



Manufacturing Extension Partnership Alaska Planning Study

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University of Alaska Center for
Economic Development

Acknowledgements and Key Contributors

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I. Background and Purpose

In the spring and summer of 2014 the National Institute for Standards and Technology Manufacturing Extension Partnership (NIST MEP) sought the assistance of the University of Alaska Center for Economic Development (UACED) and its assembled project consortium which included the World Trade Center Alaska, the Juneau Economic Development Council, Green Star Incorporated, and a private sector manufacturing advisory group to assess the viability of reestablishing a Manufacturing Extension Partnership (MEP) center in Alaska. The award was the result of a competitive Federal Funding Opportunity held in the fall of 2013. This project consortium was labeled the Alaska Manufacturing Consortium and its vision and intent was to leverage partnerships from across the state to best determine if an MEP center could be reestablished in a feasible way, while improving its reach across Alaska, in order to better link and align with a variety of public and private entities and organizations, and become financially sustainable in Alaska.

The partnering organizations that collaborated on the Alaska MEP center analysis include:

- ❖ The University of Alaska Center for Economic Development, a US Economic Development Administration-University Center with a mission of mobilizing the university's resources to build the capacity of Alaska to engage in sustainable economic development.
- ❖ Juneau Economic Development Council, a non-profit economic development organization (EDO) providing direct benefits to the City and Borough of Juneau as well as Southeast Alaska.
- ❖ World Trade Center Alaska, a membership-based non-profit aiding firms and manufacturers, with information and services to help them grow through international trade and commerce.
- ❖ Green Star Inc., an Anchorage-based non-profit that promotes environmentally friendly business practices, including energy efficiency through education and technical assistance.
- ❖ Private Sector Manufacturing Advisory Group composed of experienced individuals with significant experience in manufacturing and business development in a leadership role.

Currently the state of Alaska is the only state in the US without an established MEP center. For a variety of reasons Alaska's most recent MEP center ceased operations in the spring of 2013. Its closure represents the third unsuccessful MEP center in Alaska. Given this prior lack of success with the MEP program, NIST MEP sought a full, comprehensive, technical assistance planning study to examine options for a fourth attempt to establish an MEP center in Alaska. Central to this effort NIST MEP desired an analysis of the manufacturing base in Alaska, as well as better understanding the various industry factors that are inhibiting manufacturing growth in the state. An essential component to the effort included a determination of the real needs of Alaska

manufacturers and comparing their needs with the functions of a high performing NIST MEP center.

The UACED and its project consortium adopted a collaborative statewide approach to addressing the planning study. The consortium began with a review of available third party data on manufacturing and its challenges within Alaska. The consortium then assembled two advisory groups, one composed of Alaska manufacturers and the other comprised of economic development experts, to provide further insight into the planning process. These advisors then remained engaged throughout the entire planning process. Due to the lack of available data on the state of Alaska's manufacturing industry, the project consortium set out to conduct interviews with manufacturers and stakeholders from all across Alaska to gain insight into the manufacturing industry, including both its challenges and opportunity areas. In the course of the study, the project consortium conducted 67 interviews with Alaska manufacturers, and convened seven targeted focus groups covering Alaska's different regions and manufacturing sectors. The consortium also conducted interviews with several key stakeholders with a direct or indirect stake in manufacturing or the manufacturing supply chain. These stakeholders include logistics companies, technical assistance providers, fisheries organizations, and large oil companies.

These statewide outreach efforts were aimed at answering the following questions:

1. What is the market and industry breakdown of Alaska's manufacturing industry?
2. Which manufacturing sectors within Alaska show the most promise for growth in coming years?
3. What services would Alaska manufacturers be most interested in receiving from an MEP center?
4. What are the main growth barriers inhibiting Alaskan manufacturers from expanding to new markets?
5. What possibilities exist for overcoming these challenges facing the state's manufacturers?
6. What marketing avenues would be most effective for an Alaska MEP center?
7. What possible partner organizations exist for working with an MEP center?
8. Who are the potential host organizations for an Alaska MEP center?
9. What is the financial feasibility for an Alaska MEP center?
10. What is the ability of an Alaska MEP center to generate measurable outcomes needed to satisfy the business community and stakeholder groups?

The purpose of this study is to determine the best model to link the capabilities of existing business assistance programs to support the manufacturing industry by assuring the availability of a wide range or suite of business services such as: business training; assistance in scouting, adapting and transferring appropriate technology and know-how; workforce training; supply chain analysis and development; exporting; and providing on-site consulting services to assist firms.

In addition to gathering an abundance of direct information from the state’s manufacturers, the project consortium also explored MEP center business models across the country. Particular attention was paid to MEP centers that face similar challenges to those found in Alaska: a reliance on extractive industries, small populations, and/or geographic isolation. The project consortium aimed to identify best practices of other MEP centers in an effort to lay the foundation for a successful MEP center in Alaska.

The consortium hoped that the methodology it adopted for this effort would not only obtain information from a wide variety of sources, but would incorporate planned learning and discussion points that would encourage manufacturing leaders and incorporate their viewpoints. The intent was to ensure that any future Alaska based MEP center will be able to leverage the information garnered to ensure a comprehensive understanding of best practices, model programs and common tools currently used to serve manufacturers and manufacturing. The consortium was thoughtfully structured to include university, non-government economic development and non-profit organizations from across Alaska as well as representatives from industry and private sector to ensure a variety of viewpoints and expertise were included. The consortium intentionally engaged federal, state, regional and local government entities throughout the planning process.

Figure 1: Portable Canvas-based Shelters (Known as Yurts) are Just One of Many Items Manufactured in Alaska.



II. Executive Summary

In an engagement lasting more than seven months, the Alaska Manufacturing Consortium followed the process identified in the previous section of conducting interviews, focus groups, and stakeholder outreach. The consortium used the extensive data collected throughout the project to describe the state of manufacturing in Alaska, as well as make recommendations about the formation of a new MEP center in the state. The findings and recommendations are presented in this report, and are broken down into the following areas: market understanding, business model, partnerships, financial sustainability, and metrics and measures. While the consortium understood from the outset that the manufacturing industry in Alaska is small compared to other states, it also contains areas of opportunity. In addition, it lacks many providers of technical assistance to advance growth prospects. Following its process of data collection and analysis, the consortium was able to make the following observations about the Alaska market:

- ❖ Fish processing, metal fabrication and oil & gas industry supply chain support are the state's largest manufacturing sectors.
 - Fish processing dwarfs all other sectors in terms of employment. However, most jobs are low-paying and seasonal. Further, a few very large and mature firms dominate the industry. A smaller subset of firms developing customized and/or value added processing may benefit from the types of services a MEP offers.
 - In terms of value-added production, metal fabrication and oil & gas support exceeds that of even fish processing (although much of this value-added production comes from oil refining). Jobs within this sector, although fewer in number than in fish processing, are much higher paying. Further, while this sector is also mature like fish processing, the supply chain firms that support the sector may stand to benefit from MEP level support.
- ❖ Beer, wine, and beverage manufacturing is a small but growing sector with serious potential for expansion.
 - Companies within this sector are open to collaboration and partnership, and have signaled a strong willingness to work with an Alaska MEP center.
 - Firms interviewed often mentioned that they are at or near capacity and are looking to expand both in-state and export-oriented production.
 - The sector is one of a few identified as having a high potential for exporting.
- ❖ Alaska's other manufacturing sectors are diverse and are typically made up of small firms.
- ❖ Several manufacturers have high growth potential and relatively high revenue (greater than \$5 million annually) and would be prime targets for an Alaska MEP center's services.

A. Desired Services

Overall, the study determined that a market does exist for an Alaska MEP center's services, with some important caveats. Primary among these is that most firms lack the capacity or inclination to pay for MEP center services. As a result, services may have to be provided at below prevailing market rates for the manufacturing community to fully realize the advantages that an MEP center offers.

This study identified the following services as highest demand by Alaskan manufacturers.

- ❖ Shipping/freight assistance was seen as a major need, from firms seeking to decrease transportation costs and inefficiencies. This includes both the sourcing of raw goods as well as movement of finished products to outside markets.
- ❖ Energy efficiency is a major need given Alaska's high electricity and heating costs, particularly outside of Southcentral Alaska and parts of Southeast Alaska.
- ❖ Marketing assistance, including web development and online marketing, is a need of many manufacturers. While mainly a concern of smaller manufacturers, several large firms also expressed this need.
- ❖ ISO (International Organization for Standardization) certification and Lean Manufacturing training were identified by a small number of manufacturers as needed services. Of interest, the companies demanding these services were often larger and displayed the most growth potential.
- ❖ HACCP (Hazard Analysis & Critical Control Points) training was seen as a major need of the food and beverage sector.

B. Manufacturer Challenges

In addition to their needs, firms were also asked about primary challenges inhibiting their growth. The most cited challenges included:

- ❖ High cost associated with shipping/logistics
- ❖ Lack of a sizable in-state market due to small population
- ❖ Labor issues (high cost, lack of skilled labor)
- ❖ Regulatory/paperwork challenges (navigating challenges of working with large corporate buyers, governments, and others)

While many of these challenges cannot be directly addressed through an Alaska MEP center, a few opportunity areas were identified. One idea that gained a significant amount of traction is having an Alaska MEP center facilitate the creation of a shipping cooperative. Such an entity would bring together different Alaska manufacturers to facilitate their access to reduced backhaul shipping rates when sending their products to the Lower 48. A shipping cooperative would reduce a key market barrier facing Alaska manufacturers (high shipping costs to export their products).

Another opportunity area for an Alaska MEP center is to work directly with the largest purchasers of Alaskan manufactured products (the large oil companies), and their suppliers. The oil majors have a direct incentive to obtain local sourcing of their supplies. Not only does it reduce their lead times on acquiring supplies, it also shows an investment in the local economy. However, many of Alaska's manufacturers lack the sophistication needed to work directly with these large corporate buyers. Specifically, they lack the capacity to navigate the often onerous paperwork and regulations to meet the requirements of these large customers.

An additional option is for an Alaska MEP center to partner with the University of Alaska Fairbanks Alaska Sea Grant Marine Advisory Program (MAP). The MAP is a university-based, statewide outreach and technical assistance program designed to help Alaskans wisely develop, use, conserve, and enjoy Alaska's marine and coastal resources. The MAP already works closely with the state's fishing and processing sector. Working closely with an organization like MAP that already has these connections and resources could strengthen the efforts of an Alaska MEP center, develop a mutually beneficial collaboration and limit duplication of services while expanding services to the marine sector in Alaska. MAP already engages directly with processors, but working with a dedicated Alaska MEP center professional could significantly increase their capacity and allow for expansion of this work.

C. Partnerships and Host Organization

Another question the consortium sought to address is defining the best business model for an Alaska MEP center. After conversations with several key stakeholders, the consortium identified numerous possible options, broken into three broad categories: state, university, and non-profit economic development organization (EDO).

University of Alaska: One possibility for the establishment of an MEP center is through the University of Alaska system. Both UAA and UAF house several units with relevant skillsets and capacity to operate an MEP, including the engineering colleges and institutes at both institutions, the UAA Business Enterprise Institute (BEI), UAF Cooperative Extension Service, MAP, and technology transfer offices.

State of Alaska: The State of Alaska also has the capacity to host an Alaska MEP center. Throughout the study, stakeholders in state government indicated an interest in serving as a strategic partner to an MEP center, rather than operating it. This feeling appears to be fueled by recent budget cuts and a lack of success in prior MEP efforts. Despite this, several divisions within the State of Alaska have expressed interest in partnering, collaborating and aligning resources with a future Alaska MEP center.

Juneau Economic Development Council, Anchorage Economic Development Corporation, and Other EDO's: The project consortium identified these organizations as strong partners to extend the geographic outreach and competencies of the MEP center. Most likely, one or more of these organizations would co-host or serve as sub-award recipients in the operation of a center.

While lacking a statewide focus, they are a crucial link to particular industries and geographies. Due to the complexities of managing a reimbursable cooperative agreement, the consortium found it prudent to work with existing organizations rather than form a standalone non-profit to operate the MEP center.

Geographic Considerations: Another key consideration is where the Alaska MEP center and its staff will be based. From a financial standpoint, an Alaska MEP center must devote the most resources to the state’s population centers where most manufacturers are located, and would likely not be able to maintain operations in all of the state’s regions. A strong argument can also be made to base Alaska MEP center staff in communities such as Kodiak or Juneau, where a large number of fish processors operate. Alternatively, an MEP could collaborate with an organization like MAP that already has staff in these areas to fund a percentage of their staff time to focus on manufacturing technical assistance and expansion. This model would only be feasible in a few regions, however, due to the limited resources available for an MEP center, and the limited number of niche partners where such a model would make sense from a cost/benefit standpoint.

D. Business Model

The project consortium identified several best practices for establishing an Alaska MEP center based on key informant interviews and site visits of existing MEP centers around the country. The consortium believes the best approach for an Alaska MEP center would be to hire staff with generalist manufacturing knowledge. These “account managers” would help to promote the program and its services, and would be able to go into a business and determine their unique service needs before connecting the client with either in-house or third-party-delivered services.

In addition to the account manager or generalist model, the project consortium determined that it is essential to have one or two specialists housed within the Alaska MEP center. These specialists would likely have a skill set in ISO certification or Lean Manufacturing (or both). This would allow the Alaska MEP center to provide in-house services that could meet the needs of many of the state’s largest industrial manufacturers. These in-house services should be supplemented through third-party providers, however, as many service gaps would still exist.

One strategy that shows promise within Alaska and that has been successfully employed by other MEP centers is to contract with other MEP centers for technical assistance. Due to their proximity, it may make sense for the Alaska MEP center to work closely with other centers such as Impact Washington and the Montana Manufacturing Extension Center (MMEC) on projects where the Alaska MEP center lacks expertise in-house.

From a marketing standpoint, the Alaska MEP center should focus on reaching out to businesses through a “pull” marketing strategy that could include:

- ❖ Creating a membership-based structure that bundles services and a certain number of dedicated staffing hours each year
- ❖ Hosting a statewide manufacturers conference for business to business networking purposes
- ❖ Hosting a regular series of workshops that introduce businesses to the services and capabilities of the Alaska MEP center

Another possibility that was frequently mentioned in interviews and focus groups, and merits further conversation with NIST leadership is the idea of funding an Alaska MEP center at below NIST MEP’s current \$500,000 minimum threshold. Many stakeholders felt that this would give the Alaska MEP center the best chance for long-term success, as it would create a much smaller burden for generating match funding. The tradeoff to this approach would be that the Alaska MEP center would be unable to maintain offices in different regions across the state, and would lack the resources needed to have much expertise available in-house. This study recommends an “organic growth” approach, under which the program gradually scales up as it serves more clients and gains greater market acceptance, which is permitted under NIST MEP regulations.

E. Financial Sustainability

The project consortium explored at the financial sustainability of an Alaska MEP center, as well as the ability of an Alaska MEP center to produce adequate metric and qualitative performance. The consortium concluded that, while opportunities do exist within the state to generate fee revenue, the Alaska MEP is unlikely to generate large revenue streams in the immediate future, given a small market. The consortium believes that a short-term goal of receiving 9% of total revenue from fee generation (approximately \$100,000 annually at a total budget of just over \$1M) would be a realistic goal. The Alaska MEP center would need to focus on developing other avenues to generate revenue in order to achieve sustainability, such as corporate sponsorships. State and university sources could also provide match funding, but this option faces significant challenges in the current climate of budget cuts and reduced spending. Current rules require a 2:1 match by year five, but proposed legislation may change this to maintain a 1:1 match.

F. Metrics

From a metric and performance standpoint, the consortium believes that an Alaska MEP center can add significant value to the state’s manufacturing community. The caveat to this, however, is that the center’s Impact (numerical) Metrics will lag significantly behind most centers in the MEP network in terms of such measures as jobs creation and new sales. While the challenges facing Alaska manufacturers are simply too great to expect the Alaska MEP center to be amongst the nation’s highest performers, it would still be generate measurable success. The project consortium believes that from a qualitative standpoint an Alaska MEP center has the potential to align its efforts with long-standing economic development strategies, such as value added processing, workforce, and seed clusters. In time, these emphasis areas should translate into enhanced numerical targets as well.

III. Methodology

The study used several methods to achieve a comprehensive review of manufacturing in Alaska to plan for a future Alaska MEP center. The consortium members: conducted interviews with manufacturers in the state; organized sector-specific focus groups; used advisory groups to provide feedback both individually and via advisor meetings; conducted an array of in-depth stakeholder and key informant interviews; and observed a test MEP center engagement with an Alaska client. This methodology accentuated communication with manufacturers, industry professionals, and with industry and university-based engineers having manufacturing backgrounds. The methodology also emphasized input and involvement of university, non-government economic development, and non-profit organizations as well as other industry and private sector representatives that either provide technical assistance or have some interest in expanding manufacturing in Alaska. These diverse sources provided an optimal range of viewpoints and expertise and the collated responses provide an excellent framework for planning the future implementation of an Alaska MEP center.

A. Interviews with Manufacturers in Alaska

During four months of research – April to July of 2014 – the UA Center for Economic Development (UACED), the Juneau Economic Development Council (JEDC) and the World Trade Center Alaska (WTCAK) set up and conducted interviews with Alaska manufacturers. Interviews took place across the state, in both major hub communities as well as rural remote locations where manufacturing exists. This allowed for maximum input from the many diverse manufacturers doing business in Alaska. The discussion guide developed for interviews focused in three areas:

1. Baseline enquiries – to identify the company and its main characteristics.
2. Growth and Business Development enquiries – to identify primary critical challenges manufacturers face as well as opportunities for improvement, growth, and market expansion.
3. Technical and Operational enquiries – to identify what kinds of technical assistance, workforce training, and certification(s) manufacturers need, as well as the attributes that an Alaska MEP center should display to win them over as a customer.

These three areas led to a total of 30 specific topics of enquiry that provided valuable information to the planning study. That information served as necessary background and provided insights into Alaska’s manufacturing that delved beyond the limited available public data. For a full review of the discussion guide, see Appendix 2 (page 109). The consortium interviewed manufacturers representing a diverse swath of Alaska’s manufacturing sectors and geographic regions.

Table 1: Interviewed Alaska Manufacturers by Sector

Manufacturing Sector	Number of Companies Interviewed
Other/Miscellaneous Manufacturing	18
Food Manufacturing	13
Drink Manufacturing	9
Fabricated Metal Product Manufacturing	5
Wood Product Manufacturing	5
Nonmetallic Mineral Product Manufacturing	3
Computer and Electronic Product Manufacturing	2
Plastics and Rubber Products Manufacturing	2
Boat Building and Repairing	2
Millwork (Lumber)	2
Miscellaneous Textile Products	2
Printing and Related Support Activities	2
Transportation Equipment Manufacturing	2

Key informant interviews were conducted in one of either two ways:

- ❖ Personal, in-depth interviews often including a tour of the business’s manufacturing facility
- ❖ Phone interviews

Overall, the study includes 67 interviews with companies presented in Appendix 3.

UACED staff aggregated and compiled the interview results using an analytical database, which included tools for manipulating the data to gain a deeper understanding of companies’ strengths, challenges, needs and opportunities. The analysis also provided insight into the types of assistance an Alaska MEP center could provide. These compiled interview results can be found in Appendix 4 on page 116.

B. Interviews with Stakeholders

Besides interviews with Alaska based manufacturing companies, the study incorporates interviews held with the following groups of Alaska based stakeholders:

- ❖ Major oil companies working with a number of Alaska manufacturers as suppliers;
- ❖ Technical assistance providers;
- ❖ Shipping/logistics companies; and
- ❖ Existing MEP centers thought to be most comparable in other states.

UACED representatives facilitated a discussion with the large oil companies in order to better understand these firms’ sourcing, procurement and logistics management activities. The main goal of these conversations was to see if an Alaska MEP center could assist more local manufacturers to better integrate themselves into the oil companies’ supply chains. If local

manufacturers could become suppliers, intermediaries, or third-party service providers there would be a greater actual economic impact for Alaska.

A third set of interviews and focus group conversation was held with technical assistance providers from across Alaska to assess likely partnerships and organizations that could potentially receive sub-awards from an Alaska MEP center. Among those interviewed were the Alaska Industrial Development and Export Authority (AIDEA), the Anchorage Economic Development Corporation (AEDC) and the Alaska Small Business Development Center (ASBDC). A full list of all interviewees can be found in Appendix 3 on page 112.

The project consortium also conducted several interviews with existing MEP centers around the country to gain first-hand information regarding their organizational structures, the services they provide, and to identify best practices that could be replicated in Alaska. Several of these interviews were performed during business-related travel by the UACED, including conversations with the West Virginia MEP, MMEC (Montana MEP), South Dakota MEP, and Manufacturing Works (Wyoming MEP) while attending the national NIST MEP conference in Gaithersburg, MD in May 2014. While in Gaithersburg, the consortium had the opportunity to tour the MEP center for the West Virginia MEP in Morgantown, WV. In addition to these visits the consortium made several interview calls to other MEP centers to discuss questions such as supply chain development (California MEP – CMTC) and participated in MEP center performance reviews (i.e. Innovate Hawaii).

C. Focus Groups

The study included several focus groups or “roundtable” discussions that were convened to encourage group conversations with manufacturing managers representing a range of industry sectors. The consortium developed three questions as a starting point to facilitate discussions in a roundtable format:

1. What are the biggest challenges facing you as a manufacturer in Alaska?
2. What types of services or expertise do you need to help your business access markets outside of Alaska?
3. What types of training or educational programs would help strengthen your core employees and managers?

The focus groups were organized to emphasize a particular industry sector or Alaska region so that the results generated could provide specific feedback from related manufacturers.

Table 2: Focus Groups Conducted During Planning Study

Focus Group	Location	Hosting Organization	Specific Sector Focus (If Applicable)
Anchorage Food Manufacturers Roundtable	Anchorage	AEDC and UACED	Food and Beverage (including brewing) Manufacturing
Anchorage Metal Fabricators Roundtable	Anchorage	AEDC and UACED	Metal Fabrication
Anchorage Manufacturing Exporters Roundtable	Anchorage	WTCAK	Exporters
Kodiak Manufacturers Roundtable	Kodiak	JEDC	N/A
Fairbanks Manufacturers Roundtable	Fairbanks	WTCAK	N/A
1 st Juneau Manufacturers Roundtable	Juneau	JEDC	N/A
2 nd Juneau Manufacturers Roundtable	Juneau	JEDC	N/A

During the roundtables, participants were given twenty minutes to discuss each of the three questions. Once the conversations began, consortium representatives left the room to allow for a free and open dialogue. Table captains documented the conversation. The sessions ended with each table captain giving a short summary of their table’s discussion and findings regarding manufacturers’ challenges, potential Alaska MEP center services, and workforce training needs.

Focus groups facilitated dialog between manufacturers in similar sectors or geographic regions, allowing them to share their challenges and needs and to identify mutual opportunities for developing and working with an Alaska MEP center. The focus groups provided manufacturers with an overview of the Alaska MEP center planning project and an understanding of the opportunity to participate in the reestablishment of an Alaska MEP center. This type of engagement may ultimately give these companies a sense of ownership in a new Alaska MEP center.

