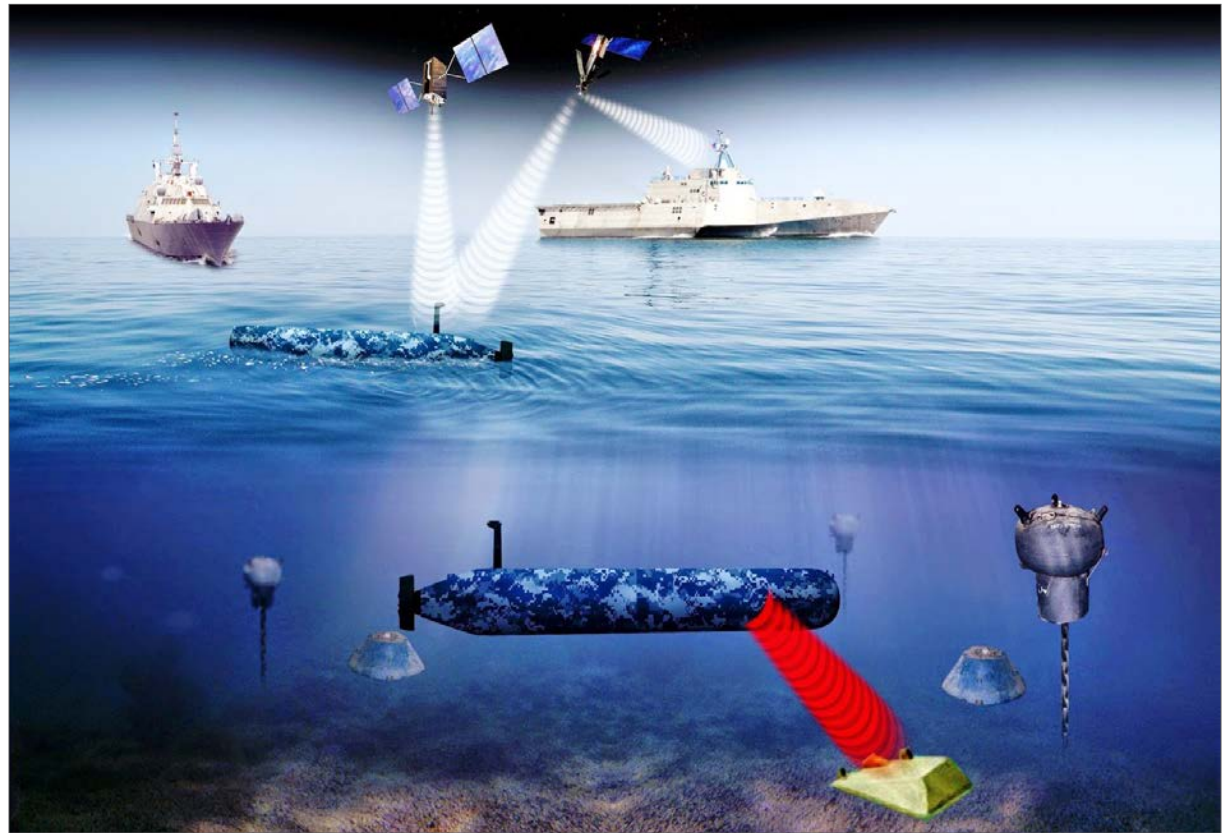
|                             | YEAR 1     | YEAR 2     | YEAR 3      | YEAR 4      | YEAR 5      | YEAR 6      | YEAR 7      | YEAR 8      | YEAR 9      | YEAR 10     |
|-----------------------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Revenues                    |            |            |             |             |             |             |             |             |             |             |
| Incubator space             | \$95,900   | \$88,900   | \$91,600    | \$94,300    | \$97,100    | \$100,000   | \$103,000   | \$106,100   | \$109,300   | \$112,600   |
| Anchor office space         | \$32,500   | \$33,500   | \$34,500    | \$35,500    | \$36,600    | \$37,700    | \$38,800    | \$40,000    | \$41,200    | \$42,400    |
| Accelerator space           | \$26,400   | \$27,200   | \$28,000    | \$28,800    | \$29,700    | \$30,600    | \$31,500    | \$32,500    | \$33,400    | \$34,400    |
| Event space                 | \$18,600   | \$19,200   | \$19,700    | \$20,300    | \$20,900    | \$21,600    | \$22,200    | \$22,900    | \$23,600    | \$24,300    |
| Revenue Total               | \$173,400  | \$168,700  | \$173,800   | \$179,000   | \$184,400   | \$189,900   | \$195,600   | \$201,500   | \$207,500   | \$213,700   |
| Operation Costs             |            |            |             |             |             |             |             |             |             |             |
| Operating Fee (Staff Costs) | \$112,200  | \$117,800  | \$123,700   | \$129,900   | \$136,400   | \$143,200   | \$150,400   | \$157,900   | \$165,800   | \$174,100   |
| Supplies/Equipment/IT       | \$20,000   | \$20,600   | \$21,000    | \$21,400    | \$21,900    | \$22,300    | \$22,700    | \$23,200    | \$23,700    | \$24,100    |
| Meeting and Event Expenses  | \$2,500    | \$2,600    | \$2,600     | \$2,700     | \$2,700     | \$2,800     | \$2,800     | \$2,900     | \$2,900     | \$3,000     |
| Marketing                   | \$5,000    | \$5,200    | \$5,300     | \$5,500     | \$5,600     | \$5,800     | \$6,000     | \$6,100     | \$6,300     | \$6,500     |
| Professional Services       | \$5,000    | \$5,100    | \$5,200     | \$5,300     | \$5,400     | \$5,500     | \$5,600     | \$5,700     | \$5,900     | \$6,000     |
| Utilities                   | \$30,000   | \$30,600   | \$31,200    | \$31,800    | \$32,500    | \$33,100    | \$33,800    | \$34,500    | \$35,100    | \$35,900    |
| Maintenance                 | \$60,000   | \$61,200   | \$62,400    | \$63,700    | \$64,900    | \$66,200    | \$67,600    | \$68,900    | \$70,300    | \$71,700    |
| Leasehold Excise Tax        | \$24,700   | \$25,500   | \$26,200    | \$27,000    | \$27,800    | \$28,700    | \$29,500    | \$30,400    | \$31,300    | \$32,300    |
| Operations Total            | \$259,400  | \$268,500  | \$277,700   | \$287,300   | \$297,200   | \$307,600   | \$318,400   | \$329,600   | \$341,300   | \$353,500   |
| Net Operating Income        | \$(86,000) | \$(99,800) | \$(103,900) | \$(108,300) | \$(112,800) | \$(117,700) | \$(122,800) | \$(128,100) | \$(133,800) | \$(139,800) |