D. Advisory Group Meetings

The initial plan included five advisory group meetings covering topics such as MEP center business models, market understanding, MEP center financial sustainability, potential partnerships, and a discussion of the initial report draft. However, several members expressed interest in consulting with the consortium through other avenues such as individual meetings, email exchanges, and phone conversations, and this approach was adopted in the later stages of the planning process. In the end, the consortium convened two initial group meetings in the planning phase and a third final meeting at the end of the process to discuss conclusions and key findings.

The advisory group was comprised of business leaders with proven success in manufacturing in a variety of sectors, representatives from the University of Alaska, partner organizations, and non-profit organizations that provide services to manufacturers. In addition to the UACED employees, seventeen people participated in the first meeting. Eight members of the advisory group attended the second meeting. This allowed the participants to take a more active role in the discussion of the potential MEP center business models.

It is worth noting that these advisory group members served not only as a sounding board, but also as subject matter experts to discuss specific questions that required their unique perspectives. Advisory group members were involved in the process beyond these meetings. Many members met with the project consortium individually, outside of these formal group meetings, to provide additional insights and feedback. They were instrumental in finalizing interview and focus group questions, and strategically guiding the data collection and analysis process.

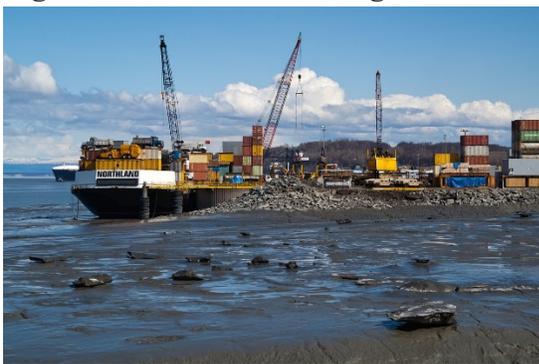
The first meeting introduced the MEP center concept to the group members, describing the study, its timeline, deliverables, proposed methods, and parties involved in the process. The second meeting focused on potential business models for a reconstructed MEP center and the various considerations involved with each potential approach.

E. Project Timeline

The project was divided into three main phases, with two to three months for each phase:

1. Preliminary phase, March-April 2014: project kickoff, delivery of responsibilities, market research, scheduling interviews and focus groups.
2. Collecting information, May-July 2014: gathering information about partner-organizations, interviews with other MEP centers, technical assistance providers, manufacturing companies.
3. Analysis, July-August 2014: analyzing information received at phase two, generation of final report and findings.

Figure 2: Backhaul and Logistics Costs were Common Topics with Stakeholders



Pictured Above, the Port of Anchorage Loading Dock

IV. Market Understanding

A. Literature Review on Alaska Manufacturing

There is little in-depth information about Alaska's manufacturing industry. The subject has received little consideration by researchers or even business and industry groups. There is, however, still some useful information available on the state's manufacturing industry. The following is a brief recap of existing literature on Alaska's manufacturing industry.

Alaska Business Monthly has published several articles on Alaska manufacturing. Most focus on a particular company, story, or industry sector. One article in particular, "Industrial Manufacturing: Modest Economic Sector Growing" provides an overview of the manufacturing industry. This article highlights the significance of seafood processing, which (according to this particular source) comprises two-thirds of Alaska's manufacturing employment. The article also highlights the large role that the petroleum industry plays in the state's manufacturing industry and then describes the diverse mixture of enterprises that make up the rest of the manufacturing industry.¹ It also points out that Alaska's manufacturing industry is comprised mostly of small and newly organized firms that have the potential to scale quickly. It goes further to emphasize that in times of economic turmoil these types of firms generally suffer less than manufacturing firms in the rest of the US that produce consumer goods.

Another article found in the *Alaska Business Monthly*, "Adding Value to Resources In-State" presents an overview of value-added manufacturing. Value-added manufacturing has long been touted as a potential opportunity for Alaska. The article points out that value-added manufacturing will create a larger tax base, generate more manufacturing jobs, diversify the economy, and provide sustainable economic development while lowering the cost of goods for customers.²

"*Alaska Economic Trends. Employment Forecast for 2014*" a report issued by the Alaska Department of Labor and Workforce Development, mostly contains job market trends in mining, oil products production, construction and seafood processing. It also includes information on other industries that are not connected with manufacturing.³ The same is true of the report "*Alaska Economic Trends, January 2002.*"⁴ The report "Manufacturing and Natural Resources" contains information on employment in different manufacturing sectors by place of work.⁵

² Adding Value to Resources In-State. Alaska business monthly. Apr. 2011. Retrieved from <http://www.thefreelibrary.com/Adding+value+to+resources+in-state%3a+more+jobs%2c+bigger+tax+base%2c+lower...-a0254013240>. Retrieved on 03.24.2014.

³ Alaska Economic Trends. Employment Forecast for 2014. Retrieved from <http://labor.state.ak.us/trends/jan14.pdf>. Retrieved on 03.25.2014.

⁴ Alaska Economic Trends, January 2002. Retrieved from <http://labor.alaska.gov/trends/jan02.pdf>. P. 4-9.

⁵ Manufacturing and Natural Resources. Retrieved from <http://laborstats.alaska.gov/trends/jan04art7.pdf>.

“*Alaska. 1997 Economic Census. Manufacturing*” contains industry statistics on the state of Alaska with details for specific boroughs and census areas.⁶

“*Industrial Technologies Program Report*” contains the Alaska Industrial Resource Fact Sheet, which summarizes basic information about manufacturing in the state.⁷ The report also highlights a few of the resources available to manufacturers that can help them to increase their energy efficiency. The same as the “*Alaska Manufacturing Facts*” report that reflects general information on manufacturing in Alaska and export potential of the goods produced.⁸ This report cited “petroleum and coal products” as Alaska’s largest manufacturing sector in terms of value-added production, at \$805 million per year.

The “*UA Research Summary #13*” (2008) prepared by the Institute of Social and Economic Research at the University of Alaska Anchorage describes the main industries of the economy in Alaska which contain money-generating businesses. The report also includes short reviews of the seafood, minerals, timber, and oil and gas products that are the main commodities for export to world markets.⁹

In 2008 the *China Weekly News* published “State Industrial Directory Reports Alaska Manufacturing Employment Up 5% Over Year.” That article reported that in 2007 there were a total of 947 manufacturers in Alaska. Combined, these companies employed 32,952 workers. The article compared the number of workers employed in various manufacturing sectors as a percentage of overall manufacturing employment. It stated, for example, that “food manufacturing accounts for 32% of the state's industrial jobs or 10,659 jobs. Seafood processing/canning accounts for 93% of the state's food manufacturing jobs, according to this resource. Another 13% of Alaska's industrial jobs are in oil and gas extraction. Employment in petroleum and coal products processing represents 3,776 of the state's industrial jobs. The industrial machinery and equipment sector accounts for 4,684 of Alaska's industrial jobs.”¹⁰ It is worth noting that a number of employment and economic figures have been generated for Alaska’s manufacturing industry. These figures vary, sometimes significantly, depending on the data source used. Different sources use different classifications for what constitutes a

⁶ Alaska 1997 Economic Census. Manufacturing. Retrieved from <https://www.census.gov/prod/ec97/97m31-ak.pdf>. Retrieved on 04.02.2014.

⁷ Industrial Technologies Program. Retrieved from <http://www1.eere.energy.gov/manufacturing/states/pdfs/alaskaindustrialresourcefactsheet.pdf>. Retrieved on 03.25.2014.

⁸ Alaska Manufacturing Facts. Retrieved from <http://www.nam.org/~media/D73405C0DF21413784A496A17AB32962.ashx>. Retrieved on 03.25.2014.

⁹ Scott Goldsmith. What Drives the Alaska Economy? Retrieved from http://www.iser.uaa.alaska.edu/Publications/researchsumm/UA_RS_13.pdf. Retrieved on 03.25.2014.

¹⁰ State Industrial Directory Reports Alaska Manufacturing Employment Up 5% Over Year. Retrieved from [http://www.lexisnexis.com/hottopics/Inacademic/?verb=sr&csi=337778&sr=HLEAD\(Manufacturers%20News,%20I nc.%20State%20Industrial%20Directory%20Reports%20Alaska%20Manufacturing%20Employment%20Up%205%2 5%20Over%20Year\)%20and%20date%20is%202008](http://www.lexisnexis.com/hottopics/Inacademic/?verb=sr&csi=337778&sr=HLEAD(Manufacturers%20News,%20I nc.%20State%20Industrial%20Directory%20Reports%20Alaska%20Manufacturing%20Employment%20Up%205%2 5%20Over%20Year)%20and%20date%20is%202008)

“manufacturing job”. Furthermore, because many of Alaska’s manufacturing jobs are seasonal, there can be significant variances in employment data depending on when the data was gathered.

Alaska Forward Study (2010) contains a situational analysis that describes the current economic development ecosystem in Alaska and the state’s economic and business strengths.¹¹ The report lists Alaska’s top five export industries, fishing and seafood processing (50.6%), mining (20.2%), oil and gas extraction (8.6%), transportation equipment (6%), and primary metal manufacturing (4.2%). It also provides descriptions of these industries and, above all, gives a short description of 11 Alaska industry clusters that paints a broad picture of manufacturing in the state. The study describes the specialized machinery cluster, oil and gas production and refinery cluster, fishing and seafood processing cluster, and mining cluster, and it provides a breakdown of these clusters by geographic region. Normally natural resource-based industries such as fishing, timber, and mining evolve from low value-added extraction to higher value-added processing. In Alaska, however, the cost of most of the inputs necessary for such high value-added processing are relatively expensive. As a result, most fish, timber, oil, and ore leave Alaska in raw form and are processed elsewhere.¹²

The study also cites seafood processing as the state’s largest manufacturing sector, representing nearly half of the state’s manufacturing output.¹³ It views Specialized Machinery/Capital Goods as a small opportunity cluster and an area of potential expansion for Alaska’s manufacturing industry. That cluster is composed of architectural and structural metal manufacturing, commercial and industrial machinery and equipment rental and leasing services.¹⁴ The study sees forestry and wood products as a challenge cluster, which, in its current form, has limited potential. The forestry and wood products cluster includes logging, timber operations, support activities, sawmills and wood preservation, and furniture manufacturing.¹⁵

There are also several reports that describe particular sectors. For example, “Economic Value of the Alaska Seafood Industry” considers all of the direct, indirect and induced economic effects of the Alaska seafood industry, including the entire value chain, from harvest to seafood processing and retail sales. That report also provides background information on harvest volume and value, production volume and value, and participation within Alaska’s seafood industry.¹⁶

¹¹ Alaska Forward: Phase 1 – Situational Analysis. Retrieved from <http://alaskapartnership.org/wp-content/uploads/2011/01/Alaska-Forward-Project-Executive-Summary.pdf>. Retrieved on 03.25.2014.

¹² Alaska Forward: Phase 1 – Situational Analysis. P. 58.

¹³ Alaska Forward: Phase 1 – Situational Analysis. P. 80.

¹⁴ Alaska Forward: Phase 1 – Situational Analysis. P. 97.

¹⁵ Alaska Forward: Phase 1 – Situational Analysis. P. 100.

¹⁶ Economic Value of the Alaska Seafood Industry. Retrieved from <http://pressroom.alaskaseafood.org/wp-content/uploads/2013/08/AK-Seafood-Impact-Report.pdf>. Retrieved on 03.24.2014.

Alaska Mineral Industry 2012 Special Report contains information on mineral products manufacturing.¹⁷ “1997 Economic Census Mining Report” contains statistics on the mining industry.¹⁸

“Food and drink manufacturing outside of seafood” defines trends on Food and Drink manufacturing excluding seafood processing.¹⁹ It contains mostly information on coffee and beer production.

“Alaska’s “Other” Manufacturing” reflects general trends in manufacturing sectors usually classified as “Other” and employment information on those sectors as well as the list of “Top 50 “Other” manufacturers.”²⁰

Bradners’ Alaska Economic Reports issued weekly covers main trends in sectors including seafood processing, mineral products manufacturing, and oil products manufacturing. The *Bradners’ Alaska Legislative Digest* also includes a brief description of legislative news in the same sectors.

“Impact of the Transportation Industry on the Manufacturing Sector in Alaska” includes case studies of the relationship between manufacturers and the transportation infrastructure. It provides insight into the challenges infrastructure creates.²¹ This report concludes that the economic development community and industry leaders needed to work together to "explore mutual opportunities and leverage industry investment in regulatory improvements, community marketing, and infrastructure and workforce development."

An unpublished study “A Constraints Based Analysis and Plan to Increase Metal Fabrication Manufacturing in Alaska” prepared by H.R. "Ky" Holland, faculty member at Alaska Pacific University, considers how to develop the small manufacturing industry in Alaska. In addition to evaluating the possibility of developing metal fabrication manufacturing, the study contains research on the current state of manufacturing in Alaska. It includes several examples of local manufacturing companies along with an analysis of the reasons for their failure or success. Holland suggests several options for growing manufacturing and for collected information on the different, on-going and planned programs to improve manufacturing in the state. As an additional detail, Holland served on the Advisory Group and contributed his insights to the present effort.

¹⁷ Alaska Mineral Industry 2012 Special Report. Retrieved from <http://137.229.113.30/webpubs/dggs/sr/text/sr068.pdf>. Retrieved on 03.25.2014.

¹⁸ Alaska. 1997 Economic Census. Mining. Retrieved from <http://www.census.gov/prod/ec97/97n21-ak.pdf>. Retrieved on 04.02.2014.

¹⁹ Food and drink manufacturing outside of seafood. Retrieved from <http://laborstats.alaska.gov/trends/feb13art7.pdf>.

²⁰ Alaska’s “Other” Manufacturing. Retrieved from <http://laborstats.alaska.gov/trends/nov10art2.pdf>.

²¹ Impact of the Transportation Industry on the Manufacturing Sector in Alaska. Retrieved from <http://www.labor.state.ak.us/awib/forms/ahric2.pdf>.

B. Alaska Manufacturing Market Overview

Natural resources have played a crucial role in the economic development of Alaska throughout its history. Hundreds of years ago, Europeans first came to this area in pursuit of furs and whale oil. The late 19th and early 20th centuries saw a series of stampedes for gold and copper. At statehood in 1959, Alaska's economy had been dominated by government, fishing, and mining, but there was intense exploration for oil. The discovery of the Prudhoe Bay oilfield in 1967 established Alaska as a major oil producer and brought an influx of employment and new residents as the economy began to develop around this industry.

Currently, Alaska's economy has been described by leading economists as a "three legged stool". The oil and gas industry and the federal government, make up two of the legs with a third leg including all other basic industries, from mining to fisheries to tourism. Each of these legs have roughly an equal impact on the state's economy. While this "three legged stool" analogy may be true for the economy as a whole, the breakdown looks slightly different when looking solely at the manufacturing industry in Alaska.

Alaska's manufacturing industry, much like the rest of the state's economy, has been heavily dependent on natural resources. For decades, the state's manufacturing industry was buoyed by timber and the various value-added processes within the timber industry. As timber production declined over the years due to reductions in the amount of timber offered for sale annually by the National Forest Service, the emphasis of the state's manufacturing industry has shifted to focus on fish processing and support services for the mining, oil, and gas industries.

Figure 3: Timber Production Used to be One of Alaska's Primary Manufacturing Sectors



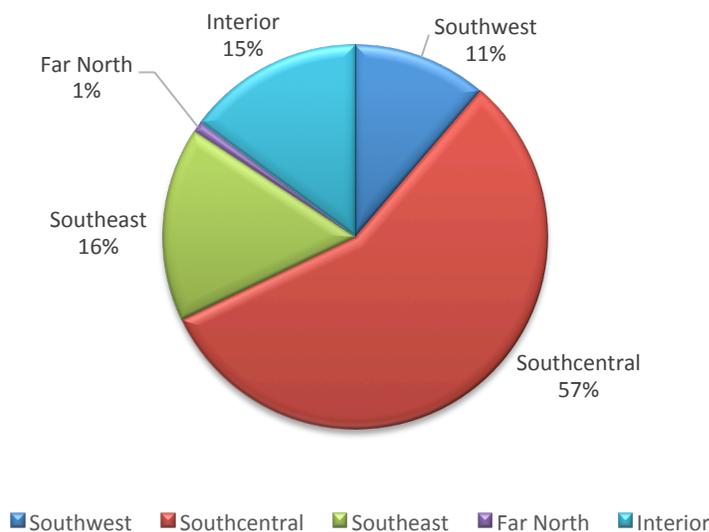
Photo Courtesy of Chris Arend

Overall, Alaska’s manufacturing industry is small relative to other states. In total, manufacturing accounted for only 4% of the state’s total economy (by GDP) in 2010, the bulk of which came from oil and gas manufacturing (primarily refining) and seafood processing²². Within the manufacturing industry, wages are lower on average than in other Alaska industries. In 2009, the average pay within the manufacturing industry was \$43,497, which was 13.1% lower than the state’s overall average income²³. This data is heavily skewed, however, by the sheer volume of work in the fish processing industry. This very labor-intensive industry typically offers seasonal work that involves relatively low pay and long hours. The sheer number of these jobs likely drives the overall average salary in manufacturing down.

According to the US Census Bureau, in 2011 there were 533 manufacturing establishments operating across the state of Alaska. A plurality, or just over one third of the total, were located in the Municipality of Anchorage. A full breakdown of establishments by region can be seen in the following table and graph, where Anchorage dominates the Southcentral category:

Figure 4: Alaska Manufacturing Establishments by Region (2011)

Alaska Manufacturing Establishments by Region



Source: US Census

²² National Association of Manufacturers, Alaska Manufacturing Facts, <http://www.nam.org/~media/D73405C0DF21413784A496A17AB32962.ashx>

²³ National Association of Manufacturers, Alaska Manufacturing Facts

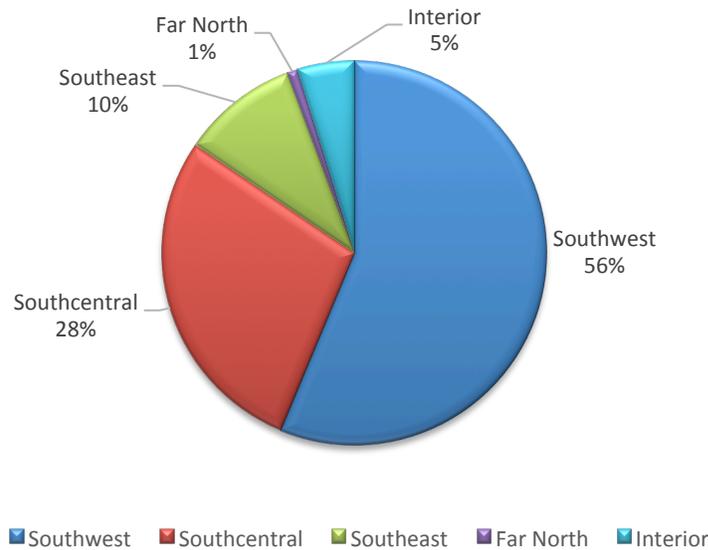
Table 3: Alaska Manufacturing Establishments by Region (2011)

Region	Total Number of Establishments (2011)
Southwest Alaska	60
Southeast Alaska	87
Southcentral Alaska	302
Far North	5
Interior	79
Total	533

When looking at the total manufacturing activity in Alaska, it is important to look at more than just the number of establishments, however, as most of these are small. An examination of manufacturing employment by region paints a slightly different picture of the distribution of manufacturing activity in Alaska.

Figure 5: Alaska Manufacturing Employment by Region (2011)*

Alaska Manufacturing Employees by Region



Source: US Census

Table 4: Manufacturing Employment by Alaska Region (2011)*

Region	Total Number of Employees (2011)*
Southwest Alaska	7,386
Southeast Alaska	1,289
Southcentral Alaska	3,711
Far North	120
Interior	623
Total	13,129

**Specific employee numbers were withheld for certain boroughs, and only a range was provided. For estimation purposes, the midpoint value within the provided range was used when specific data was withheld.*

This data highlights the importance of choosing a measurement for evaluating the industry. For example, if the number of establishments is the unit of measurement, Southcentral Alaska contains nearly 60% of the state's manufacturing, but when employment is used, it accounts for just 28%. In comparison, Southwest Alaska contains 56% of the state's employment in manufacturing, but just 11% of the state's total manufacturing establishments. This contrast illustrates the tremendous impact of seafood processing on the state's manufacturing economy. Large processors dominate the seafood processing industry with the largest concentrations in Southwest Alaska, many of which employ hundreds of workers in a single facility. The rest of Alaska's manufacturing industry consists primarily of much smaller operations.

Manufacturing can also be measured by the value of its output, which was estimated at \$1.7 billion in 2009. The two largest sectors for output were petroleum and coal products manufacturing (\$805 million) and food and beverage product manufacturing (\$628 million). So despite the large presence of employees within the seafood processing sector, the oil, gas, and mining manufacturing sector generates greater dollar value (in terms of GDP) at the current time.

i. Petroleum and Mining

Petroleum and mining manufacturers include many of the state's largest refineries, which generate sizeable economic activity but relatively few jobs. As of 2010, the state's two largest refineries, Tesoro and Flint Hills, produced gasoline, diesel, heating oil, and jet fuel for the Alaska market²⁴. It is important to note that the state's refineries have historically been marginal in terms of profitability. For example, Flint Hills has opened and closed several times over the years, and has recently closed once again. These refineries typically produce petroleum products for the local market and do not generally export to other markets.

²⁴ Alaska's Other Manufacturing, Alaska Economic Trends Magazine, Neil Fried, November 2010

Table 5: Alaska’s Largest Mining and Petroleum Sector Manufacturers (2010)

Company Name	Employment	Business Activity	Primary City
Tesoro Company Alaska	100-249	Petroleum Refinery	Nikiski
Flint Hills Resources*	100-249	Petroleum Refinery	Fairbanks
Anchorage Sand and Gravel	100-249	Construction Sand and Gravel Mining	Anchorage
STEELFAB	50-99	Metal Fabrication	Anchorage
Petro Star	1-49	Petroleum Refinery	Valdez
Greer Tank and Welding	1-49	Metal Fabrication	Fairbanks
Dowland Bach	1-49	Mining and Oil and Gas Field Machinery	Anchorage

*Since 2010, Flint Hills Resources has shut down their Fairbanks operations

In addition to refining, there are a number of Alaska manufacturers that support the Oil and Gas industry in other ways. Companies such as STEELFAB and Greer Tank provide welding and fabrication services. This type of work includes custom metal fabrication and production of fuel storage tanks²⁵.

The Alaska Department of Natural Resources has identified mining as a sector of opportunity for the state. Mining employment grew by 107% from 2003 to 2012²⁶. Manufacturing jobs supporting the mining industry include the nonmetallic mineral product sector – asphalt and concrete production, often utilizing locally mined aggregate. Nonmetallic mineral product manufacturing accounted for 276 jobs, of which 262 were in cement and concrete. Mining support jobs within manufacturing also include those in primary metal manufacturing, which accounts for 18 jobs statewide.

ii. Seafood/Fish Processing

In terms of the total number of jobs Alaska’s fish processing industry is the state’s largest manufacturing sector. Seafood processing takes place all across the state, but is primarily located in the Southwest, Southcentral, and Southeast regions. It is a heavily labor-intensive industry, requiring a large supply of relatively low paid workers. While the fish processing industry employs many local workers, the sector also hires many seasonal workers from outside the state.

In 2011, the Alaska seafood processing industry processed over five billion pounds of seafood. Altogether, the industry accounts for approximately 75 percent of total manufacturing employment within the state²⁷. On average, the industry employed approximately 10,000 workers per month in 2011, with lower numbers in the winter, and higher numbers in the busier summer months.

²⁵ Alaska’s Other Manufacturers, Alaska Economic Trends, Neil Friend, November 2010

²⁶ Alaska’s Mineral Industry 2012, Alaska Department of Natural Resources, 2012

²⁷ Economic Value of the Alaska Seafood Industry, McDowell Group, July 2013

Alaska’s seafood processing sector consists of over 160 companies, with the majority being small processors that employ less than 100 workers²⁸. The largest processors are Trident Seafoods, Icicle Seafoods, and Ocean Beauty Seafoods.

Most of the state’s seafood “manufacturing” consists of minimal processing, often merely the heading and gutting of fish. Once the seafood receives this basic level of processing it is shipped outside of the state where it is more thoroughly processed and packaged for sale. The state has long pursued value-added processing to capture more economic benefits in-state, but little progress has been made thus far.

Figure 6: Fish Processing Accounts for Approximately 75% of Alaska’s Manufacturing Jobs



Photo Courtesy of Seanna O’Sullivan

iii. Other Food Processing

Alaska’s manufacturing industry also includes a number of food processors outside of simply the seafood industry. These include chocolate and candy manufacturers, snack and tortilla manufacturers, as well as bottlers and brewers. Overall, non-seafood food and beverage manufacturing accounts for 5% of Alaska’s overall manufacturing employment²⁹. The majority (61%) of the state’s “non-seafood” food manufacturing sector is located in Anchorage.

One of the emerging opportunities within this sector is beverage manufacturing, which has experienced a 118% growth in employment since 2007. It now employs 240 workers across Alaska, with the number growing each year. Beverage manufacturers in Alaska specialize in bottled water, coffee roasting, brewing, wine-making, and distilling.

²⁸ Economic Value of the Alaska Seafood Industry, McDowell Group, July 2013

²⁹ Food and Drink Manufacturing Outside of Seafood, Alaska Trends Magazine, Alyssa Shanks, February 2013

Some of the larger emerging enterprises within this sector include Alaska Wild Berry Products Incorporated, which produces chocolates and candies, and Taco Loco Products, which produces chips and tortillas. The state’s many brewers and bottlers include Broken Tooth Brewing, the Alaska Brewing Company, the Midnight Sun Brewing Company, and the Bear Creek Winery. These companies were contacted to evaluate what type of support they want/need from an Alaska MEP center.

Table 6: Alaska’s Largest “Other” Food Manufacturers (2009)

Company Name	Employment	Business Activity	Primary City
Alaska Brewing Company	50-99	Brewery	Juneau
Alaska Wild Berry Products	50-99	Sugar and Confectionary	Anchorage
Silver Gulch Brewing and Bottling	1-49	Brewery	Fairbanks
Alaska Sausage	1-49	Meat Processing	Anchorage
L’ Aroma	1-49	Bakery	Anchorage
Great Harvest Bread Company	1-49	Bakery	Anchorage

Figure 7: The Great Alaska Flour Company is one of Alaska’s Many “Other” Food Manufacturers



Photo Courtesy of Greg Martin

iv. Other Manufacturing

The “other” manufacturing category is a catch-all that includes businesses outside of the major manufacturing categories. The “other” category does not account for a large share of economic output or employment, but nonetheless, contains some large firms by state standards, and some promising growth sectors, such as ship building and glass manufacturing. It also includes a large number of craft businesses that employ a small number of people.

Table 7: Alaska’s Largest “Other” Manufacturers (2009)

Company Name	Employment	Business Activity	Primary City
Alaska Ship and Drydock	100-249	Ship Building	Ketchikan
Builders Choice	100-249	Wood Products	Anchorage
Siemens	50-99	Electronics	Anchorage
Unique Machine	1-49	Machine Shop	Anchorage
Allen Marine	1-49	Ship Building	Sitka
Seward Ships Dry Docks	1-49	Ship Building	Seward
GLM	1-49	Machine Shop	Kenai

One component of the “other” manufacturing sector that historically employed a sizable number of Alaskans is the wood products industry, supported by in-state timber harvests. However, in recent years the state’s timber industry has suffered deep decline, and employment numbers for manufacturing within this sector have diminished. In the past, timber was one of Alaska’s largest manufacturing sectors, with a primary focus in Southeast Alaska. While timber stills plays a small role in Alaska’s manufacturing economy, it will probably not play a significant role in its immediate future.

C. Comparison of Peer States’ Economies

The project consortium looked for comparable MEP centers in other states in order to find best practices and approaches that could be implemented in Alaska. To understand which strategies will and will not work in Alaska and to decide which model to adopt, it is important to have a general understanding of the market in which each of these comparable MEP centers operate. For this study, the project consortium looked at MEP centers in Hawaii, Montana, North Dakota, South Dakota, West Virginia, and Wyoming.

Ultimately, the role manufacturing plays in each of these states’ economies differs greatly, although as measured by manufacturing’s share in their economy all of these states rank in the bottom half nationally for both 2001 and 2011. The economic base of each state was estimated using a method developed by the U.S. Bureau of Economic Analysis.

Table 8: Manufacturing as a Share of Economic Base, Gross Domestic Product for States, 2001 and 2011

2001			2011		
Rank	State	Share	Rank	State	Share
32	West Virginia	11.67%	33	West Virginia	9%
37	South Dakota	10.55%	35	South Dakota	8.71%
41	North Dakota	8.68%	40	Montana	7.05%
45	Wyoming	6.52%	42	North Dakota	6.68%
46	Montana	5.80%	45	Wyoming	5.62%
49	Alaska	3.15%	49	Alaska	3.01%
50	Hawaii	2.05%	50	Hawaii	1.72%
-	United States	13.15%	-	United States	11.57%
-	Average Share	12.76%	-	Average Share	11.33%
-	Maximum Share	26.70%	-	Maximum Share	27.24%
-	Minimum Share	0.36%	-	Minimum Share	0.25%

Source: U.S. Bureau of Economic Analysis

All of the states listed in this table have traditionally ranked relatively low in terms of manufacturing’s total contribution to their economies. In 2011, manufacturing in each of these states was well below the United States average, with no individual state having more than 10% of its GDP coming from manufacturing. A closer look at the GDP data from each of these states shows the types of manufacturing in which they are engaged. For instance, durable goods production (products with lifespans typically greater than three years) comprises less than 30% of total production in Hawaii, Alaska, Montana, and Wyoming, and around 43% in West Virginia. In North and South Dakota, production of durable goods is the main source of production (54.94% and 67.94% accordingly).

Based on GDP size, the leading manufacturing industry in Alaska in 2011 was “petroleum and coal products manufacturing,” followed by “food and beverage and tobacco product manufacturing,” with the largest part of the food manufacturing activity coming from the state’s large fish processing industry. Three other sectors of Alaska’s manufacturing industry generate greater than \$30 million in GDP and are listed below:

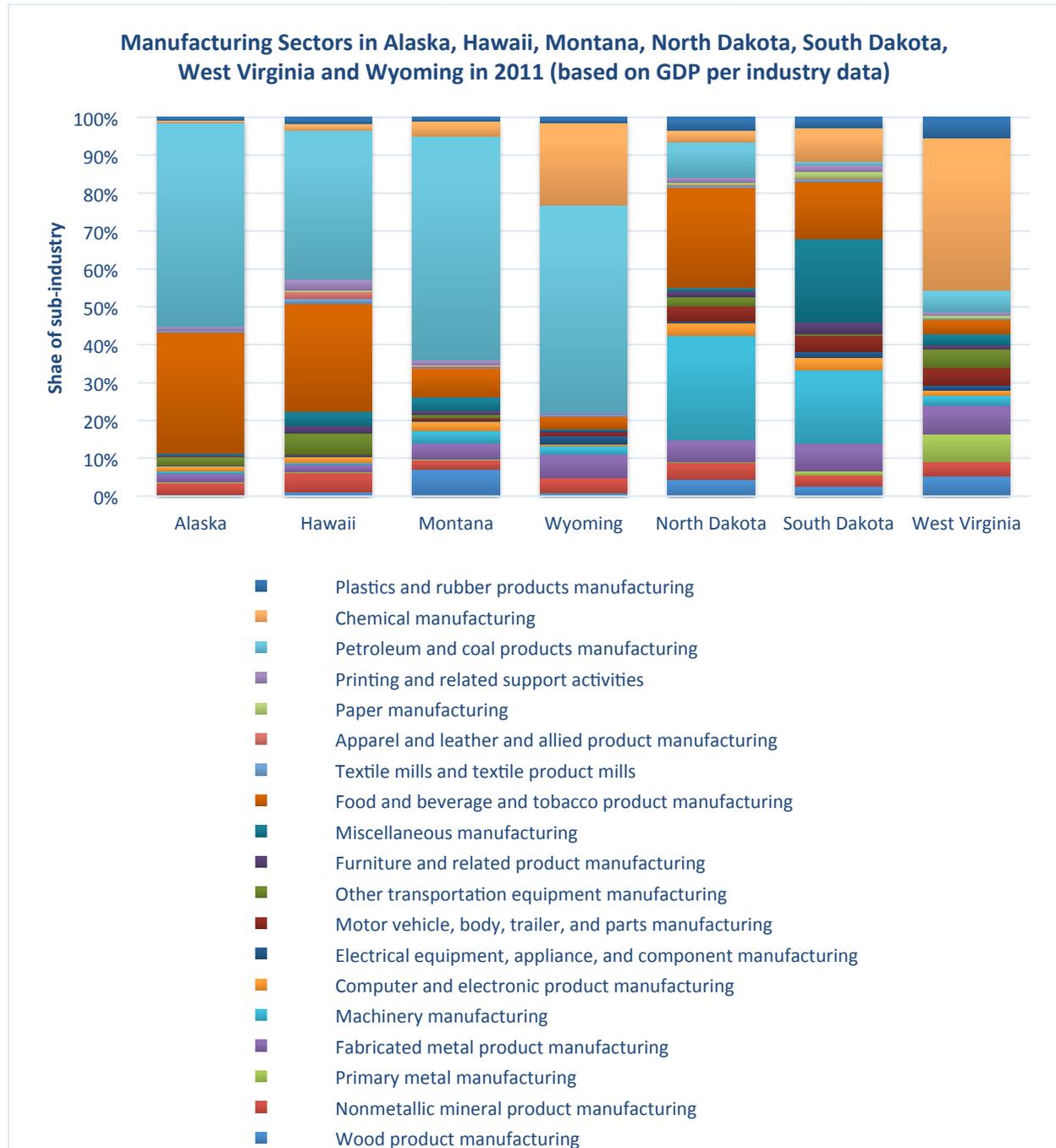
- ❖ Nonmetallic mineral product manufacturing
- ❖ Fabricated metal product manufacturing
- ❖ Other transportation equipment manufacturing

In Hawaii, the situation with leading manufacturing sectors is similar. The largest contributor in Hawaii is “petroleum and coal products manufacturing”, followed by “food and beverage and tobacco product manufacturing.” The next largest groups of manufacturing in Hawaii are:

- ❖ Nonmetallic mineral product manufacturing
- ❖ Other transportation equipment manufacturing
- ❖ Miscellaneous manufacturing
- ❖ Printing and related support activities

All of the remaining manufacturing sectors in Hawaii account for less than 5% of the state's manufacturing total. Altogether, Hawaii's manufacturing industry generates around 1.72% of the total state's GDP.

Figure 8: Manufacturing Sectors in Alaska, Hawaii, Montana, North Dakota, South Dakota, West Virginia, and Wyoming in 2011 (Based on GDP per Industry)



Source: United States Bureau of Economic Analysis

In Montana, almost 60% of the GDP in manufacturing is generated by “petroleum and coal products manufacturing.” At \$1,621M the value of Montana’s petroleum and coal products manufacturing in 2011 was approximately double the value of Alaska’s petroleum and coal products manufacturing. The other 40% of the state’s manufacturing GDP is divided between the remaining manufacturing sectors with the largest shares being “wood product manufacturing” (7.10%) and “food and beverage and tobacco product manufacturing” (7.65%).

Two sectors dominate Wyoming’s manufacturing industry:

- ❖ Petroleum and coal products manufacturing – 54.8% and \$1,176M generated in manufacturing GDP.
- ❖ Chemical manufacturing – 21.81% and \$468M generated in manufacturing GDP.

The remaining 25% of manufacturing GDP in Wyoming is shared by the sectors listed in figure 8 on page 27, each of which accounts for less than 6%.

The situation is different in North Dakota, South Dakota and West Virginia where petroleum and coal products are not a core manufacturing sector. In South Dakota the largest categories are “machinery manufacturing” (19.39%), “food and beverage and tobacco product manufacturing” (15.09%), and miscellaneous manufacturing (22.09%). In North Dakota the main sectors are “machinery manufacturing” (27.43%) and “food and beverage and tobacco product manufacturing” (26.42%). In West Virginia chemical manufacturing accounts for 40.25% of total GDP generated in manufacturing, with each of the remaining sectors having an average share of 3.3% of the state’s manufacturing GDP.

i. Number of Establishments

The U.S. Census Bureau provides statistical information on the number of business establishments in manufacturing sectors in different states, broken down by the number of employees. According to these figures, Alaska has 530 manufacturing establishments, of which 293 have between one to four employees. A total of 107 establishments have from five to nine employees (see Figure 9 on the next page). There are only four manufacturing establishments with 500 to 999 employees and only three with more than 1,000 employees. Most of the state’s manufacturers are in the food manufacturing sector, specifically fish processing: there are 160 establishments in total, with two having more than 1,000 employees. Food manufacturing is followed by “fabricated metal product manufacturing” (50 companies) and “printing and related support activities” (42 companies).

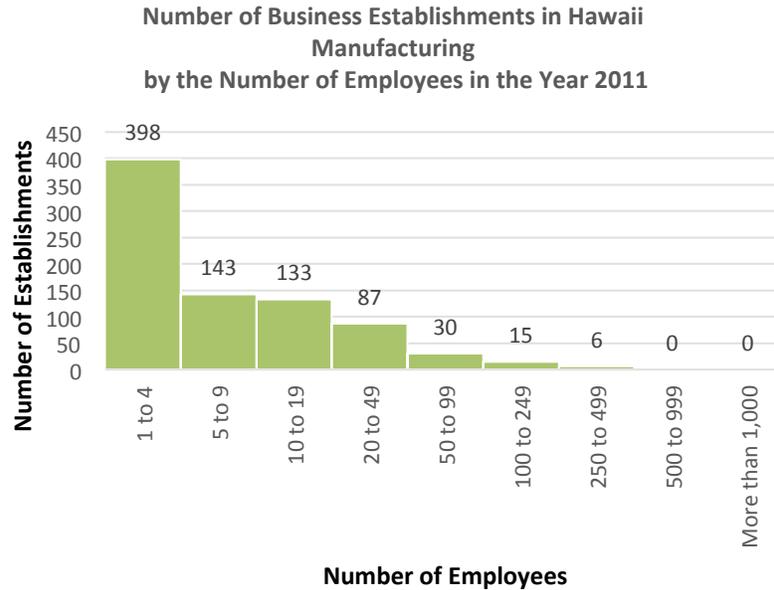
Figure 9: Business Establishments in Alaska by Number of Employees (2011)



Source: US Census Bureau

Hawaii has over 50% more manufacturing establishments than Alaska, with 812 total. As seen on Figure 10 on the next page, Hawaii has more small manufacturers with less than five employees than Alaska. At the other end of the size spectrum, Hawaii has no establishments in excess of 500 employees. In total, 83% of Hawaii’s manufacturers have less than 20 employees. A plurality of Hawaii’s manufacturing establishments, like Alaska, are in “food manufacturing” (248). Other major sectors include “printing and related support activities” (100) and “apparel manufacturing” (52). Large companies with between 100 and 500 employees are concentrated in food manufacturing, printing, petroleum and coal products manufacturing, and transportation equipment manufacturing.

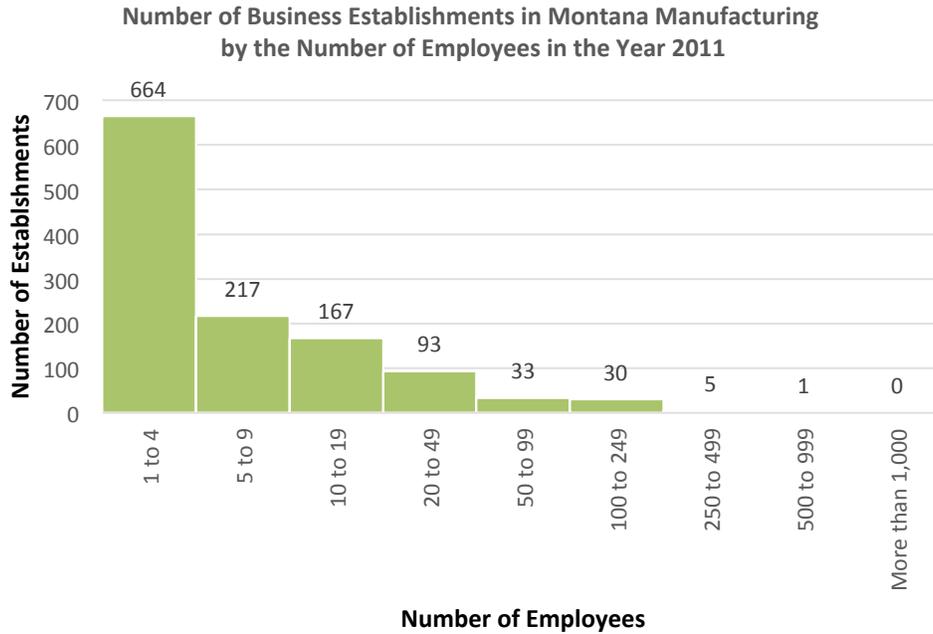
Figure 10: Business Establishments in Hawaii by Number of Employees (2011)



Source: US Census Bureau

In Montana there are 1,210 manufacturing establishments, 664 of which are small operations with less than five employees. There are five establishments with 250 to 499 employees and a single establishment with 500 or more employees. Almost 90% of the state’s establishments have less than 20 employees. In Montana the largest concentration of manufacturing establishments are classified as “fabricated metal product manufacturing” – with 173 firms. Food manufacturing is the second largest sector by number of establishments in Montana, but 93% of these firms have less than 50 employees. “Wood products manufacturing” and “furniture manufacturing” also play important roles in Montana’s manufacturing economy.

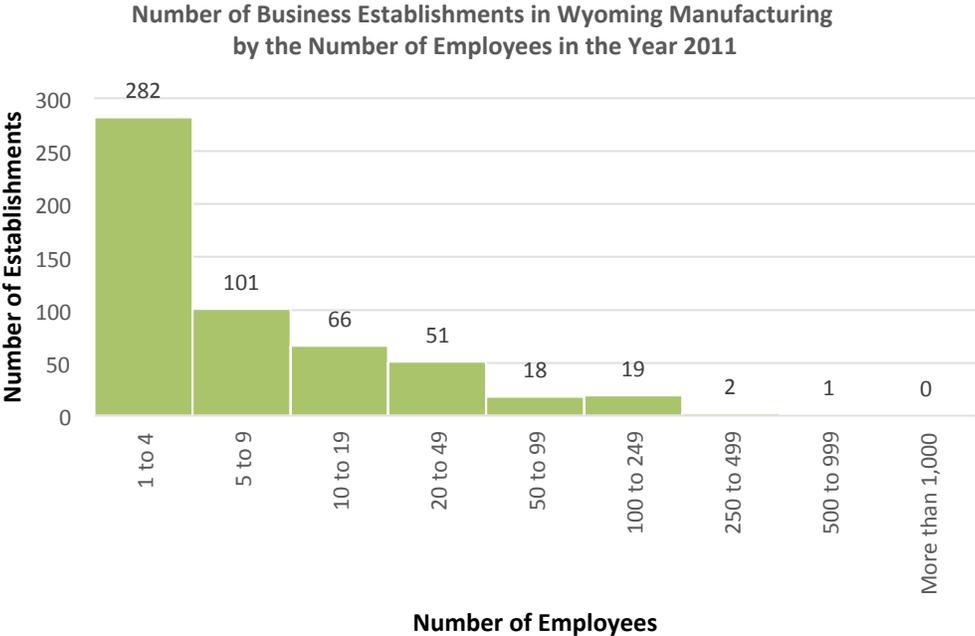
Figure 11: Business Establishments in Montana by Number of Employees (2011)



Source: US Census Bureau

In Wyoming the number of establishments is nearly identical to Alaska, with 540 statewide. Among manufacturing establishments there are 282 with fewer than five employees, and 101 establishments have from five to nine employees. In total, 93% of the state’s establishments have fewer than 50 employees. In Wyoming the manufacturing emphasis is on “fabricated metal product manufacturing” (100 establishments) and “nonmetallic mineral product manufacturing” (62 establishments). Food manufacturing has the third most establishments in the state, with 51 firms. These three sectors are followed by “printing and related support activities” with 41 establishments.

Figure 12: Business Establishments in Wyoming by Number of Employees (2011)



Source: US Census Bureau

D. Interview Findings

For full results of the interviews with Alaska manufacturers, please see Appendix 4 on page 116.

To obtain a level of detail unavailable in the existing data, the Alaska MEP center planning study conducted 67 targeted interviews with manufacturers across all regions of Alaska. The goal of these interviews was to assess the operational, organizational, and technical needs of manufacturing businesses, and their ability and inclination to pay for technical assistance services. The questions also sought to develop a picture of the major challenges and opportunities facing manufacturers in Alaska, and to understand the specific types of technical assistance services manufacturers need. The interviews covered a wide range of sectors within the state’s manufacturing industry.

Table 9: Number of Companies Interviewed, by Manufacturing Sector

Manufacturing Sector	Number of Companies Interviewed
Other/Miscellaneous Manufacturing	18
Food Manufacturing	13
Drink Manufacturing	9
Fabricated metal Product Manufacturing	5
Wood Product Manufacturing	5
Nonmetallic Mineral Product Manufacturing	3
Computer and Electronic Product Manufacturing	2
Plastics and Rubber Products Manufacturing	2
Boat Building and Repairing	2
Millwork	2
Miscellaneous Textile Products	2
Printing and Related Support Activities	2
Transportation Equipment Manufacturing	2

An overview of the manufacturers interviewed shows that the experiences of the manufacturers interviewed varies nearly as much as the business sectors that they operate in. Manufacturers generally had been in business for a long time, with 37% of businesses having been in business for over 20 years. About 19% of those interviewed could be classified as new businesses (less than five years in existence). Many of the manufacturers have at least made an effort to sell their products outside of Alaska, although success amongst those interviewed varied considerably.