Source: ECONorthwest, 2018.

## RECOMMENDED NEXT STEPS

The Port of Seattle should consider these findings and deliberate on the following set of decision points.

- Develop and refine conceptual drawings for the layout and needs requirements of the proposed Maritime Innovation Center including architectural renderings, site layout and office and workshop components.
- Structure a long-term funding strategy for the Maritime Innovation Center that includes a holistic approach to Fishermen's Terminal and other ideas for promoting innovation that creates and encourages new sources of revenue to the Port.
- Reconvene a broad-based advisory committee to inform future decision making, inclusive of public agency officials, education and university partners, industry leaders, sponsors, and other stakeholders as appropriate.
- Develop commitments from public and private project sponsors. The port has signaled its commitment to supporting innovation in the maritime sector. Other regional and state economic development interests, and maritime industries have shared interests as well. Additional work should be done to identify which of these groups would like to be directly involved in sponsoring the innovation center including determining levels of financial and other in-kind support necessary to launch the facility.



- Determine governance and operating structure. As the project moves forward, the port will need to select a preferred operating model and develop a strategy that is most appropriate, including but not limited to possibly negotiating a memorandum of understanding, developing a public-private partnership, issuing a request for information, or evaluating other options internally or externally with non-profit, for-profit, or university operators.
- On the policy side, it is recommended that public agencies support efforts by NOAA to develop new approaches to evaluating the Blue Economy including the creation of satellite income accounts and efforts to update the North American Industrial Classification System (NAICS) codes and other standards to include BlueTech as a category.



# APPENDICES

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## LIST OF APPENDICES

### **PROPOSED MARITIME INNOVATION CENTER GREEN PAPER**

This is a short policy brief discussing how an innovation center could interface with a dynamic economy and local economic development efforts. This paper was used to preface attendees at the Maritime Innovation Center Workshop.

### **MARITIME INNOVATION CENTER WORKSHOP**

The Port of Seattle hosted a workshop on October 17th with a variety of stakeholders to identify the major strengths, weaknesses, and trends of Puget Sound's maritime sector, as well as gather input to form a vision for the center. This document summarizes the workshop.

### **MARITIME INNOVATION CENTER DESIGN CHARRETTE**

As the Port redevelops Fishermen's Terminal it wants to restore its Seattle Ship Supply building and turn it into a facility that can support entrepreneurs and established companies. The Port contracted with the Miller Hull Partnership to complete a design charrette for the Ship Supply building as a location for the Maritime Innovation Center.

### **MARITIME INNOVATION CENTER OUTREACH MEETINGS IN ANACORTES & PORT HADLOCK**

To establish background and focus for the study, the Port hosted three outreach events. The first was a SWT workshop in Seattle on October 17 (summarized previously). The second and third events were Outreach meetings in outlying Puget Sound communities, with the aim of gathering input from stakeholders outside the immediate vicinity of Seattle. These outreach efforts recognize that many innovative solutions, technologies and best practices have been accelerating in small and rural maritime communities around the state. This document summarizes the proceedings of the two outreach meetings, held on December 13–14, 2017.

### **MARITIME INNOVATION CENTER INTERVIEW SYNOPSIS**

As part of the discovery process to develop the plan for the Center, interviews were conducted in person or on phone with 35 people (28 distinct organizations) representing a broad spectrum of interested entities. This document summarizes key findings from those interviews.

### **MARITIME INNOVATION CENTER SURVEY**

The Maritime Innovation Center Survey was developed to gauge interest in and preferences for a proposed Maritime Innovation Center from a targeted population of maritime industry contacts. The survey was designed to generate broader support and understanding of the needs of targeted stakeholders. This document summarizes the key findings from the survey.