Table 10: Interviewed Manufacturers at a Glance:

Interview Question	Result
Total number of interviews	67
Average length of time in business	20 Years
Did you have a background in manufacturing before your current role? (asked to managers and owners)	31% Yes
Average number of employees	23 Employees
Is manufacturing your primary line of business	58% Yes
Do you earn sales outside of Alaska?	63% Yes
If yes, what is the average % that comes from out of state?	37.74%
Have you tried to access markets in the lower 48 or Hawaii?	60% Yes
Have you tried to access international markets?	39% Yes
Has your business ever employed the services of a consultant?	52% Yes
Has your company ever done a thorough review of lean manufacturing principles?	14% Yes

The manufacturers varied considerably in the size of their respective operations. Generally, the interviewed businesses were fairly evenly distributed by revenue category. Table 11 shows that while those interviewed were primarily small companies with less than \$1 million in annual revenue (54%), there were also a significant number of companies with large annual revenue.

Table 11: Annual Revenue of Interviewed Manufacturers

Less than \$500,000	\$500,000-\$1,000,000	\$1,000,000-\$5,000,000	\$5,000,000+
23 (34%)	13 (20%)	17 (25%)	13 (19%)

The interviewees offered many different descriptions of the largest growth barriers facing Alaska manufacturers. Foremost among these were shipping, regulations, labor issues, and the competition in their respective markets.

Figure 13: Primary Barriers to Growth, Alaska Manufacturers



Ultimately, the interviews with Alaska manufacturers provide a wealth of valuable information regarding the challenges faced by manufacturing businesses throughout the state. Additionally, the interview process helped to provide valuable information that will be important to the formation of a future Alaska MEP center including information on the use of consultants, services desired, and desired MEP center characteristics. This section will further elaborate on the information these interviews provided.

For full interview results, please see Appendix 4 on page 116.

i. Statewide Manufacturer Findings

a. Logistics

Looking at a broad, statewide focus, manufacturers across all different sectors face many of the same challenges. A majority of the manufacturers interviewed repeated in some manner that shipping and logistics was their primary challenge. Many others cited this as a secondary but still significant problem. During the interviews manufacturers frequently cited the high costs for raw materials as a key barrier to their growth. The high raw materials cost drives up the overall cost of production, making it hard to compete on price in the Alaska market. Beyond that, the cost of shipping back to the Lower 48 is nearly as high, although some backhaul discounts can be arranged. In many cases the additional cost of shipping goods south makes exporting products to other states nearly impossible. Alaskan manufacturers are often forced into making a difficult choice. Do they operate with lean raw materials management and sacrifice the price advantages of bulk purchasing, or do they buy in bulk, and pay high storage and inventory carrying costs?

Alaska's complicated logistics also affects the supply of raw materials available to manufacturers. Alaska manufacturers who acquire their raw supplies from the East Coast must order several weeks in advance. Because much of Alaska bound freight comes by ocean barge and by air, weather conditions can cause significant delays in delivery. Given these challenges, it is especially difficult for Alaska's manufacturers to use a lean inventory model. Manufacturers often need to maintain large inventories of raw materials in order to ensure that production does not stop. While this is a major challenge, it may also offer a major opportunity to Alaska manufacturers. Were an Alaska MEP center to have a highly skilled supply chain expert on staff it could help source products closer to home, reducing some of the lead times and risk of delays that manufacturers currently face. A logistics specialist would also be able to help manufacturers identify their optimal inventory levels allowing them to make their production model leaner.

b. Energy/Electricity

Manufacturers also identified the high cost of energy as a major barrier to growth. On the whole Alaska has some of the highest energy costs in the entire country, and costs quickly begin to escalate in communities located off of the state's road system. In some rural communities, energy costs can reach as high as \$1 per kilowatt hour (or more). This makes competitive manufacturing in rural Alaska nearly impossible. The primary exception to this is fish processing, which requires initial processing to be done soon after the initial catch; however in this case the high cost of energy often prevents further value-added processing.

Throughout the interview process, manufacturers repeatedly emphasized the importance of reducing energy costs. Manufacturers from nearly every sector mentioned that they would be interested in receiving an energy audit to identify areas for energy savings within their operations. A new Alaska MEP center should consider offering energy audits as one of its services. If the center does not provide this service in-house, it should look to partner with one of the existing organizations that already provide these services in the state.

c. Important Characteristics of an Alaska MEP Center

Throughout the study, the state's manufacturing community was asked, "What would it realistically take for an Alaska MEP center to win you over as a customer?" This straightforward question was designed to determine what an MEP center would need to do to attract clients. As this was a fairly open-ended question, it allowed manufacturers to give valuable, wide ranging feedback that will be useful in creating a new Alaska MEP center.

Overwhelmingly manufacturers answered simply that the MEP center needs to show them that its services provide value and will ultimately boost profitability. Essentially, manufacturers wanted to see a clearly defined ROI (return on investment) on the services offered by the MEP center. Potential customers expect to be presented with clear, realistic outcomes. For instance, if the client is being approached for a fee-for-service energy audit, they want to get a sense for how much the audit might save them. The MEP center should be able to provide an estimate of energy savings based on the experience of other clients, even if it may have to start by using the

results of energy audits in MEP centers outside of Alaska (at least until client data is available from engagements within the state). The state's manufacturing community seemed largely skeptical about consultants throughout the interview process. Therefore, providing clear, justifiable estimates with a proposed ROI would go a considerable way toward attracting them as clients.

One way that the Alaska MEP center could overcome the general skepticism toward consultants is through hosting regular workshops or trainings. This would show manufacturers the value that an MEP center can provide, and would be an effective way to build customer relationships and demonstrate expertise. It would also give the MEP center a better understanding of the unique needs of each potential client. The vast majority of the manufacturers who participated in this study had never worked with a professional consultant before, and will not work with a consultant until they can clearly see how it will benefit their business. Learning about operational or business development through trainings could build trust and understanding.

The interviewed manufacturers also frequently mentioned the need for the MEP center to have a strong team of professionals. They mentioned that they would not necessarily be interested in the services of a consultant who was a university professor or a state employee, unless they had considerable private sector experience. They stressed that they would be looking at the résumé of the consultant to ensure they had experience working in private sector manufacturing, preferably within Alaska. As one interviewee put it, he has no interest in spending money to "hire a consultant to take my watch and then tell me what time it is". Many business owners interviewed would point out that they had been running their businesses for 10 or 20 years, and questioned what a consultant could provide to them when they have no direct experience with their industry sector.

Manufacturers outside of Anchorage stressed the importance of the MEP center having a local presence in their respective communities. They want someone who understands their local market and community (although larger operations were less concerned about this). It seemed that what was most important was that manufacturers wanted to be able to work with someone face to face. It is entirely possible that an Anchorage-only or Anchorage-centric approach could be effective as long as the team members maintain a frequent presence in other hub communities. NIST MEP will ultimately need to decide whether or not to maintain offices outside of Anchorage after doing a proper cost/benefit analysis, or rely on strategic partnerships.

A very high percentage of the interviewees stressed that the MEP center maintain confidentiality with its clients. These businesses flatly stated that they would not work with an MEP center that did not adhere to confidentiality and non-compete agreements. Some of the businesses had worked with other economic development professionals in the past and had felt that confidentiality was not always upheld. It is essential that the MEP center not be required to make certain details of their client engagements part of the public record. Furthermore, it would be

important to stress to clients the MEP center’s commitment to maintaining confidentiality and non-compete agreements, as this would be a key selling point to private sector firms.

ii. Findings by Sector

a. Beer, Wine, and Other Beverage Manufacturing

One bright spot in Alaska’s manufacturing economy is the beverage manufacturing sector. This is a sector that has seen tremendous employment growth in the last decade. Despite this trajectory, the sector still employs a small share of the state’s total manufacturing employees, with about 240 workers as discussed earlier. With proper guidance and support from an MEP center, however, it is possible for this sector to grow into a major contributor to the state’s overall manufacturing industry.

The project team interviewed nine businesses from within this sector as part of the study, and received participation from several more through the focus group process. These ranged from small craft breweries to the largest breweries in the state, as well as wineries, distilleries, and bottled water manufacturers. While the businesses cover a wide spectrum within their respective sector, they repeatedly raised several similar concerns, indicating that many of these businesses face the same challenges.

One of their major challenges is with capital financing. In total, four of the nine businesses interviewed specifically cited capital financing as a major concern. Many of the smaller breweries cited space constraints in their facilities limiting their growth. When looking to expand or upgrade their facilities, they have found it difficult to find financing. Many interviewees were at or near capacity with their existing space, and need capital investment to grow. An MEP center might be able to work with these companies to determine true space needs and possibly assist with maximizing their current usage.

Figure 14: Broken Tooth Brewing is one of Alaska’s Largest Brewers



Photo Courtesy of Josh Martinez

Many of the businesses in this sector expressed a need to improve their energy efficiency. One business mentioned that they were currently looking at working with an energy efficiency consultant, with a max budget of \$10,000. Many businesses thought that an energy efficiency report would be a useful service. Other businesses mentioned that if they were to work with a consultant, their budget would be in the \$2,000 to \$5,000 range. Unsurprisingly, many of the companies in this sector of manufacturing listed high utilities costs as a major barrier to their success and growth.

One brewing company in particular provided the consortium with detailed insights into the energy-related challenges of the business. Located approximately 100 miles north of Anchorage, this operation depends on expensive fuel oil for heating, as it lacks access to the much cheaper alternative, natural gas. Management noted that both power and heating costs are high, as the refrigeration required to maintain the product consumes large quantities of electricity and the local utility is unwilling to provide bulk pricing, a common practice with utilities in the lower 48. Meanwhile, the company has seen rapid growth and now distributes its beer in liquor stores and restaurants statewide, with a small but growing presence in Washington state as well. Despite this growth, the high facility costs—driven largely by energy—squeeze their profitability. At the time the interview was conducted, the business still earned about half of its profits from an affiliated restaurant catering to the visitor industry.

Another major challenge facing manufacturers in this sector is the high cost of raw materials and, related to that, the high cost of shipping. Nearly all manufacturers in this sector mentioned this as a primary challenge to growth.

Figure 15: Fermenting Wine at the Bear Creek Winery in Homer, Alaska



Photo Courtesy of Samuel Callen

Many of the smaller businesses in this sector expressed a need for general business support. Most lack a formal cost control review process, and simply needed assistance with general operating problems such as marketing and financial management. Another issue reiterated by a few of the smaller companies within this sector was that they are looking into ways to grow their business by expanding into the canning and bottling of their products. Some brewers have taken advantage of new-to-market inexpensive canning equipment, allowing for cheaper distribution of their product when the alternative is heavy glass bottles. This type of innovation may also present an opportunity for an MEP center to find the best solutions for this type of expanded processing.

In general, most of the businesses within this sector expressed an ethos of social and environmental responsibility. They seemed very open to the idea of receiving assistance with their operations, which is a sentiment not expressed by all manufacturing sectors in the state. This, combined with the recent growth within the sector, makes beverage manufacturing a prime candidate for receiving tailored assistance from an Alaska MEP center.

Key Takeaways:

- ❖ Energy efficiency is highly important to the sector
- ❖ Socially conscious industry sector open to receiving assistance
- ❖ Strong growth in previous decade
- ❖ Capital financing needs
- ❖ Many growth stage businesses
- ❖ Shipping/logistics challenges
- ❖ High potential for sales growth outside of Alaska
- ❖ Assistance accessing new markets needed

b. Oil, Gas and Mining Support – Metal Fabrication

On the basis of GDP, the largest sector of Alaska's manufacturing industry provides support to the oil, gas and mining industries, including metal fabrication services. Although the bulk of this GDP comes from the state's oil refining activities, the remaining manufacturing within this sector is still significant. Alaska's large oil companies consciously work with local suppliers, and these ancillary services are a major source of economic activity within the state. However, after speaking with industry experts, it quickly became apparent that Alaska is not in a position to be a major player within large oil companies' supply chains. Although Alaska suppliers receive a sizable share of the market, local suppliers are often filling the large oil companies' niche needs, with larger suppliers from out of state receiving more work. There are many reasons for this including:

- ❖ Many oil companies operate on large multinational contracts
- ❖ In many cases, Alaska companies lack the necessary economies of scale to reduce their prices to be competitive with out of state competitors
- ❖ Alaska companies sometimes lack key industry certifications that ensure quality control

Despite this, there is still an opportunity for Alaskan manufacturers to capture a larger portion of overall oil industry spending in the state, and to expand into new markets outside of the state. Where Alaskan manufacturers have found a niche is through producing the customizable products needed in the harshest environments in the world (specifically Alaska's North Slope). Some of the most successful manufacturers interviewed, and those with the most growth opportunities, were providing custom fabrication services to the major oil companies. The consortium came to believe that if the oil and gas support sector were to work closely with an MEP center, suppliers could effectively reduce their costs and improve quality. This would, in turn, allow them to capture a greater portion of the overall market in Alaska.

Three of the six businesses interviewed from the oil and gas and metal fabrication market sector stated explicitly that it was difficult to work with the large oil companies on major contracts. They often found that working with the oil companies meant dealing with specific regulations, demanding customers, and procurement processes with which they lacked the capacity to comply. These three manufacturers specifically mentioned that while they would like to work with the large oil companies, dealing with all of the paperwork and compliance involved is so onerous that it either prevents them from pursuing the work, or leads them to question whether or not the contracts are worth the administrative complexity.

In recent years the large oil companies have made an extra effort to source more supplies locally from Alaska. They have indicated that they consider it worthwhile to spend extra to buy locally because it highlights their support of local businesses, provides on-demand supplies, and builds goodwill from the community. Some of the largest oil companies in the state have already begun to institute a formalized local preference on contracts, or are exploring establishing one. The oil companies employ supply auditors and Alaskan employees who are responsible for overseeing their suppliers and working with them to ensure compliance. Given this, there may be an opportunity for oil companies, suppliers, and the MEP center to work together. This opportunity will be discussed in greater detail later in the report.

Many of the companies within this sector had higher than average annual revenues. Of the six companies interviewed, four had annual revenues in excess of \$5 million, indicating that they possessed the financial capacity to pay for high-level MEP services. Additionally, many companies in this sector have expressed an interest in ISO certification – although most classified it as non-essential at the present moment. Despite saying this, however, most seemed to understand that the oil majors may require ISO certification in the future. The manufacturers in this sector also identified CAD training as a skill they would like to incorporate into their

operations on a more advanced scale. Other services that this sector mentioned they would like to see in an Alaska MEP center include:

- ❖ Marketing assistance, specifically internet marketing
- ❖ Cost control assistance
- ❖ Business succession planning
- ❖ Health/safety training
- ❖ Experience in international markets (regulatory issues)
- ❖ Lean manufacturing training

As with most other sectors of the manufacturing industry, those that manufacture for the oil, gas and mining industries spoke of the high cost of shipping as a major barrier to their expansion outside of Alaska. Despite the major challenge posed by shipping, many manufacturers have managed to capture sales outside of the state, and in some cases even outside of the country, making sales to Canada, South Korea, Iraq, Australia, Russia, and Africa, among others. They have been able to capture this market outside of Alaska by focusing on making products that are differentiated. Many successful products are being especially tailored for use in harsh climates and remote settings similar to those found in Alaska.

Many companies from this sector expressed an interest in an efficiency report that would look at areas of waste and energy savings. Given the high cost of business in Alaska, and the high energy requirements of manufacturing firms, this is not surprising. Streamlining operations and getting firms as energy efficient as possible may allow them to capture additional out-of-state sales.

c. Fish Processing

The consortium found the seafood processing sector somewhat difficult to engage through the interview process. This was due to several factors, including the remote location of many facilities and the study coinciding with the busy fish harvesting season. Nonetheless, seven seafood processing companies ultimately consented to interviews or joined in focus group discussions, and stakeholders (such as MAP) provided additional information on the needs of this sector.

As with other Alaskan commodities, fisheries in the state have long been dominated by outside companies, and most of the workforce in the processing facilities is non-resident. Generally, little processing actually takes place in Alaska's largest operations, as fish are "headed and gutted" and then sent to the Lower 48 or East Asia for further processing and packaging. Little value is added in-state, as a result. To a large extent, this reflects two factors: the high cost of energy (especially in the remote sites where much fishing takes place) and the limited workforce, as most jobs are seasonal and fishing communities have small populations. Thus, economic developers in Alaska have often remarked that fish processing has a relatively small positive

impact on the state's economy compared to the size of the resource (the state supplies most of the world's supply of wild salmon, for instance). Various initiatives over the years have sought to change this dynamic and bring more value added processing to the state, such as a failed operation in South Anchorage.

The largest operators in the state, such as Ocean Beauty, Icicle, and Trident, run processing facilities with hundreds of employees. Many are headquartered in the Pacific Northwest outside Alaska, and have extensive in-house technical and operational resources. They are thus unlikely to seek guidance from an Alaska MEP center, although they may under some circumstances. The project consortium found several smaller processing operations which are more likely future clients for the center, however. A number of small processors have emerged in recent years, focusing on value added products such as pickled or smoked fish. These are often family-run firms with fewer than 10 employees, and they tend to have significant needs with regard to business development, quality assurance, technology, and operations.

As seafood is a perishable product, significant expense goes into preserving it. Processes such as smoking have the potential to introduce contamination that can make the fish unsuitable for market. The consortium repeatedly found that small processors need training in this area, as well as in the transportation and marketing of finished product. These small businesses are often seeking ways to sell their products to retailers as well. Additionally, many suffer from high energy costs and seek ways to increase efficiency. Currently, MAP is able to provide services geared to help meet these needs, and would make a strong partner or sub-award recipient for an MEP center.

d. Other Manufacturing

The project team found that Alaska manufacturers are an extremely diverse group, many of whom do not fit into a predefined group. These unique manufacturers were included under "other manufacturing." They mainly serve very unique, niche markets.

Most of the manufacturers interviewed in this sector were small companies, often with revenues of less than \$1,000,000 annually. While most "other manufacturing" businesses are small, there are a few large (by local standards) businesses in the group (those with sales well above \$5 million annually). To achieve satisfactory performance the MEP center will have to work with manufacturers of all sizes, but these large manufacturers are of special interest as they possess a greater ability to pay for services. Because of this, the analysis of "other manufacturers" will emphasize the results of those large manufacturers more than their smaller counterparts.

Market Description

“Other manufacturers” includes a wide array of businesses. Below is a partial list of the products produced by the businesses interviewed for the study. It is not a comprehensive list, however, as there are many more products than are listed below:

- ❖ Windows
- ❖ Boats
- ❖ Asphalt Polymer
- ❖ Insulated Construction Panels
- ❖ Potato Chips
- ❖ Clothing
- ❖ Pet Food
- ❖ Sauces
- ❖ Countertops
- ❖ Yurts
- ❖ Soaps
- ❖ Signs
- ❖ Wooden Bowls
- ❖ Timber Products

The “other manufacturing” sector exhibited characteristics the consortium found surprising. There were a substantial number of companies that have made international sales, although in most cases this represented a small fraction of the company’s overall sales, with notable exceptions. The most successful companies at capturing international sales (as well as out of state sales) focused on either building repeat sales from the tourism industry (after visitors had returned home), or on creating a product that was especially suited for places similar to Alaska. One example is an Alaska manufacturer of yurts, portable canvas-based shelter units. The company capitalizes on the fact that its yurts are designed specifically for Alaska’s harsh environment. As a result of this specialization, the company has been able to break into markets in the Lower 48 and internationally.

Figure 16: Alaska Tough Yurts Manufactures Yurts from its Facility in Homer, Alaska.



Challenges

Businesses within this sector expressed many of the same challenges echoed by other manufacturers across the state: Alaska’s logistical challenges, the lack of a home market, and the high cost of energy. In addition to these, many of the businesses described challenges that could be classified as general business challenges, rather than specific to manufacturing. The challenges mentioned by “other” manufacturers include:

- ❖ Marketing/informing consumers
- ❖ High shipping costs
- ❖ Lack of a home market
- ❖ Lack of floor space
- ❖ Product labeling/regulation
- ❖ Entering new markets
- ❖ Retail placement
- ❖ High energy costs
- ❖ Lack of financing
- ❖ Labor issues (high cost, lack of skilled labor)
- ❖ Long lead times (acquiring supplies)

Many businesses within this sector are also interested in marketing assistance. For retail manufacturers that focus on the tourism industry, marketing assistance generally meant help with online marketing, such as the development of a quality website, search engine optimization (SEO), and pay-per-click advertising. These businesses believed that a stronger online presence would help them reach a national or international market in a cost-effective manner.

For other businesses, marketing assistance meant something entirely different. For instance, those within the retail food manufacturing sector expressed frustration with the high slotting fees required to gain prime space in retail grocers. They also mentioned that many of the state’s large grocery chains no longer have local representatives in Alaska, making it difficult to access store marketing personnel or organize promotional offers. One local snack food manufacturer mentioned that he has been unable to offer a promotion on his products in two of Alaska’s major grocers for nearly six years. Some businesses expressed marketing needs that were essentially forms of networking or “word of mouth” referrals to key buyers of goods such as aircraft components. Having an MEP center that could connect them with potential customers in other markets may be quite beneficial to these owners as they look to grow their sales.

Opportunities

These challenges present several opportunity areas for an MEP center. Many of the services the “other manufacturers” thought an MEP center should offer, like general marketing or financial management, are currently being offered by other organizations, such as the Alaska Small Business Development Center. As a result, the MEP center may provide these services in partnership with these other support organizations, rather than directly. Nonetheless, the services that were most in-demand from this sector include the following:

- ❖ Lean training
- ❖ Backhaul shipping agreement
- ❖ Energy efficiency
- ❖ Financing assistance
- ❖ Inventory control
- ❖ Export assistance
- ❖ Support for a “buy local” campaign
- ❖ Marketing assistance
- ❖ Renewable energy/energy efficiency
- ❖ Safety planning (HACCP)
- ❖ General business counseling
- ❖ Product testing and certification (organic labelling)

One issue that the interviewed businesses frequently raised was the significant challenge in selling their products overseas. Businesses pointed toward the complex regulatory framework governing international shipping and sales. Many businesses viewed these regulations as being so onerous that it simply wasn't worth their time to sell internationally. One business even described being approached for a large international order but ultimately turning it down. The owners determined that the risks involved, and the time commitment necessary to understand the regulations, simply made the sale prohibitive. The owner expressed a belief that it would have been valuable to be able to work with an organization that understands selling products overseas, including the regulatory environment. Such assistance may have been all that was needed in order to make the sale.

Product testing, certification, and labeling were another hot-button area for Alaska's manufacturers. Businesses from food service, to oil and gas support, to building construction all mentioned the importance of product testing. Specifically, businesses mentioned that in many cases, the cost of obtaining the necessary product testing and certification is simply too high for them. Multiple food manufacturers, for instance, said they would like to pursue “organic” certification, but that the process is complicated and expensive. Other businesses within the modular building construction sector mentioned the high cost of product testing necessary to compete in residential housing markets. One business said that to get their products the necessary certifications required to meet the residential building codes would cost nearly \$875,000. Businesses from all sectors believed that there might be an opportunity for some of this testing to be conducted by the university, and that this might allow these certifications to become more affordable and attainable in certain instances.

Businesses within this sector seemed open to the idea of a membership-based agreement with an Alaska MEP center. They felt that it would be important to have someone to facilitate a dialogue among Alaskan manufacturers. Networking events, sharing of best practices, and the hosting of statewide conferences would all be useful ways to start this dialogue. Businesses expressed a desire to receive regular updates from an MEP center, potentially through a newsletter. They felt that it would be important for a newsletter to focus on the successes of Alaska's manufacturers, updates on new products and services, and sharing best practices. A useful idea could also be to bundle a certain number of prepaid services/hours along with an annual membership to the MEP

center. This would allow all members to receive some amount of customized assistance, a concept which will be discussed later in the report.

Desired MEP Center Characteristics

The “other manufacturing” sector also expressed opinions on what they would want from an MEP center. As with the other sectors, confidentiality was high on their list. Many businesses stated that in order to work with an MEP center they would need to be absolutely certain that the center would maintain confidentiality. Many of them have trade secrets that are the backbone of their success, and they would not pursue any service that would potentially compromise that. In addition to confidentiality, an MEP center could win over the business of this sector with the following:

- ❖ Clear cost/benefit of services
- ❖ Proven industry experience
- ❖ Networking facilitation
- ❖ A membership program for services
- ❖ Nondisclosure agreements
- ❖ Distancing themselves from the federal government
- ❖ Excellent customer service

The findings indicated that most businesses within this sector do not have a significant ability to pay for the services of an MEP center. Most client engagements within this sector would likely need to cost less than \$2,000 per engagement. However, it is worth noting that a few of the companies who are seeking more in-depth services, such as product testing, would be in a position to pay much more than that for services.

Ultimately, the businesses within this sector, like other manufacturing businesses, need a clearly articulated benefit to work with an MEP center. Businesses said that they need to see a tangible deliverable that will improve their profitability. One business stated that for him to work with an MEP center, he would need to be presented with a service that had a clear action and implementation plan, rather than something hypothetical that may never be put into action.

Lastly, many interviewees simply wanted to see an MEP center that provided excellent customer service and operated in a professional manner. Several had worked with previous Alaska MEP centers and mentioned that poor customer service was a major turnoff. Businesses spoke of unreturned phone calls, unclear pricing of services, and a lack of follow-through as common, undesirable practices in previous public sector engagement, emphasizing the need for professionalism.

E. Advisory Group Input

As part of the manufacturing study, the consortium assembled an Advisory Group to provide guidance from the economic development community, insights on the current state of Alaska manufacturing, and feedback on the ultimate structure of an Alaska MEP center. The advisory group met both within structured group meetings, as well as individually and through emails and

phone conversations. Altogether the project team assembled three advisory group meetings, and put together a team of 11 advisory group members. The advisory group consisted primarily of private sector managers with manufacturing knowledge. A full list of advisory group members (with a short description of each) can be found in Appendix 1 on page 106.

Overall Feelings toward an Alaska MEP Center

Overall the advisory group felt the prospects for a new Alaska MEP center are mixed. Many members expressed significant skepticism toward the idea. Their prevailing questions were:

1. Can an MEP center in Alaska ever be financially sustainable (or generate enough fees to cover costs)?
2. Can an MEP center realistically generate metrics that would be considered “good” by NIST MEP’s current standards?
3. Is there significant demand for MEP center services from the manufacturing community in Alaska?
4. Is any strategy viable to keep growing manufacturers in Alaska? (The group cited specific instances of Alaska manufacturers leaving the state because of high costs.)
5. Is there any way for an MEP center to address Alaska’s major issues restricting manufacturing, namely the high cost of logistics and the small in-state market?

One of the biggest concerns the group raised was that once companies were successful and their manufacturing operations reached a certain size they would leave the state. Members questioned the ability of an MEP center to keep these businesses in the state in the face of high labor, logistics, and energy costs. This concern mirrored what many businesses said during the interview process: managers and owners often remarked that if they were serious about growth, they would establish a manufacturing facility in the Lower 48, where costs are almost always lower. The advisory group echoed the conventional wisdom that a successful manufacturer in Alaska will ultimately reach a point in which, to be competitive, it will establish a manufacturing facility in the Lower 48 to reduce costs. These businesses could then service the (small) Alaska demand from their Lower 48 facilities, ultimately making their Alaska operations unnecessary. One of Alaska’s most celebrated manufacturers in recent years, Yummy Chummies (a manufacturer of salmon-based dog treats) found this to be the case. The company grew and ultimately moved their operations to Arizona. The advisory group pondered how an MEP center could effectively stop this from happening. Would an MEP center really reduce costs enough to help Alaska’s manufacturers grow and remain in-state for the long-term?

The study found that Alaska has potential to grow by focusing on those sectors where manufacturers are less able to move their operations out of state to meet market demand. Custom services for the oil industry, and fish processing, are two of these key opportunity areas. Fish require a certain level of processing to be completed quickly after catching, which naturally must occur in-state due to time sensitivity. Likewise, the large nature of the equipment used by the oil

industry makes it prohibitively expensive to ship these items to Alaska as a finished product, which allows Alaskan manufacturers to be somewhat competitive on a price basis. Furthermore, Alaskan companies have the opportunity to capture this market due to their proximity to the oil fields (allowing for quick response to oil field needs).

While some advisory group members questioned the ability of an MEP center to reduce shipping and logistics costs for Alaskan manufacturers, several promising ideas emerged. One member pointed out that an Anchorage-based organization was able to successfully negotiate consolidated backhaul shipping rates in the 1990's. Given that this model has been implemented before, it is possible that, with the right team and structure in place, it could be revived.

The advisory group also agreed that it would be important to assess which of the state's economic development organizations have the capacity to handle and manage an MEP center. Members stressed the need to determine which organizations have the financial capacity to host an MEP center, and which ones have a proven track record of working with private sector businesses, obtaining fee revenue, and working on large private sector contracts. These were all attributes that the group identified as essential for an MEP center host.

The advisory group discussions also revealed the following findings:

- ❖ The limited size of the in-state market should be seen as a significant growth barrier. Alaska manufacturers must find creative ways to grow sales out of state.
- ❖ It will be important to partner with provider organizations like the SBDC, given that many of Alaska's manufacturers are small and also need generalized business services like financial management and marketing.
- ❖ Given the small size of the industry in Alaska and a limited appetite to match the federal investment, the group recommended exploring the option of an MEP center funded below the \$500,000 level.

F. Focus Group Findings

The project analysis also involved conducting several targeted focus groups across the state. Ultimately, seven focus groups were held. Focus groups covered the Interior, Southcentral, Southeast, and Southwest regions, and the consortium attempted to build dialogs around predefined themes when possible, such as an industry sector or export orientation. The focus groups included the following:

- ❖ Kodiak Manufacturers Roundtable
- ❖ Anchorage (Food and Beverage Roundtable)
- ❖ Anchorage (Metalworkers and Fabricators Roundtable)
- ❖ Anchorage (Exporters Roundtable)
- ❖ Juneau Manufacturers Roundtable (Two separate roundtables conducted)
- ❖ Fairbanks Manufacturers Roundtable (Mixed export and general focus)

i. Kodiak Focus Group

The Juneau Economic Development Council conducted a focus group in Kodiak. It had limited participation, with only three attendees. The participants included Kodiak Island Brewing, Made in Kodiak, and the Kodiak Chamber of Commerce³⁰. Due to the focus group being held in the summer, the busiest time for the fishing industry, most of the fishing businesses in the area were too busy to attend. Ultimately, the focus group identified three major challenges. These three challenges echoed what had been heard from other businesses and stakeholders engaged during the study:

- ❖ Shipping
- ❖ Cost of utilities
- ❖ Limited local market

The focus group identified the services and expertise that would be most useful to helping their businesses access markets outside of Alaska. While the group identified issues similar to those discussed throughout the study, some novel ideas emerged as well. Major points include:

- ❖ Trade services co-op: Business consumers of trade services such as electricians or plumbers could collectively employ a person or group who are cross trained in trade services.
- ❖ Shipping co-op
- ❖ General business consulting services
- ❖ Marketing assistance

Marketing and general business consulting assistance (such as financial management, business plan writing, human resources assistance) were mentioned by other manufacturers throughout this study as items of interest. The idea of a shipping co-op also gained traction from Alaska's manufacturers, both for purchasing of raw materials as well as the exporting of finished goods. One of the new ideas raised during this focus group was a trade services cooperative. Many businesses in small communities like Kodiak need trade services, such as electricians and plumbers, but no individual business has enough work (or budget) to justify hiring one of these employees in-house full-time. The focus group thought that an MEP center might be able to facilitate the bringing together of different businesses to hire these trade services as a cooperative to enhance price competitiveness.

When asked what types training programs would be most valuable for managers and employees, the Kodiak focus group put a strong emphasis on food safety training. In particular, the group highlighted food safety training and food handling training. They also mentioned that

³⁰ It should be noted that all focus groups attempted to maximize participation from manufacturing businesses themselves, but in some instances the consortium permitted other types of organizations to join the dialog if they were able to provide a business perspective.

accounting, forklift training, and CAD training would all be useful. Food safety training makes sense given that so many businesses in Kodiak are involved in fish processing (including fish smoking and value-added processing) and other food-related fields. This may be an area of opportunity for an MEP center operating in the region.

Ultimately, the participants in the Kodiak focus group expressed a common goal of greater collaboration and cooperation amongst area businesses. They felt that an MEP center could facilitate this common goal. They even discussed the idea of different independent businesses sharing shop or retail space, which is already occurring with some businesses in Kodiak.

Participants also discussed the general inability of local businesses to pay for consulting services. Kodiak businesses also expressed little interest in exporting simply due to the logistics involved. Businesses were more focused on growing their local market share, although the local market is small (the city has roughly 6,000 residents).

ii. Fairbanks Focus Group

The World Trade Center Alaska hosted a manufacturers' roundtable in Fairbanks in June of 2014. This focus group also received limited participation, with only three attendees. Those in attendance included Superior Pellet Fuels, Hoffer Glass, and the Fairbanks representative from the Small Business Development Center, who frequently works with area manufacturers. The following challenges were identified by the Fairbanks focus group:

- ❖ Workforce challenges
- ❖ Energy costs
- ❖ Raw materials costs
- ❖ Transportation costs

Businesses mentioned serious workforce issues facing their companies. These issues included a lack of available, skilled labor in the area, as well as the high cost of labor in Interior Alaska. Manufacturers also identified the high cost of energy as a major barrier to growth. The climate in Fairbanks is cold even by Alaska standards, with winter temperatures regularly as low as -50 degrees Fahrenheit. Making matters worse, most facilities require the use of heating oil, which is significantly more expensive than the natural gas available in Southcentral Alaska. As identified elsewhere in the study, businesses also described the high cost of raw materials as a major barrier to growth.

While a discussion of logistical challenges once more emerged from the dialog, one attendee mentioned that the state's high shipping costs were actually one of his company's greatest assets. This is due to the fact that his business is able to source its materials – wood for pellets to be burned in stoves – locally. Outside competitors therefore would have a difficult time competing by shipping heavy wood products to Alaska. So, for at least one attendee, high shipping costs have actually allowed for carving out a niche in the local market.

Attendees identified some important areas in which they felt that an MEP center could offer training or provide services. One potential training area is in industrial safety. Additionally, businesses felt that assistance with identifying potential customers, especially outside of Alaska, would be a valuable service that an MEP center could provide.

iii. Juneau Focus Groups

As part of the MEP center planning study, the Juneau Economic Development Council hosted two manufacturers' focus groups in Juneau. The first had three attendees, while the second had one. Additionally, one manufacturer (who was unable to attend) filled out an online form providing answers to the questions that were offered at the JEDC roundtable discussions. In total, the four attendees included the following businesses:

- ❖ Transparent Devices
- ❖ Timemachinist Watches
- ❖ Capitol Embroidery
- ❖ Alaska Litho

As with most of the manufacturers contacted for this study, one of the primary issues raised at the Juneau focus groups was that of shipping and logistics costs. Juneau businesses identified the high cost of shipping (both bringing items in and shipping them out) as one of the biggest barriers to growth. They also noted how certain suppliers refuse to ship materials using the US Postal Service, which can prohibit working with that supplier due to the high shipping rates of the alternative shippers – FedEx and UPS.

The participants also mentioned several other barriers to growth including the lack of available technical services (such as machining), labor gaps and shortages, and real estate costs. Manufacturers remarked upon both a lack of available labor as well as the high cost associated with finding the right employees for the job.

When asked about which MEP center services would be most useful, participating businesses focused on a few key areas. They often mentioned that access to a local expert familiar with the manufacturing industry and its nuances could be useful. Businesses also stated that marketing services would be useful, specifically help in making the necessary connections to outside markets. Lastly, businesses described the need to access to legal assistance from attorneys and other experts who understand the intellectual property and patent process.

iv. Anchorage Focus Groups

As part of the study, the UACED contracted with the Anchorage Economic Development Corporation (AEDC) to host two manufacturer's roundtables in Anchorage, and the World Trade Center of Alaska (WTCAK) hosted a third group. One of these roundtables focused on food and beverage manufacturing, one on exporting, and the other on metalworking and fabrication. While many of the roundtable results echoed the responses received from manufacturer interviews, they

also unearthed a few new pieces of information. The focus group participants were asked three questions:

- ❖ What are the biggest challenges facing you as a manufacturer in Alaska?
- ❖ What types of services or expertise do you need to help your business access markets outside of Alaska?
- ❖ What types of training or educational programs would help strengthen your core employees and managers?

What are the biggest challenges facing you as a manufacturer in Alaska?

Manufacturers from all three sessions again identified shipping costs as the major hurdle to growth. Once more, participants suggested the cooperative or shipping consolidation to decrease costs. The chief disadvantage to this would be that it may allow their in-state competitors to gain access to the same quantity discounts and proprietary information that give some businesses a competitive advantage within Alaska.

Along a similar line, many manufacturers cited inventory management as a major issue. Some claimed to be holding two to four times as much raw material at any given time than their competitors in the Lower 48. This is a direct result of trying to balance the desire to get quantity discounts (buying in bulk) with the need to reduce their inventory loads. Businesses then suffer for carrying large inventories because this practice ties up extra floor space as well as working capital, straining both their finances as well as physical space. If businesses increase their space to accommodate for increased inventories, they then are forced into paying higher local business property taxes, which drives up costs further. Food manufacturers are particularly sensitive to inventory issues, as many of the supplies they work with are perishable. For them, inventory spoilage can also become an issue. Quite simply, Alaskan manufacturers have to anticipate upcoming demand better than their Lower 48 counterparts.

Many food manufacturers expressed difficulty working with retail stores to get their products on the shelves. In some cases the Alaskan manufacturer is too small to get any serious traction when it comes to promoting their products. Many had positive thoughts about the Made in Alaska and Alaska Grown programs, but felt that they had lost momentum as effective marketing platforms in recent years. Furthermore, attendees at the metal fabricators focus group mentioned that a difficulty in obtaining “net thirty” trade credit with suppliers was a major concern that they could use help with.

Challenges specifically cited during the exporters roundtable centered on the various challenges involved in sending products overseas. Attendees said that receiving transportation and logistics assistance would be valuable to helping their businesses grow. Also, receiving assistance with international, national, and local certifications was another issue mentioned by attendees. Lastly, exporting manufacturers mentioned that they would be particularly interested in seeing assistance and training in customs for first-time exporters.

Figure 17: The Made in Alaska Program (Logo seen below) has been viewed as a success by the state’s manufacturers



What types of services or expertise do you need to help your business access markets outside of Alaska?

In response to this question, participants discussed the importance of having the state government support manufacturers. Participants felt that the state government may be able to advocate or provide subsidized freight or marketing assistance. The group expressed interest in a model similar to the Alaska Seafood Marketing Institute (a state-run marketing entity for seafood), but for manufacturers. Metal fabricators shared a need for assistance in navigating the complex domain of international sales, including regulations and tariffs.

Participants felt that substantial opportunities for growth still existed in the in-state market, even if it is small, on the theory that if manufacturers are able to build their capacity within the state they will become competitive in other markets too. Some businesses shared that there is little if any market for used production equipment in the state, and therefore manufacturers have to often look out of state and purchase new equipment at high cost. One piece of equipment identified by several food producers as being on their “wish lists” was a nitrogen generator which would help to extend the shelf life of their products.

The general feeling amongst participants was that out of state markets could be accessed, but that many struggle to locate specific sales channels. Services to identify new markets for expansion would be a useful MEP center service. Businesses also expressed a need for assistance with correctly filling out the paperwork required for accessing the federal System for Award Management (SAM). Many of those within the food services group also mentioned that receiving HACCP training would be quite useful. Metal fabricators mentioned that receiving ISO certification would improve their ability to export internationally.

What types of training or educational programs would help strengthen your core employees and managers?

Participants in the food manufacturers' session indicated that they felt that better training is needed for state and municipal inspectors. They mentioned that they have no issue with attempting to meet regulatory standards, but that a lack of consistency and guidance makes achieving this goal difficult. Furthermore, food manufacturers mentioned attaining organic certification as a concern for them at the current time. Local manufacturers view this as a major benefit and it is something that several are currently pursuing. Given that there are no certified organic inspectors in Alaska, this certification adds \$8,000-\$10,000 to their annual costs. Working to have a local certified inspector, whether at the MEP center or through a partner organization, was seen as a realistic goal.

Many participants mentioned that finding local technicians to work on their machinery is difficult, including refrigeration systems and seafood processing equipment. Participants also mentioned that they would like to see people trained in commercial production, such as wholesale baking, bulk recipes, and food safety. Some cited food science training, such as baking, confections, and brewing.

Participants from the fabrication roundtable said they needed employees trained in skills such as computer coding, CAD, and website design and maintenance. Many participants mentioned web design specifically, as they understand the importance of a strong web presence, but do not fully know how to drive traffic to their site or optimize their exposure through search engines.

Figure 18: A Metalworkers Roundtable was held in Anchorage as part of the Study



Photo Courtesy of Seanna O'Sullivan, STEELFAB pictured above

G. Test Assessment

In addition to the focus groups, interviews, and secondary research, the consortium also sought a test engagement with an Alaska manufacturer. The team believed that witnessing (or participating in) a client engagement would help Alaska stakeholder see tangible value in MEP center services. Through NIST MEP staff, the consortium found that Impact Washington (the MEP center for Washington) had begun working with an Anchorage-based window manufacturer. Impact Washington and the client agreed to permit the team to observe the assessment process and review the final report.

The company specializes in the manufacturing of windows designed for cold climates, and currently sells in both residential and commercial markets in Alaska. Although noted for building a premium product, management indicated that cost competitiveness was a problem, as cheaper windows can be manufactured out of state and shipped to Alaska. The company was looking for ways to gain a greater share of the state market, as well as eventually export windows out of state, on the strength of its high quality. To do this, management saw a need to streamline operations to cut costs. Although familiar with lean principles, the staff had not implemented a lean production model, and they sought Impact Washington's help in the first step: an in-depth assessment.

The Impact Washington consultant spent three days at the facility recording each step of the production process, from taking an order to delivery of a finished window. She identified numerous opportunities to introduce greater efficiency, including reducing the number of steps each employee takes by getting smaller work stations and placing tools closer to them. She located bottlenecks in the production process and suggested refinements to improve them. While management had wondered whether a larger facility might be necessary, Impact Washington found that it would probably not be justified in terms of expense. However, with a disciplined lean implementation, the company could likely increase its daily output by as much as 80%.

The experience was notable for the consortium because it led to a basic but important insight: while lean and similar process improvements are common in most of the country, Alaska manufacturers have less exposure to best practices. As such, an MEP center can provide significant value to in state businesses simply by helping to implement process improvements that are common elsewhere, but largely unheard of in Alaska (the majority of interview subjects had never heard of lean, for instance).

V. Business Model

A. Analysis of Comparable MEP Centers

A key component of the project consortium's analysis was the evaluation of the business models of other MEP center programs across the country. The consortium focused specifically on other MEP centers that shared similar characteristics to Alaska: distance from key markets, sparse population, supply chain challenges, and states with a resource extraction focus. As a result, the project consortium focused specifically on the following MEP centers considered peers to an Alaska MEP center: Hawaii, Montana, Wyoming, and West Virginia. Each analysis of external MEP centers focused on identifying potential areas for implementation of best practices within the Alaska MEP center.

i. Innovate Hawaii

For the purposes of this study, the consortium spoke at length with Wayne Inouye, director of Innovate Hawaii. After speaking with Mr. Inouye and studying the program's resources such as their panel report and web based resources, the team drew several conclusions regarding possible implementation strategies, lessons learned, and best practices for the establishment of an Alaska MEP center.

In many ways, Hawaii shares similar challenges to Alaska regarding its manufacturing industry. Hawaii is geographically isolated, facing severe logistic and supply chain issues (perhaps even more so than Alaska, given the greater distance from the contiguous states). Furthermore, the state lacks large manufacturers on the scale of Alaska's seafood processors, and its manufacturing base consists mostly of small manufacturing businesses, as discussed in Section IV. In the case of Hawaii, these small operators are often rural food manufacturing operations. Like Alaska, many islands and portions of the population are only accessible by airplane or boat, making it difficult to craft an entire statewide strategy for an MEP center. The state does, however, have a larger local market (overall population is nearly twice that of Alaska) providing a larger market for the purposes of import substitution and scalability, at least in principle. Furthermore, Hawaii also contains a substantial indigenous population, which creates political and social dynamics similar to those found in Alaska, including the presence of indigenous community-owned business entities.

The consortium learned that Innovate Hawaii employs many strategies to meet performance objectives in a challenging market. First, the center focuses on high market penetration, working with many small manufacturers, but generally raising the bulk of the program's income from larger manufacturers. This approach provided several benefits to Innovate Hawaii: improving the number of new clients brought into their network; increasing the total number of clients on an annual basis; and enhancing overall metric scores with NIST MEP in a few key areas.

The organization has also found a successful niche with its Small Business Innovation Research (SBIR) matching grant. The center coordinates their efforts with small businesses conducting

research and development projects and guides them through the SBIR program. Under this arrangement, the businesses receiving the federal SBIR funding also receive a matching contribution from the State of Hawaii through Innovate Hawaii, which counts as non-federal cost share.

Innovate Hawaii is operated by Hawaii High Technology Development Corporation, a state government agency. Strong support from the state government has been instrumental to Innovate Hawaii's ongoing success as an MEP center. The program operates only out of Hawaii's capital and largest city, Honolulu, with a project office on Maui and relies on partnerships to conduct outreach in the other parts of the state. Specifically, it relies on partnerships with trade associations to build connections on other islands and increase Innovate Hawaii's statewide footprint.

Mr. Inouye explained that in the past, Innovate Hawaii performed most services in house. They had approximately a half dozen personnel on staff to perform these services. However they found that they lacked the ability to deliver on the specific services that were in demand. Furthermore, they had a large staff that drove costs unnecessarily upward, as service demands and staff expertise did not always align. As a result, they have restructured their program to a third-party provider mode, with about 90% of services delivered this way. They have spent several years working to build a network of providers to serve the needs of local manufacturers. As a state agency, this had to be accomplished through a competitive bid process. However, after a year and a half of work they were able to build the provider network up to a list of nearly two dozen different entities.³¹

Innovate Hawaii has worked to build partnerships with the University of Hawaii Manoa and other Hawaii institutes of higher learning, as well as the Hawaii Chamber of Commerce. This has allowed the program to generate some in-kind match, and it has allowed them to help spread the word about their services to a wider audience.

Originally, Hawaii focused on pushing services such as lean training and other "trendy" certifications, processes, and trainings. However, there were not enough manufacturers who actually could benefit from these services or see the value from them to make it worthwhile. Most manufacturers had only a small number of employees and so they did not stand to benefit much from the trainings offered. However, they will still perform evaluations for manufacturers and implement lean processes when possible.

Currently Hawaii has found that the major demand is with food safety training. HACCP training is a major issue in Hawaii, as companies like Wal-Mart, Costco, and others are requiring certain safety standards to be met in order to sell products on their store shelves. This is the main training course offered by Innovate Hawaii at the current moment. This is a training that has

³¹ Interview with Wayne Inouye, Innovate Hawaii, April 9, 2014

been identified as a need in Alaska as well with local food manufacturers looking to get their products carried on store shelves of the major chains.

Key Takeaways

Discussions with Innovate Hawaii led to several key takeaways to inform the creation of an Alaska MEP center:

- ❖ They experienced weak demand for lean and other common MEP trainings.
- ❖ They operate out of a single office and rely on partnerships to reach isolated communities.
- ❖ They focus a lot of their energy on smaller “mom and pop” businesses so they can expand their reach and improve their metrics.
- ❖ Having strong support from the state government is crucial.
- ❖ Operating as a state entity can impose additional burdens on the organization, reducing their overall flexibility.

ii. Montana Manufacturing Extension Center

As part of the analysis of comparable centers the consortium also reached out to Steve Holland with the Montana Manufacturing Extension Center (MMEC). Much like Alaska, Montana is faced with a highly rural, sparse population and an economy centered on resource extraction. The state is also relatively distant from the large population centers of the East and West Coasts, although not to the same extreme as Alaska. Nonetheless the consortium determined that Montana would serve as a useful comparative model for the Alaska MEP center.

MMEC operates on a university-based model. The center is housed in the College of Engineering at Montana State University, Bozeman, and also maintains satellite offices in other cities and colleges across the state. One of the particular areas of interest for MMEC is the University Technical Assistance Program (UTAP), which allows the center to draw on the expertise of the graduate students at Montana State University. The university students gain real-world skills under the supervision of a professional on MMEC’s staff.³² The UTAP program has grown to the point of even being able to work on lean manufacturing implementation, shop rate models, business development, and other extensive services.

One of the most beneficial aspects to the UTAP program is its ability to immerse a staff member on a client engagement, without significantly driving up the cost of a project. The advent of student workers allows the MEP center to keep its overall costs lower and to provide services to more clients across the state, and delivering better results and higher market penetration in the process. It is an advantageous model that warrants serious consideration within Alaska, regardless of whether or not the university hosts the MEP center.

³² Montana Manufacturing Extension Center, Operating Plan, July 1, 2014 – June 30, 2015, Version 2.2

MMEC focuses on delivering services and workshops with in-house expertise. The program utilizes a small number of third party providers, and undergoes a strict process to ensure that all third party providers delivering only the highest quality services. The center has been able to successfully generate new client leads through their e-newsletter distribution, workshops, and other partner events across the state. MMEC finds the workshops especially useful in generating new clients, as it gives them an opportunity to interact with business owners and demonstrate the benefits that can be realized through working with the center. The staff has found that workshop attendees frequently become clients of the organization. This is likely a strategy that could be utilized successfully in an Alaska MEP center.

Another useful outreach strategy is MMEC's biennial state-wide manufacturers' conference. This conference brings together manufacturers from across the state for an event featuring trainings, best practices exposure, and the opportunity to network with businesses and providers. This is yet another opportunity for the center to generate new client leads.

MMEC has also made it a focal point to work with clients and prepare them for the NIST MEP survey by dispatching an MEP center field engineer to work with the business in preparation for the survey. This helps to ensure that results are properly accounted for and that businesses understand the various items included in the survey. Furthermore, it helps to guarantee that no client fails to fill out the survey, and that all information gets fairly reported.

Key Takeaways

- ❖ Partnering with the university and employing graduate students can be an effective way to deliver reduced-cost services to clients.
- ❖ Hosting workshops and conferences can be an effective marketing tool.
- ❖ It is important to prepare clients for the NIST MEP survey in order to ensure accuracy of results.

iii. Manufacturing-Works

Manufacturing-Works is another MEP center that was identified as a reasonably comparable center for evaluation. Wyoming, much like Alaska and Montana, has an economy that is heavily dependent on resource extraction. Likewise, Wyoming faces similar challenges resulting from a small, heavily rural population. Much like Montana, Wyoming faces long supply chains and distance from markets, but to a lesser extent than Alaska. While not a perfect comparison, Manufacturing-Works provided key insights for analysis given Wyoming's many similarities to Alaska.

Manufacturing-Works has shown considerable success in building public support for the center within the state. Manufacturing-Works has successfully courted Wyoming business newspapers and invited them to many of its events, generating ample press coverage. This frequent recognition within the business community has helped the organization strengthen its standing within the private sector.

The organization operates on a hybrid service delivery model. Many services are provided in-house with full-time and part-time staff, including skilled professional engineers as well as other staff members who work with clients on web and marketing support. While the MEP center is a university program, Manufacturing-Works created highly effective partnerships with other organizations, including the state government. An example of this has been their success in receiving funding to provide renewable energy audits to small businesses across the state.

Manufacturing-Works has also been successful in marketing itself to potential clients. They have been the major professional contributor to Wyoming’s statewide business event, which allows them to gain access to potential clients, much like MMEC’s biennial event. Furthermore, the director and staff are frequently on the agenda as speakers at the monthly luncheon meetings for Chambers of Commerce across the state. This has effectively eliminated the program’s need for “cold call” selling and focuses on “pull” marketing rather than “push” marketing.³³

Another area in which Manufacturing-Works has excelled is through their development of a manufacturing association in Wyoming, known as the Manufacturing Solutions Network. This association was created to address common issues amongst manufacturers, as well as to recognize the successes of particular manufacturers through award dinners, highlighting innovative solutions and best practices. Ultimately, Manufacturing Works believes that this effort has also helped the organization to build strong linkages with the state’s manufacturing community.

Key Takeaways

- ❖ It is important to build public relations support through engagement with local press.
- ❖ Strong state support is crucial, as the state provides twice as much funding as the federal government.
- ❖ Partnerships with state or federal agencies/programs can allow for government-funded projects with clients.
- ❖ Workshops, presentations at chamber luncheons, and other instances of “pull” marketing are an effective strategy for generating client leads.
- ❖ The creation of a manufacturers association can be an effective way to build client engagement and increase the MEP center’s customer base.

iv. West Virginia Manufacturing Extension Partnership

The project consortium conducted a site visit with the West Virginia MEP center to learn more about their business model and successes. Much like Alaska, West Virginia is heavily dependent on resource extraction, and has a relatively small, rural population. Both states also feature rugged topography, although West Virginia has superior access to the population centers of the

³³ Manufacturing Works, Operating Plan, July 1, 2014 – June 30, 2015, Version 5.0

East Coast. While not a perfect comparison to Alaska, the center was nonetheless identified as worthy of investigation.

The West Virginia MEP is a university-based MEP center housed at West Virginia University, College of Engineering and Mineral Resources in Morgantown. The MEP center utilizes third-party providers when the situation requires it, but most services are delivered through full-time staff. Much like Alaska, West Virginia has few third-party consultants within the state, limiting options for third-party provision of services. In recent years, however, the West Virginia MEP has identified a small number of third-party providers who can supplement their services on an occasional basis.

The West Virginia MEP has done an effective job of working with partners to identify areas of opportunity for growing their business portfolio. For instance, the MEP center has partnered with the local Industrial Assessment Center, which receives funding to provide no-cost energy assessments of area small businesses. Furthermore, the MEP center has built partnerships with the West Virginia Department of Environmental Protection, as well as the United States Export Assistance Center as a way to help improve services and bring on additional clients.³⁴

The project consortium identified the use of key metrics aside from those imposed by NIST MEP as a strength of the West Virginia MEP. These self-imposed metrics include the following:

- ❖ Revenue per field agent
- ❖ Actual hours vs. proposed hours per project
- ❖ Proposal conversion
- ❖ Staff management

These metrics allow the MEP center to strive toward their own internal goals of financial sustainability, operational efficiency, and successful client generation.

Another successful strategy employed by the West Virginia MEP (as well as other centers) is the use of seminars and workshops to engage with prospective clients. The MEP center hosts several annually on different topics for the manufacturing community in the state. Past courses include “Lean 101,” “Health and Safety Information,” “Problem Solving,” and “ISO concepts.” These workshops have helped to bring new clients in to the program and increase the market penetration of the MEP center. The staff also makes a priority of being present at all major seminars, meetings, and conferences that are held by partners and key stakeholders. This further boosts the stature and presence of the MEP center within their state.

For public relations, the West Virginia MEP has been successful in working to gain publicity through local press, which further drives clients to the center. The MEP center also focuses on

³⁴ West Virginia Manufacturing Extension Partnership, Operating Plan, July 1, 2013 – June 30, 2014

making sure that employees conduct sales interactions with area companies, and they have specific target goals set in place for their employees in order to hold them accountable.

Key Takeaways

- ❖ Importance of regularly hosting seminars and workshops to generate customer leads.
- ❖ Establishing internal metrics above and beyond those of NIST MEP can help the organization align with its goals.
- ❖ Establishing targets for business interactions by staff can help hold staff accountable for promoting the MEP center’s services.
- ❖ The MEP center should be a major participant at key industry conferences across the state.

Table 12: Comparison of MEP Centers

Center	Host Organization	Service Delivery	Best Practices
Innovate Hawaii	Hawaii High Technology Development Corporation (state agency)	Primarily 3 rd party delivery (includes other MEP centers)	Use of partnerships to extend reach, effective penetration, offerings tailored to market demand
MMEC	Montana State University, College of Engineering	Primarily in-house, graduate student delivery	UTAP program, state-wide manufacturers conference, effective use of workshops
Manufacturing-Works	University of Wyoming, Wyoming Business Council	Mixed; blend of in-house and 3 rd party	Strong support from public, business networking through chambers and other groups, leveraging of manufacturing association
WV MEP	West Virginia University, College of Engineering and Mineral Resources	Primarily in-house, some limited 3 rd party	Effective use of seminars, workshops, and assessments to drive business, use of internal metrics, strong partnerships

B. Business Model Canvas

Throughout the research and planning process, the UACED and its consortium have developed and explored a variety of potential business models for the future Alaska MEP center. As part of this research, the team has had a chance to examine, observe, and review the successes of MEP centers in other markets similar to Alaska. Additionally, through its interview process the project consortium has directly engaged with over 65 of the state’s manufacturers, greater than 10% of

the state’s total manufacturing businesses. Taking into account Alaska’s nuanced geographic, labor, and supply chain challenges, the consortium has been able to take the knowledge learned from other centers and apply it to Alaska. The consortium’s approach has been to utilize a modified version of the business model canvas, first developed by Osterwalder and Pigneur. The consortium believes that this approach will best allow NIST MEP to evaluate the differing options available in the business model of an Alaska MEP center. The seven modified building blocks used to evaluate the business model of a future MEP center in Alaska include the following:

- ❖ Customer Segments
- ❖ Value Propositions
- ❖ Channels
- ❖ Customer Relationships
- ❖ Service Revenue and Pricing Model
- ❖ Key Resources
- ❖ Key Activities

An analysis of each of these building blocks will follow in this section:

i. Customer Segments

A key component to any successful MEP center is a thorough understanding of the different customer segments that the MEP center will approach. In a state such as Alaska, where the overall manufacturing base is small relative to other states, properly identifying the right customers for an MEP center will be crucial. An Alaska-based MEP center will need to focus on identifying those customers whose businesses offer the best potential for growth, and ultimately, the best ability to pay for fee-based services.

Alaska’s manufacturing industry can essentially be broken down into fish processing, oil and gas support, and all others. One of the major problems facing Alaska is that the “everything else” category, which accounts for nearly 20% of total manufacturing employment, is in turn broken down nearly evenly between approximately 10 different subcategories. As part of the project consortium’s analysis, a deep dive was undertaken into these subcategories, to see what bright spots may exist, and what major growth opportunities exist within the state. One particular growth area was identified, the state’s brewing and bottling sector. As such, that section will also be analyzed separately.

a. Seafood Processing

The state’s seafood processing sector accounts for approximately 75% of the state’s employment (specific employment figures vary depending on the method used, or the source cited), and contributes significantly to the state’s economy, although it is dominated by large out-of-state fish processors such as Trident, Peter Pan, and Icicle Seafoods. These large organizations have significant in-house resources, and are therefore more difficult for an MEP center to engage. Furthermore, these companies are highly insular, and are primarily based outside of the state,

particularly in the Seattle area. However, the large fish processors have worked with University of Alaska programs, such as the Sea Grant Marine Advisory Program at the University of Alaska Fairbanks, in the past to develop new products and processes.

Within seafood processing, a specific opportunity area was identified as a potential customer sector for an Alaska MEP center. In addition to Alaska's major seafood processors, the state also has several small processors. One of Alaska's unique features as a state is its Community Development Quota (CDQ) program, which essentially allocates a share of the bottom fish harvest in particular waters to an organization that reinvests in the local community to spur economic development. Alaska currently has six CDQ programs across western Alaska, with each possessing varying amounts of financial resources. These organizations provide assistance to the fishing community in their regions in the form of commercial loans, training, and assistance. In recent years, these organizations have also invested their money into the purchasing of fish processing operations, which are able to purchase the fish of their residents at an increased price, allowing area fishermen to reap higher rewards.

The project consortium has concluded that an Alaska based MEP center should have a focus or capability devoted to the state's CDQ's and small value-added fish processing community. These businesses create specialty products such as smoked fish or salmon jerky, in contrast to the minimal processing undertaken by the largest operations. This sector is a key growth area for the state, as much of the value from the state's fishery leaves the state for outside processing. Improving the capabilities of small local processors can increase jobs and investment within the state.

b. Oil and Gas-related Manufacturing

Outside of fish processing, there is also a significant manufacturing base within the oil and gas support sector. While this sector's employment is dwarfed by that of fish processing (oil and gas support manufacturing employment is less than 10% of the state's total manufacturing employment), its overall value-added contribution to the state actually exceeds that of fish processing. It is a sector that supplies many high skill, and high paying year-round jobs for state residents. Throughout the project consortium's analysis, several of these companies were identified who were doing significant sales within the state (\$5,000,000 or more annually).

These support companies are a major growth opportunity for the state, and will require their own unique approach. Comments from business owners within this market sector frequently touched on the difficulties of working with large corporate purchasers, such as the big three oil companies (BP, Conoco Phillips, and Exxon Mobil). Owners frequently stated that they lacked the time and ability to properly wade through the often-onerous paperwork and compliance in order to meet the demands of the oil majors.

This particular sector is most in need of expertise related to technical and operational skillsets, such as lean training, inventory control, and key industry certifications such as ISO 9000. They

also are in need of expertise relating to the compliance standards of the large oil companies, such as health and safety standards. Experts who understand the process standards and regulatory environment of the petroleum sector could be a great benefit to these companies.

Throughout the research process, two of the largest oil companies in the state were also interviewed as stakeholders. These companies expressed a strong preference for local sourcing of products and have indicated a willingness to work with local manufacturers to improve their competencies. In many cases, oil companies have staff dedicated to supplier audits. A potential area of opportunity would be aligning the efforts of an MEP center with those of the oil industry. For instance, an MEP center employee might accompany the auditors and then work directly with the small business afterward to improve their capabilities.

c. Brewing/Beverage Bottling

One of the most promising sectors encountered throughout the MEP center study was the state's brewing and bottling sector. Alaska has one of the highest numbers of breweries per capita of any other state in the United States (frequently ranking in the top 5 nationwide) and many of the breweries are starting to grow significantly and are approaching the ideal growth stage for client interaction from an MEP center. The state's breweries range from small lifestyle businesses with no real desire for growth, to large breweries who operate bottling and canning lines and export large quantities out of the state. One such company is the Alaska Brewing Company, which sells in 17 states. A recent article in the February 2013 issue of Alaska Trends Magazine even indicated that the state's employment within the beverage manufacturing sector had experienced a growth of 118% between 2007 and 2013. As of 2013, the sector employed 240 people across the state.

Throughout the study, companies within this sector repeatedly indicated that demand was far exceeding supply, and that many companies simply could not keep up with their growth. As such, an MEP center based in Alaska should be able to meet the needs of the state's growing brewing sector. Beyond brewing, other bottlers have experienced significant growth and potential for growth. These other companies include distilleries, wineries, and bottled water companies.

The asset that all of these companies have in common is that they are able to capitalize on the uniqueness of the Alaska brand. Consumers from outside of the state are drawn by the Alaska image and are willing to pay a premium for certain Alaska branded products. As a result, this is one of the few sectors in which Alaska has shown an ability to gain sales outside of the state.

Key challenges facing this sector are the high costs of shipping, regulatory burdens, equipment issues and upgrades, and energy costs. The consortium identified two areas where brewers needed the most help: operational efficiency and marketing. Someone capable of identifying areas in which production can be improved, inventory can be better managed, and power can be saved. Beyond that, a staff member who has specialized experience in forming the connections

needed to break into other markets would be especially useful. Many of the breweries contacted indicated that they would like to make sales outside of the state, but at this point they are unable to keep up with local demand.

One of the other promising findings within this sector is that its members expressed an openness to receiving assistance and sharing details about their operations. The state's breweries had a high response rate and willingness to participate in the study, and indicated more than most that they would eagerly welcome the assistance of an MEP center in Alaska. Beyond that, the sector has already shown a willingness to collaborate. Throughout the study, countless instances of brewers helping each other, networking, and organizing special events were found. In addition to being a sector that could likely stand to benefit from the services of an Alaska MEP center, the sector is one that would likely welcome it. Many of the businesses are also at a growth stage where they could pay for services, or would soon be at the point of having the ability to pay for services.

d. Other Manufacturing

The state of Alaska also has a significant number of “other” manufacturers spread throughout the state. These manufacturers range from boat builders, to printing companies, to sign manufacturers, to potato and tortilla chip makers. None of these sectors is individually large enough to warrant their own specialized expertise on staff, as the demand simply is not great enough from this sector. In the event that a particular business within this sector needed specialized help, it would likely have to come from a third party provider or be otherwise covered by a generalized service that also applies to other industry sectors. Most of the businesses within this sector were not identified as high growth areas, with a few notable exceptions. Many were focused more on meeting local demand, rather than having a realistic ability to export outside of the state. While some opportunities may exist for increasing competencies locally to improve efficiency, export potential was seldom identified.

The few potential exceptions within the “other manufacturing” category are marine manufacturers and small aircraft parts manufacturers. These were two sectors that were identified as potential niche opportunities within Alaska. However, through the project analysis it was determined that these two sectors would be able to be serviced through general engineering professionals, or professionals who are skilled in other areas, such as oil and gas fabrication.

Businesses within the “other manufacturing” category had highly varying needs, which is not uncommon given the diversity of this sector. However, the consortium found some general service needs among several businesses that align with the needs of other sectors. These include demand for services such as lean management, HACCP and safety plans, regulatory assistance, and general management guidance. Many of the financial management, marketing, or general needs of this particular sector could be met through existing service providers such as the SBDC. The study consortium recommends leveraging those available services to aid these businesses in their growth efforts.

Customer Segment Conclusions

Overall, the project consortium has reached several conclusions on the various market segments within Alaska. The table below summarizes strategies to reach these different sectors.

Table 13: Customer Segments Summary

Sector	Service strategies for MEP Center
Seafood processing	Work with MAP to engage large processors in operational improvements; undertake strategy to support small value added processors and CDQ-run operations, which are more receptive. Energy efficiency, food safety, and quality assurance are the most needed services.
Oil and gas related	Needs are in operational, process, and health and safety improvements to comply with oil major regulations. MEP center can partner with oil and gas industry to improve supplier capabilities.
Brewing/beverage bottling	Expertise needed in inventory management, cost containment (including energy efficiency) and accessing markets. Sector is open to receiving assistance.
Other Manufacturing	Best served through operational services (like lean) or business development services that apply to other manufacturing categories.

ii. Value Propositions

One key challenge for an Alaska MEP center will be establishing a clear value proposition for the organization. Throughout the interview process with business owners, those who had worked with prior Alaska MEP centers had expressed a frustration with the organization. Former clients expressed to the project consortium that in many cases they were treated as if they were doing a favor to the MEP center, rather than the other way around.

One of the challenges of a new MEP center in Alaska will be to buck this prior negative history, and to create a clear, concise value proposition to the manufacturing community. For the most part, this value proposition will be straightforward across all sectors of Alaska’s manufacturing community, and will focus on the same values. However, for each of these sectors, the specific way in which these shared values are communicated may differ.

If it is decided that the Alaska MEP center will employ the use of third-party service providers, it will be vitally important that the Alaska MEP center stress the importance of their services to manufacturers. Failure to do this may result in a manufacturer bypassing the MEP center and working directly with the third party provider in an attempt to save money. The Alaska MEP center will have to brand itself as a generalist within the manufacturing industry. Essentially, the

role of the Alaska MEP center would be to work with a manufacturer and be able to identify their service needs. From there, the MEP center would connect these clients with the proper third party provider who offers the specific service needed. The value proposition that will need to be stressed to manufacturers is that the MEP center will have their best interests in mind, rather than trying to push a particular service that a business does not need. For instance, a business that approaches a consultant who specializes in lean will be pushed lean services, even if there are services that a business needs more. Essentially, the consultant will try to push the service that they specialize in, while the MEP center would work with the business to find out which service (and consultant) is right for the job.

Industry-wide Value Proposition

The new Alaska MEP center will need to communicate several key values to Alaska's entire manufacturing community. At its most fundamental level, the values that will need to be communicated to the state's manufacturers are described below. In general, the Alaska MEP center should:

- ❖ Be the “one-stop” help desk for nearly *everything* manufacturing related.
- ❖ Identify areas of cost savings for companies.
- ❖ Identify new areas for growth for companies.
- ❖ Be the best organization to bring together manufacturers and unite them toward common goals.

One advantage for an Alaskan MEP center is simply that the state lacks many serious service offerings for manufacturing support services. There are virtually no local providers offering ISO certifications or lean trainings. There are also few consultants who can walk through a shop floor and suggest process improvements to a fabrication shop. As such, an Alaska MEP center will be able to communicate that they are the virtually the only provider of these services locally, which gives them a key strategic advantage. More than simply distinguishing themselves from their competitors, an Alaska MEP center will merely need to sell businesses on the value of the actual services themselves.

From an industry-wide perspective, one focus area of the Alaska MEP center will be lowering the costs of doing business for Alaska manufacturers. In order to do this, an Alaska MEP center can offer the following services to manufacturers:

- ❖ Lean assessments – identifying and implementing process improvements and areas of waste within a company.
- ❖ Efficiency audits – identifying areas of energy cost savings within companies.
- ❖ Shipping consolidation – Attempting to organize manufacturers to negotiate bulk shipping rates to and from Alaska, as well as other shipping-related issues.

In addition to reducing the costs of doing business, an Alaska MEP center will encounter many manufacturers who are in the infancy stages of their business and who will need more basic

assistance. The Alaska MEP center will help deliver basic business services to these companies, either through in-house providers or through referrals to other partner organizations such as the Small Business Development Center. These services include the following:

- ❖ Basic business counseling, business plan creation, and networking assistance.
- ❖ Financing assistance – connecting businesses with available financing options statewide.
- ❖ Marketing and web development assistance – online marketing and SEO assistance
- ❖ General management assistance and training

The Alaska MEP center will also need to focus on the delivery of services that will assist businesses in capturing additional markets. These services include the following:

- ❖ Export assistance (making export connections and navigating the regulatory landscape)
- ❖ Industry certification assistance (ISO 9000, AS 9100, HACCP plan generation, etc.) – Certifications that allow businesses to be qualified to serve additional markets and customers.

Lastly, where possible the MEP center should attempt to provide a measure of ROI for each engagement—a practice employed by other centers around the country. The value proposition becomes clear to the business when they see MEP services as an investment with a return, rather than a cost to be absorbed. A lean implementation, for instance, might be expected to generate higher output per employee, which could be quantified early in the engagement. Manufacturers will be much more willing to pay for services if the impacts will be measurable in bottom line terms.

iii. Channels

An Alaska MEP center will be faced with a significant challenge with respect to the channels that it uses to communicate its value proposition to the manufacturing community. This is especially true given the skepticism the consortium encountered regarding assistance from the public sector. An Alaska MEP center will need to focus on quickly grabbing the attention of manufacturers across the state, and then *showing* them the services and value that they can provide to their business.

Whenever possible, the Alaska MEP center will want to focus on a “pull” marketing strategy, rather than a “push” marketing strategy. The key will not be to push the organization and its services on manufacturers, but rather to pull them in with service offerings that leave the business owner approaching the MEP center for assistance. This style of approach has many advantages, primarily in reducing the amount of effort and resource needed to bring in a new client.

However, early on this will likely not be possible. At a bare minimum, the Alaska MEP center will need to actively promote its services and organization to the manufacturing community in order to gain awareness. This will likely require a significant investment in marketing and outreach in the initial years of operation. Overwhelmingly, the most effective form of marketing

and outreach in Alaska is an in-person visit. This could be a one on one client meeting, a class offered to the public, or a manufacturer's conference. The key point will be to get in front of the potential customer, grab their attention, and communicate the value propositions of the MEP center.

Given Alaska's large geographic size, relatively small population, and exceedingly high cost of travel, in many instances it will not make economic sense to travel for an in-person meeting with manufacturers. As such, important considerations and concessions will need to be made. A few of the project consortium's recommendations include the following:

- ❖ An outreach and marketing focus that is tailored to specifically focus on the state's Railbelt and Southeast Alaska hub communities.
- ❖ Outreach should be focused on coordinating activities with existing events in order to maximize impact. For example, having a trip to Southeast Alaska that coincides with the Southeast Conference annual meeting, which would allow the MEP center to promote their services to many communities at a single event.
- ❖ An effort should be made to network and partner with organizations that do a significant amount of existing travel, including regional economic development organizations, chambers of commerce, and city and borough governments. This would allow the MEP center to get promoted in conjunction with the services of another organization, reducing costs.

In addition to the above recommendations, there are also several additional avenues to quickly and effectively get the MEP center in front of a significant number of Alaskan manufacturers. A few suggestions include:

- ❖ Working with the State of Alaska's "Made in Alaska" program and its "Alaska Product Preference" program. This is essentially a list of Alaska manufacturing businesses that have a close relationship with the state government and have shown a willingness to work with a government agency. It would be a good outreach vehicle for a new MEP center. The Alaska Brewers Guild, an informal organization made up of the state's brewers, offers another channel.
- ❖ Reaching out to the interviewees of this study. These are businesses that are already familiar with the MEP program, and have been part of the planning process. They represent a cross-section of the manufacturers in the state, and would be some of the most ideal businesses to target.
- ❖ Another effective channel will be to promote the program through the MEP center's advisory committee or board of directors. This will include manufacturers from a number of different sectors, and would be a great way to promote the program. As part of this study, an advisory group was formed to provide guidance on the MEP center planning process. This group could be a potential place to look when trying to fill initial spots on the committee.

Another important channel for an Alaska MEP center will be to effectively network itself within the state's economic development community. This will be part of a pull strategy that will allow other EDOs to know about the program and refer potential clients. A key component in doing

this will be to spread the word about the MEP center through attending major regional and statewide economic development conferences, as well as by meeting and networking with EDOs on a regular basis.

An additional possibility for the Alaska MEP center will be to spur the formation of an Alaska Manufacturers Association, or create an Alaska MEP center membership program. The initial stages of the MEP center could include bringing in as many manufacturers as possible into the organization as members, to make them feel as if they have a stake in the program. This would allow for a strong initial list of companies that could be part of an annual Alaska manufacturer’s membership meeting. The meeting could serve as a means of bringing manufacturers together for networking, to promote new services of the Alaska MEP center, and to connect manufacturers with potential suppliers for their companies. This approach could be modeled on the success of Manufacturing-Works in Wyoming.

Lastly, once the attention of the manufacturing community has been attained, it will be important to host a series of public events in order to educate the community on the services of the MEP center. The Alaska MEP center could host events such as, “the benefits of ISO certification” or “how to implement lean thinking into your business.” These events will allow manufacturers to approach the MEP center afterward asking for additional information and services. This is an approach that has been successfully implemented by several other MEP centers around the country.

It is also worth noting that each specific sector will require its own nuanced channels for promoting the MEP center. For example, the oil and gas support sector may stand to benefit from an MEP center that promotes its services through the oil and gas purchasers. While other groups, such as fish processors and brewers, may be best approached by getting on the agenda at major statewide and regional meetings at which businesses in these sectors will attend.

Table 14: MEP Center Promotion Channels

Client Sector	Channels
Fish Processors	Marine Advisory collaboration and events, food quality and operational trainings, HACCP training, advisory board/board of directors connections
Oil and Gas-related	Work with oil majors, conferences (such as Resource Development Council luncheons and conference), trainings on operational improvements (ISO 9000, API Spec Q1), HACCP training, lean manufacturing
Breweries and Beverage Manufacturing	Brewers Guild events, HACCP trainings, energy efficiency audits and assessments, lean training
General/All	Lean workshops and trainings, partner referrals (i.e. SBDC), advisory board/board of director connections, “Manufacturing Day” style events

iv. Customer Relationships

Given Alaska's small base of potential clients for an MEP center, the future organization's customer relationship strategy will be of the utmost importance. As small as Alaska's manufacturing community is, the number of manufacturers in the state with the ability or willingness to pay for the services of an MEP center is even smaller, and may only amount to a few dozen companies.

Given this small potential client base, any future Alaska MEP center will need to adopt a customer relationship model of dedicated personal assistance. The MEP center will need to form ongoing close relationships with its core group of potential customers, learning all aspects of their business. This will allow the MEP center to provide assistance and direction in a proactive manner, rather than a reactive manner. Ideally, the MEP center will be in a position to anticipate the needs and challenges facing their customer base.

The MEP center can achieve this level of service by maintaining frequent contact with their potential customers, whether that be via phone, email, or in-person meetings. Staff could also engage with these companies by including them in the advisory committee of the organization, in any MEP center membership association that is formed, or any events put on by the MEP center. The key will be to form a close relationship that is based on trust and mutual goals.

Other successful MEP centers around the country have found it as a best practice to engage with clients frequently, offering topics and insights of value to the company. Specifically, many MEP centers will often hold information sessions on particular topics and invite manufacturers, including their existing customers, to attend. This allows manufacturers to become better informed of new service offerings and opportunities available through the MEP center, as well as to build and maintain relationships.

v. Service Revenue and Pricing Model

A key component to the ultimate success of an Alaska MEP center will be its ability to generate revenue from paying clients. These revenues can be obtained through a combination of fee-based project work as well as through a subscription-based model in which the MEP center provides a package of benefits to members of the program. While a long-term goal of an MEP center should be to obtain one-third to one-half of all funding from client fees, the reality of the situation in Alaska is that it would take several years before this is realistic. As a result, an Alaska MEP center will be dependent on multiple funding sources, at least in the near-term. A more complete analysis of these other funding sources for the program can be found in Section VII: Financial Sustainability on page 88. This particular section will focus exclusively on those revenues which are generated directly through client engagements.

a. Fee Revenue

In addition to the support received from the federal level, an Alaska MEP center will also need to generate income through offering fee-based services. One of the major challenges is the relative

inability of Alaskan manufacturers to pay significant sums of money for services rendered (as mentioned previously, only a handful of firms have the capital to invest in significant assistance).

Given this difficulty, the project consortium proposes a possible option by which the Alaska MEP center can both achieve its mission and goals, while also generating revenue from companies of all sizes in the Alaska market. In order to do this, the MEP center could adopt a revenue model that focuses on both usage fees (fees from services rendered), as well as subscription fees. An MEP center can do this by offering businesses a membership in the MEP center, essentially an Alaska Manufacturers Association. Members of the program could receive access to several different services, including such things as free access to MEP center classes, some basic technical assistance services, access to MEP center business counselors, and access to bulk shipping rates (if such rates can be negotiated by the MEP center). These are just a few of the services that could be provided as part of a membership service. Ultimately it will be up to the future MEP center to determine what services make the most sense from a financial and service-delivery standpoint. This membership fee would be affordably priced for the market (\$250-\$1000 per year), and could even be charged on a sliding scale based on the size of the company. This would allow the MEP center to engage with even more clients, casting a wide net for the organization, while allowing them to provide services and generate revenue from clients who wouldn't be in a position to purchase more comprehensive services. This type of model would also confer the following benefits to an Alaska MEP center:

- ❖ Generate fees from businesses who would otherwise not be able to pay
- ❖ Engage with a larger number of businesses
- ❖ Assist smaller companies so that they will someday become larger clients
- ❖ Keep MEP center staff busy with client engagements rather than waiting for large projects to come in
- ❖ Create a community of connected manufacturers bonded by shared common goals
- ❖ Promote sharing of expertise and best practices between manufacturers and MEP center staff

The MEP center would then also offer usage fees similar to those seen at MEP centers around the country. These would be fees for customized services, consultations, and trainings targeted at larger, more growth-stage businesses. These fees would be substantially larger, and would be charged on an hourly basis. Other MEP centers the consortium consulted with used rates of approximately \$100 per hour. These would be the core customers of the MEP center.

Lastly, when working with third-party providers it will be important for the Alaska MEP center to generate fee revenue from the engagement. It is estimated that a realistic fee would be approximately 25% of the total value of the contract for serving as the account manager for that particular client. The MEP center would be responsible for vetting the credentials of the consultants, as well as recommending the proper service (and consultant) that can best assist a particular client. The center could negotiate preferred pricing in some cases as well.

The overall ability of an Alaska MEP center to generate fees from private sector clients would likely amount to less than \$100,000 per year in the immediate future. Therefore any MEP center in Alaska will be highly dependent on funding from government agencies and in-kind support for its initial years of operation. The project consortium believes that the following table provides a realistic forecast of what the Alaska MEP center would be capable of generating in fee-based revenue over its first five years (more detailed financial projections can be found in Section VII: Financial Sustainability).

Table 15: Projected Fee Revenue Generation of a Future Alaska MEP Center

Year	Fee Revenue
1	\$35,000
2	\$55,000
3	\$75,000
4	\$90,000
5	\$100,000

b. Pricing Model

One issue that the new MEP center will need to address is to how to properly price their services to the market. The MEP center will need to find a pricing strategy that will allow them to both increase their reach to many businesses, while also generating the maximum fee revenue possible. A few possibilities to help achieve these goals include the following:

Hourly Billable Rate: The advantage to this structure is its simplicity, and ease of communication to the client. This is also a common fee model among other MEP centers around the country. However Alaska’s target customers are small businesses, often family owned, where owners are sensitive to pricing on services. Therefore, it would be unlikely that a client would be willing to sign up for a project without a clear understanding of what would be accomplished for a given cost.

Flat Rate Price Structure: For most client engagements, this is likely the type of fee structure that will make the most sense to clients. This type of a fee structure will place importance on the MEP center for being able to bid its projects correctly. However, it will be a much more receptive pricing structure for clients, as it will give them a clear understanding of what deliverables they will receive at a given price level.

Membership Fee Structure: One other option for the Alaska MEP center would be to offer membership into an Alaska MEP center or manufacturer’s association. This idea would be to offer some basic services to member organizations in exchange for an annual fee. This type of a model would serve to supplement an hourly billable model or a flat rate model, rather than replace them. This would allow the MEP center to get out into the business community and promote themselves first-hand.

vi. Key Resources

An Alaska MEP center will have several key resources that will be essential to the program's success. These resources include those both internal to the organization, as well as those external to the MEP center. Ultimately, some of the resources of the future MEP center will be dependent on the formation of the final MEP center. For example, a University-based MEP center will have resources that are different from a private 501(c)(3) structured MEP center.

a. Internal Resources

The single most important resource for an Alaska MEP center will be its full-time staff members. These employees will be the face of the MEP center. They will be responsible for bringing in new business, and for building confidence in the MEP center from within the business community. In order to effectively do this, the Alaska MEP center will need to be staffed with employees who excel not only at engineering and manufacturing processes, but also at marketing the program across the state.

The MEP center staff will also need to be able to speak the language of manufacturers. They will need to have a solid business understanding and background, and must have a proven track record of private sector success. Furthermore, MEP center staff will need to have expertise in specific manufacturing skillsets, such as lean manufacturing, and any specific industry-related certifications and competencies. For instance, MEP center staff presenting to (or working with) aircraft component manufacturers should be familiar with aerospace related certifications and processes, such as AS 9100. Additionally, Alaska MEP center employees should have experience in industrial engineering given its high importance in key manufacturing sectors to the state.

The consortium also believes that an Alaska MEP center should have at least one account manager on staff who can effectively promote the program, and who possesses a generalist knowledge of manufacturing. Such a staff member should be able to sit down with a business and determine what their specific needs are, and then be able to refer them to the proper expert staff member or third-party consultant.

b. External Resources

Any successful MEP center will likely not be able to make a significant impact in Alaska entirely on its own. The sheer size and sparse population of Alaska mean MEP center employees will not be able to reach all manufacturers in person on their own. Given this reality, it will be crucial for the Alaska MEP center to coordinate their efforts with statewide partners across Alaska.

The Alaska MEP center should work with economic development organizations across the state in order to promote the program and reach out to potential customers. It will be essential to maintain regular contact with these organizations so that they are routinely kept aware of the MEP center's activities. The long-term goal would be to receive customer referrals from these organizations. However, in order to do this, and in order to maintain a high-quality image for the

program, partner organizations will need to effectively understand and communicate the value propositions of the MEP center. This is why maintaining such a close relationship with partner organizations will be so important.

A successful MEP center will also need to develop relationships with any third party providers of consulting services for the future MEP center. In all likelihood, the demand for certain specific services in Alaska will not be great enough to warrant having a staff member with that expertise on sight. In these instances, it will be essential to have strong partnerships with outside consultants and organizations who can provide these services. An example of this would be for the MEP center to partner with consultants at other MEP centers such as Impact Washington or MMEC. The Alaska MEP center will need to ensure that these outside consultants provide top notch services, as the work of these consultants will directly impact the reputation of the Alaska MEP center. The idea of partnering with another MEP center to deliver services as a third party consultant is a model that has been successfully employed by other MEP centers across the country. Specifically, the project consortium saw this successfully employed by the Hawaii MEP center, Innovate Hawaii. Working with these other MEP centers helps to ensure that consultants have already been thoroughly vetted by other organizations, and that they understand the objectives of the MEP center network.

vii. Key Activities

The most important activities needed for an Alaska MEP center to successfully carry out its value proposition will be to provide top notch services to their customers. The Alaska MEP center will need to be able to work with businesses to quickly diagnose areas for improvement and generate strategies for implementing these changes.

A new MEP center would need to clearly put an emphasis on customer service, and exercise proper follow through. One possible way to ensure that the MEP center delivers a high level of customer service would be to invest in a Customer Relationship Management software application such as Salesforce that would allow the staff to track client interactions. Furthermore, an Alaska MEP center will need to clearly communicate the value of their services to prospective customers, and treat their clients like any other organization would treat its customers.

In addition to the need for quality service, several other key activities have been identified and addressed elsewhere in this study. These include:

- ❖ Hosting trainings and seminars to communicate the value of services and generate client leads.
- ❖ Conducting outreach to manufacturing businesses to bring on new clients.
- ❖ Communicating the value and importance of the MEP center to partner organizations and the public at large.

C. MEP Center Organizational Structure

There are ultimately several possible organizational structures that the Alaska MEP could entertain. Two primary considerations are the type of organization acting as the host (state, university, or non-profit) and whether the host takes on partners as sub-award recipients with significant scopes of their own (the “network” model). Each has advantages, disadvantages, and tradeoffs. The type of structure will also influence geographic and industry focus areas, as certain organizations (or combinations) bring different networks, competencies, and skillsets. This section will explore several options for organizational structure and discuss the implications for each. The “Partnership” section of this report will dive deeper into the specific organizations with the capacity to host an MEP center, or act as a sub-award recipient.

i. Single Operator vs. Network Model

The most common MEP center business model is operation by a single host organization. While any successful MEP center will work closely with a network of strategic partners, the federal funding and commitment to NIST MEP performance standards is not widely shared under this approach. A network model, on the other hand, calls for a shared commitment by multiple organizations to operate the MEP center by leveraging the strengths of partner organizations, who share the funding and (likely) match.

A network MEP center would still require a host organization which receives and administers the federal funding and takes responsibility for all mandatory reporting. The key distinction is that service delivery and other operational aspects are handled to a significant extent by sub-award organizations. This model taps into the expertise of a larger pool of organizations who work as a team to serve the manufacturing community, and most likely offer complementary strengths. In Alaska, the network model could work in the following way: a state agency or a university unit might serve as primary host, with sub-awards going to EDOs in Fairbanks, Anchorage, and/or Juneau to provide geographic coverage. Under a different scenario, an EDO might host and enter into sub-award agreements with university units or non-profits with key expertise, to better serve targeted sectors.

However, there are complications with this approach. None of the states identified by the consortium as comparable to Alaska utilize a network model (all are state or university-hosted with small sub-awards if any at all). Group accountability could be complicated, although the model has been deployed in Michigan and Virginia. A major risk is the dilution of the commitment to properly operate and administer an MEP center. The table below weighs the advantages and disadvantages of the network model and traditional, single host model.

Table 16: MEP Organizational Structure Models

Model	Metrics	Financial Management	Geographic Reach	Industry focus
Single Host	Clear accountability for achieving metrics and outcomes—one organization takes all or nearly all responsibility. Penetration of market could be more difficult with only one organization conducting outreach and engagements.	Simple in principle but depends somewhat on type of organization—one organization manages fiscal matters, including match, fee collection, and cooperative agreement. Overhead costs likely lower than with network approach, with only one organization charging an indirect rate for facilities and administration.	Achievable through combination of field offices and strategic partnerships. Host organization likely to develop strongest focus where it is headquartered.	Heavy reliance on one organization’s in-house staff or 3 rd party network. Depending on variety of factors, focus could be general or tailored to specific industry sectors.
Network	Accountability can become complicated—one organization handles reporting but relies on sub-award partners to report activity accurately and timely. With correct alignment, greater market penetration and outreach could lead to higher metric performance, however.	More complex—need robust systems within multi-organizations to ensure proper and sound management of funds, and systems must be harmonized between entities. Likelihood of multiple organizations charging facilities and administration to cooperative agreement, depending organizational mix	Capable of achieving greater geographic coverage under some scenarios. If EDOs are major sub-award recipients, higher market penetration can be achieved.	Possibility of greater industry focus if sub-award recipients have competencies in specific areas (i.e. Marine Advisory or an engineering college).

As an additional detail, a network model could be designed to maximize either geographic coverage or industry mix. To achieve geographical reach, sub-awards could be awarded to EDOs in the major cities, as mentioned earlier. This ensures an MEP-funded presence in the cities with the greatest number of manufacturing establishments. On the other hand, if a greater focus on key sectors were identified as a prime objective, sub-awards to groups such as Sea Grant Marine Advisory (for fish processing) or engineering colleges (for oil and gas, mining, or heavy industry) might be an effective solution. There are arguments to be made for either approach, as the table shows.

ii. Geographic Focus

The new MEP center will need to determine whether it will focus on urban or rural areas, and on specific regions of the state. This picture is somewhat complicated by the distribution of manufacturing jobs and establishments throughout the state; the predominantly rural, coastal parts of the state see the bulk of the employment, and the urban centers of Southcentral Alaska host most of the establishments. The Interior and Southeast regions contain important industry clusters as well. Serving all regions equally would be extremely challenging, so trade-offs will likely be necessary. Comparative research of other MEP centers suggests that an effective network of strategic partners can extend a center’s reach substantially, as can sub-award arrangements. The following table summarizes strategies and possibilities for serving each region of the state.

Table 17: Regional Strategies for Future Alaska MEP Center

Region	Service Strategies
Southcentral	Easiest to cover; MEP center should be hosted or have staff in Anchorage who also cover Mat-Su and Kenai Peninsula. Region hosts a variety of conferences and meetings for client outreach.
Southeast	Region is difficult and expensive to cover from Anchorage—need for permanent presence even if small. Relationship (either sub-award or partnership) with JEDC, Southeast Conference.
Southwest	Also expensive to cover. Key outreach should be conducted in partnership with Marine Advisory Program, Southwest Alaska Municipal Conference, and fisheries support entities. Strong argument for MEP to be hosted by such organization, or at least a sub-award relationship.
Far North	Few manufacturers in region. Best served on an as-needed basis.
Interior	Road accessible from Anchorage but best served with a permanent presence. Potential partners abound, including Fairbanks Economic Development Corporation and University units.

D. Business Model Conclusions and Recommendations

As this section demonstrates, the range of possible business models for an Alaska MEP center is nearly endless. To distill the consortium’s numerous findings, some concluding remarks are in order, along with recommendations. Ultimately, NIST MEP will make the best decision possible following a competitive Notice of Funding Availability process, and interested parties in Alaska will form the partnerships they believe most important to maximize the success of their proposals, and ultimately of the MEP center itself. Nonetheless, the consortium is able to draw several conclusions for the benefit of Alaskan stakeholders. The following lays out several dimensions of the MEP business model and attempts to comment on each with a recommended approach.

Type of Host Organization

Evidence from the states identified as comparable environments suggest that state or university-based models are the most common, but they are not the sole option. While few non-profits in the state have the capacity or skillsets to operate an MEP center, the EDO community contains three or four organizations able to host an MEP center or act as a significant sub-award recipient. In the final analysis, however, the consortium believes that a university model, with substantial EDO participation, is the most likely option. EDO's generally focus on a particular geographic area, and the state has indicated a limited interest in hosting; meanwhile, several university units have the interest and capabilities (see the "partnership" section).

Service Delivery

Either an in-house or third-party service delivery system could work in Alaska. However, the state contains few private sector consultants with manufacturing expertise, complicating the "brokerage" model. This leaves two options: the center can either hire in-house expertise (the traditional approach) or contract the expertise from out-of state, perhaps through the MEP network. Another option is to contract with public sector programs for specific services, such as Green Star for energy efficiency or MAP for fish processing. Without foreclosing other possibilities, the consortium believes a blended approach will work best: a lean staff with a generalized skillset in operational areas like Lean and ISO (applicable to a range of sectors) with third-party delivery for specialty areas. An approach resembling MMEC's UTAP program for graduate student engagement also warrants consideration.

Geographic Focus

This is a complicated aspect of the business model for an Alaska MEP center. Although the state has a small population along with a small manufacturing base, it will be difficult to serve all regions and sectors due to the geographic size and limited infrastructure. The MEP center must either focus on the large fish processors (where employment is highest) at the expense of the population centers (where most establishments are located) or vice versa. It is possible to serve both to an extent, but with a relatively small staff and limited resource base, some small manufacturers will be served more than others. The consortium recommends an approach that covers Southcentral and Southeast Alaska with funded staff (even if part time) while also providing limited resources to one of the entities serving the fish processors throughout coastal Alaska. This runs the risk of being spread thin, but will probably maximize impacts in terms of employment through the fish processors, and client numbers in the population centers.

Industry Focus

This issue dovetails with considerations about the geographic area. Fish processing is the biggest source of manufacturing employment, but it is also the most difficult and expensive to serve due to the remoteness of the facilities. No other industry is large enough to justify its own dedicated

focus area, with the partial exception of oil and gas-related manufacturing. Therefore, the consortium recommends an approach by which some funding is put toward a focus in fish processing (either in-house or through a sub-award) or oil and gas related manufacturing, with the remainder going to general services more common to all types of manufacturers. This could include business development or operational services like lean and ISO.

Sales Staff versus Delivery Staff

Some MEP centers are able to dedicate staff resources to the marketing and promotion of the center to clients, while others require delivery staff to also develop client leads. The consortium believes either approach can work, depending on the specific model. For instance, if the MEP center is based in Anchorage, having sales staff in Fairbanks and Juneau would extend the center's reach significantly.

Figure 19: Alaska's Brewing Sector May Warrant a Special Focus from an MEP Center



Photo Courtesy of Seanna OSullivan, Alaska Brewing Company Pictured Above

VI. Partnerships

The consortium followed an exhaustive process to identify and evaluate which organizations have the capacity to host the Alaska MEP center, as well as those who could serve as partners or sub-award organizations. An online form was distributed with 12 questions to clarify the core competencies and services provided by a wide array of organizations across the state. The form gathered information on each organization's structure of funding, personnel qualifications and their client interaction process. A total of 14 responses were received from the following organizations:

- ❖ Green Star Inc.
- ❖ State of Alaska Department of Commerce, Community, and Economic Development (DCCED)
- ❖ Copper Valley Development Association
- ❖ City of Valdez
- ❖ Kenai Peninsula Economic Development District
- ❖ Lower Kuskokwim Economic Development Council
- ❖ UAA Business Enterprise Institute
- ❖ Alaska Industrial Development and Export Authority (AIDEA)
- ❖ UAF Cooperative Extension Service
- ❖ Southwest Alaska Municipal Conference
- ❖ US Small Business Administration Alaska District
- ❖ Alaska Small Business Development Center
- ❖ Juneau Economic Development Council
- ❖ World Trade Center Alaska

The consortium also convened a stakeholder meeting with the above organizations on May 5th, 2014 where participants were asked a series of questions regarding the role of the future MEP center. Several additional organizations provided feedback directly to the consortium regarding potential partnerships and the provider gaps an MEP center would potentially fill. These additional organizations included:

- ❖ UAF Sea Grant Marine Advisory Program
- ❖ UAA College of Engineering
- ❖ Anchorage Economic Development Corporation (AEDC)
- ❖ Fairbanks Economic Development Corporation (FEDC)
- ❖ Kodiak Chamber of Commerce

The online form, meeting, and stakeholder interviews were used to assess the landscape for an MEP center. A number of organizations were deemed to be capable of hosting an MEP center (or co-hosting with other organizations) while others could serve as strategic partners with defined roles. For the purposes of this analysis, provider organizations are broken into loose categories as

potential hosts or potential partners, according their organizational competencies, focus areas, and size.

A. Potential Host Organizations

The consortium determined that organizations were suitable MEP center hosts if they showed the following characteristics: experience managing federal grants or cooperative agreements, experience delivering technical assistance to businesses, ability to generate significant fee revenue, and possessing annual budgets of roughly \$600,000 or more. Not all organizations met every criterion, but those that lacked in one or two areas were included if they had specialized competencies. Potential host organizations fell into one of three categories: state government, university, or non-profit, mirroring the three types of MEP center hosts nationally. For the purposes of this study, it is assumed that these organizations are capable of receiving the federal funds to operate the program, or a large sub-award. It should also be noted that those not serving in either role could still be valued as strategic partners.

i. State Government

There are two existing candidates within state government to operate an MEP center: the Department of Commerce, Community and Economic Development (DCCED), and the Alaska Industrial Development and Export Authority (AIDEA). Both organizations provide extensive knowledge of business development in a range of sectors, including those with a high degree of relevance to manufacturing: timber, fisheries, and oil & gas. While DCCED is a department of state government, AIDEA is a corporate agency owned and controlled by the State of Alaska. It is common for state-hosted MEP centers to be housed within the latter type of entity, as with Innovate Hawaii being placed within the Hawaii High Technology Development Corporation. Several MEP centers are also hosted within state commerce departments, such as the centers in New York and Arizona.

A state-hosted NIST MEP center could be administered in two ways: operated and staffed by state employees who provide the client service, or through sub-awards to other organizations overseen by the state. It should also be noted that regardless of which entity eventually hosts the MEP center, both DCCED and AIDEA will be vital partners.

Department of Commerce, Community, and Economic Development (DCCED)

DCCED, sometimes referred to as “commerce,” contains seven divisions, of which the most pertinent to the MEP center is the Division of Economic Development (DED). DED in turn is divided into a Financing Section and a Development Section, each with its own staff. The financing section administers 10 separate loan programs which target specialized business categories in fisheries, mariculture, aviation, and energy, while Development oversees a variety of programs focused on film, fisheries, minerals, tourism, forestry, and manufacturing (with the Made in Alaska and Product Preference Programs). The Made in Alaska program, taken together

with the extensive industry knowledge of the staff in key sectors, provides the best tie-ins to a future MEP center.

DED also administers and funds the ARDOR (Alaska Regional Development Organization) program, which designates and funds development organizations around the state. Each ARDOR organization has a defined geographic region, and is responsible for generating job creation and investment. Some ARDORs have the capacity to host an MEP center in their own right.

Alaska Industrial Development and Export Authority (AIDEA)

AIDEA is a public corporation of the State of Alaska which was created in 1967. Most of the programs the organization implements are aimed at meeting the financial needs of the local commercial, community and non-profit enterprises. These programs include loan participation, conduit bonding authority, loan guarantees and development finance.

Based on the conducted form, AIDEA's key services include: providing direct loans, industrial revenue bonds, loan guarantees, revolving loan funds, real estate development and reuse, as well as equity investment in physical assets, such as Ketchikan Shipyard.

As a potential partner for an Alaska MEP center, AIDEA could assist with financing small manufacturers. Given that one of the requirements in order for the organization to provide loans is a well-developed business plan, an MEP center could assist a small manufacturer in the process of putting together this plan and checking to see if it complies with the AIDEA mission and requirements. Additionally, AIDEA could work together with the MEP center to develop eligibility criteria for manufacturing companies seeking a loan.

AIDEA is financed through internal income sources and most of the services are provided by the company's personnel which currently consists of 15 employees.

ii. University of Alaska System

A large number of MEP centers are hosted by universities, including several contacted by the study consortium, such as MMEC in Montana, Manufacturing-Works in Wyoming, and the West Virginia MEP. The University of Alaska system, with its primary campuses in Anchorage (UAA), Fairbanks (UAF), and Southeast Alaska (UAS), contains several units capable of hosting an MEP center. These include the Alaska Sea Grant Marine Advisory Program (UAF), UAF Cooperative Extension Service, UAA Business Enterprise Institute, UAA College of Engineering, and UAF College of Engineering and Mines. Each will be discussed in turn.

It should be noted that a university-based MEP center need not be "owned" entirely by one of the following units. It is equally likely that one or more will partner to operate the MEP center, or take on sub-award partners outside the university system.

Alaska Sea Grant Marine Advisory Program (MAP)

The Alaska Sea Grant Marine Advisory Program is a partnership between the National Oceanic and Atmospheric Administration (NOAA) and the University of Alaska Fairbanks. Fourteen marine advisory faculty live and work in eight coastal communities in Alaska. Focus areas within MAP are: Resilient Communities and Economies, Sustainable Fisheries and Aquaculture, Environmental Literacy, and Workforce Development. MAP faculty initiatives are driven by local needs and focus on increasing and diversifying economic opportunities in Alaska for marine-related sectors, enhancing the value of the seafood industry and growing opportunities for the next generation's workforce. MAP faculty lead initiatives in shellfish mariculture, fisheries technology, business and marketing, marine safety, and workforce development for marine sectors. Of particular interest to an MEP center, MAP provides technical assistance to seafood processors through a variety of training programs focused on HACCP plans, energy efficiency, process control, quality control, and other improvements. In some cases these are provided as training sessions or direct client engagements. These offerings bear a resemblance to MEP center services offered nationwide, and could be expanded and complemented if MAP hosted or co-hosted an MEP center, or served as a strategic partner. MAP also has a statewide footprint, with projects throughout the coastal regions of Alaska.

UAF Cooperative Extension Service (CES)

CES is a natural link between academia and the public, making university knowledge accessible to the public. Its major emphasis areas include agriculture and horticulture; health, home and family development; natural resources and community development; 4-H and youth development. CES also has an economic development faculty member who specializes in technical assistance to public and private sector entities, and is engaged in a variety of state level initiatives. Several other areas of expertise are relevant to manufacturing, including food safety and energy management. CES has staff in Anchorage, Bethel, Delta Junction, Juneau, Kenai Peninsula, Mat-Su, Nome, Sitka, and Tanana. As a partner or an MEP center host, CES brings a statewide footprint and access to high-level expertise.

UAA Business Enterprise Institute (BEI)

A new entity, BEI was formed in March 2014 with the consolidation of the University of Alaska Center for Economic Development, Alaska Small Business Development Center, and Center for Corporate and Professional Development under one umbrella. As such, BEI unites these three core centers and their constituent programs (including the Procurement Technical Assistance Center and Minority Business Development Center), with the aim of achieving a high degree of alignment. Through UACED and SBDC, BEI supplies decades of technical assistance to businesses and the ability to leverage university expertise to support economic development. There could be significant advantages in housing an MEP center with other business support

providers, including the ability to generate referrals and access additional business expertise in marketing, finance, and other areas.

UAA College of Engineering and UAF College of Engineering and Mines

Both engineering colleges at UAF and UAA offer undergraduate and graduate degrees in the core disciplines of civil, electrical, and mechanical engineering, computer science, and related areas. Each also performs public service work that engages industry. UAA's engineering school features a fab lab (mentioned previously) which is available for businesses to use in exchange for an hourly fee. It provides a platform for faculty and students to serve industry needs. UAF's college has a research arm, the Institute of Northern Engineering, which is engaged in a variety of applied research initiatives relevant to industry, including the Alaska Center for Energy and Power, Petroleum Development Laboratory, and the Mineral Industry Research Laboratory. This expertise could be accessed to benefit manufacturers in key sectors.

iii. Non-Profit/Economic Development Organizations

Outside of the state government and the university system, four non-profit organizations from the state's economic development community have the necessary capacity to host or co-host an MEP center. All have the ability to manage federal funds, collect fee income, and provide technical assistance to businesses. Three serve the state's major population centers (Anchorage, Juneau, and Fairbanks) and the fourth serves Southwest Alaska, where the majority of manufacturing jobs are based due to the concentration of fish processors.

Anchorage Economic Development Corporation (AEDC)

AEDC serves as the economic development organization and ARDOR for the Municipality of Anchorage. As such, it is the largest EDO in the state, and offers a variety of programs to attract business operations to Anchorage as well as promote entrepreneurship locally, conduct and disseminate research on the Anchorage area, and conduct business retention and expansion efforts. It is a membership-based organization, with "investors" primarily being for-profit businesses of all sizes. The organization's staff possesses expertise in business development, research, and public affairs and its networking events, including two annual forecast luncheons, attract the attention of policymakers and business leaders statewide. AEDC has helped spur the creation of the Anchorage Maker's Group, and thus has ties to entrepreneurs in manufacturing and related areas.

Juneau Economic Development Council (JEDC)

JEDC, one of the partners in the consortium conducting the present study, is the lead organization for economic development in Juneau, and has programs impacting Southeast Alaska more broadly. As with AEDC, the organization promotes the community as a destination for relocating or expanding a business. JEDC also leads specialized initiatives including a technology transfer program, Southeast Alaska Revolving Loan Fund, downtown revitalization,

STEM education, and cluster development. The five cluster areas (ocean products, visitor products, renewable energy, mining services and supplies, and R&D) all have implications for local manufacturing. With an emphasis on science and technology as well as business and finance, JEDC’s staff are well equipped to engage manufacturers in Southeast Alaska, making them a highly qualified organization to host or co-host an MEP center.

Fairbanks Economic Development Corporation

FEDC acts as the counterpart to AEDC and JEDC for the Fairbanks North Star Borough, leading efforts to attract businesses, promote entrepreneurship, and improve the business climate for the region. FEDC’s staff are engaged in projects related to retention of local military bases, energy efforts, buy local campaigns, forestry, local agriculture, mining, economic modeling, business attraction, business retention and expansion, and other areas. A membership-based organization, FEDC’s investors include UAF and leading Interior businesses.

Southwest Alaska Municipal Conference (SWAMC)

SWAMC serves as the ARDOR for the Southwest region of Alaska, which covers a vast area including the Aleutian Islands, Bristol Bay area, Alaska Peninsula, and Kodiak Island. The seafood harvesting and processing sectors are the dominant economic drivers—as mentioned previously, the majority of manufacturing jobs in Alaska are found in this part of the state. SWAMC itself is a membership organization, with a roughly equal breakdown between public and private sector members. Its headquarters is located in Anchorage. The SWAMC staff has experience administering federal grants, and its staff lead initiatives in energy planning, fisheries development, comprehensive economic development planning, STEM education, and broadband access.

The following table summarizes the core competencies of the potential host/sub-award organizations:

Table 18: Overview of Potential Host Organizations

	Organization	Relevant Core Competencies	Role (if not host)
State of Alaska	State of Alaska, Department of Commerce, Community, and Economic Development (DCCED)	Marketing, finance, data and research, industry specialties	Referrals, access to specific expertise, financing programs
	State of Alaska, Alaska Industrial Development and Export Authority (AIDEA)	Finance programs, real estate development and reuse, infrastructure development	Financing programs, referral, industry connections

Table 18: Overview of Potential Host Organizations (Continued)

	UAF Sea Grant Marine Advisory	Value-added processes, quality assurance, process improvement, energy efficiency, workforce development	Expertise, third-party service provider, industry connections, referrals
University of Alaska System	UAF Cooperative Extension Service	Agriculture, health, food safety, economic development	Referrals, expertise
	UAA Business Enterprise Institute	Technical assistance delivery, business planning, feasibility analysis, applied research, training and seminars, business counseling	Referrals, technical assistance, industry connections
	UAA College of Engineering	Industrial engineering expertise, fab lab, industry engagement	Faculty expertise, third-party service provider, facilities usage
	UAF College of Engineering and Mines	Industrial engineering, lab facilities, specialized skillsets in energy, petroleum, and mining	Faculty expertise, third-party service provider, facilities usage
Economic Development Orgs	Anchorage Economic Development Corporation (AEDC)	Industry linkages, logistics, entrepreneurship, high technology, networking	Referrals, networking, industry connections
	Juneau Economic Development Council (JEDC)	Technology transfer, cluster development, finance and lending, technical assistance	
	Southwest Alaska Municipal Conference (SWAMC)	Seafood industry, energy planning, technical assistance	

B. Strategic Partners

In addition to those entities with potential to host an MEP center, a variety of governmental and non-profit organizations provide services to businesses in Alaska. For the purposes of this study, strategic partners are organizations which may or may not become sub-award recipients for relatively small amounts, but that would assist the MEP center in serving clients. Many of these organizations offer access to specific competencies, as well as ties to specific sectors or regions that can benefit the MEP center. A strong alignment between the MEP center and these existing organizations is also crucial to minimizing duplication of services and ensuring business needs

are met. The following table summarizes the relevant skillsets and potential relationship with the future MEP center.

Table 19: Potential Partners of an Alaska MEP Center

Organization	Relevant Competencies	Potential Role
SBA Alaska District	Federal procurement, business trainings, financing	Referrals, client financing guidance, procurement assistance
Alaska Small Business Development Center (part of BEI)	Financial guidance, general business advising, seminars and workshops, exporting	Referrals, cost share arrangements for staff time, sharing of expertise
Green Star, Inc.	Energy efficiency services, environmental sustainability, certification	Referrals, efficiency expertise, possible third-party service delivery
World Trade Center Alaska (WTCAK)	Business networking events, export assistance	Referrals, export assistance for clients, networking opportunities
Alaska Regional Development Organizations (ARDORs)	Competencies vary, include financial guidance, energy, agriculture, fisheries, research and data	Referrals, various areas of expertise, regional stakeholder engagement
University of Alaska Center for Economic Development (a program of UAA BEI)	Technical assistance, market research, financial guidance, business planning, feasibility analysis	Third-party service delivery, research
State of Alaska Department of Labor and Workforce Development	Workforce training and development	Funding for relevant client engagements, workforce trainings

VII. Financial Sustainability

One central issue for an MEP center in Alaska will be the need to generate the necessary funding to ensure that the program is financially sustainable in the long-term. NIST MEP has imposed requirements on their MEP centers that require a 1:1 match in funding dollars for the first three years. Therefore, for every one dollar in federal funding received, the Alaska MEP center will expend an additional dollar, either through cash or in-kind support. By year four, three-fifths of the center's budget must be non-federal, and by year five a 2:1 (local to federal) match is required. With the likely federal award for an Alaska MEP center at \$500,000, it will be required that the center will need to raise a minimum of \$500,000 in match initially, and \$1,000,000 by year five. Proposed legislation would move the program to a permanent 1:1 match, however. This match will be raised through a combination of the following sources:

- ❖ State funding
- ❖ University funding
- ❖ Fee revenue
- ❖ Corporate sponsorship

A. State Funding

The consortium has determined, through its analysis, that any state contribution to the program will likely be minimal. While the state has supported the program in the past, the current climate of strict budget cuts has forced the state to scrutinize spending across the board, making significant funding unlikely. Therefore, any effort seeking state funding will require open dialogue and collaboration between state officials and stakeholders in order to build support for the program. It will be especially important to convey a clear mission for the MEP center and its goals, as well as the development of an action plan detailing how the center will achieve these goals. The MEP center will need to align well with current state strategies as well as lay out clear economic reasons for investment into the program.

Discussions with state officials have revealed that the state sees themselves playing the role of a potential “gap funder” (an entity providing the final piece to a funding mix), but not as the primary contributor to an MEP center. Therefore, given the match requirements of the funding award, it would be unlikely that an MEP center would be able to raise much more than \$100,000 in funding through the state government without clearly articulating a vision for the program and building strong support from the legislature. To help build support, the MEP center should identify areas of tight alignment where an investment could either save the State money or aid them in achieving an existing goal more effectively or efficiently. Even funding at the \$100,000 level may be overly optimistic for a new MEP center.

One area in which the state has expressed more willingness to support the MEP center is through in-kind support. This could include contributing a portion of a staff member's time to work on

the program, donating office space for regional MEP center offices, providing CRM (customer relationship management) software licenses, etc. It will be important to identify other resources the state has at its disposal (in addition to cash match) that may be leveraged by the Alaska MEP center to meet match requirements.

B. University Funding

Another match source for the Alaska MEP center is the University of Alaska which, as a state-funded institute of higher learning, is experiencing its own budget reductions. Therefore, it will be increasingly difficult for an MEP center to secure cash funding through the university. However, if an MEP center were to align its efforts close enough, it may be able to secure a cash contribution. Much like the state, however, the level of this contribution will likely be small, and is unlikely to be more than \$100,000 unless current fiscal situations change significantly.

While the university faces budget constraint, it may have greater ability to provide in-kind support or cash match through labor hours. The university has many resources which could be deployed to support the formation of a new MEP center. These resources include the potential for in-kind staff time, as well as the potential to provide office space to the MEP center. Additionally, the university operates a fabrication lab or “fab lab” through its UAA campus which could be leveraged by the MEP center. Furthermore, this fab lab uses the expertise of students and faculty who work on projects at the facility. It may even be possible for an Alaska MEP center to tap into these students and staff as another source of in-kind support from the university.

Lastly, not unlike the discussion pertaining to the state, it will be essential for an MEP center to have a clear vision and action plan for meeting its objectives, as well as those of the university. Particularly in these tight economic times, university leadership will need to clearly see how the MEP center’s needs align directly with that of the university before supporting the program either financially or through in-kind. If, and only if, the MEP center can effectively communicate how the investment will result in the shared advancement of goals and objectives will the university engage in a conversation regarding support of the program.

C. Fee (Earned Income) Revenue

One clear source of funding for MEP centers is the generation of fee-based revenue. Given the state of the Alaska market, any fee-based revenue that the center is able to generate will be minor compared to its total match requirements. Under optimal conditions, an Alaska MEP center could generate approximately \$100,000 in annual project revenue. However, this level of revenue may require several years of building the MEP center’s reputation and client base. It is important to bear in mind that in the early stages of the program, fee generation will likely be much less, perhaps as low as \$35,000 in the first few years of operation. These estimates may vary widely depending on the ultimate operator, management team, and professional services engagement strategy put in place.

The project consortium believes that it is important for the MEP center to establish a fee structure, even if services have to be offered for well below the typical market value. Paying clients, even at reduced rates, take projects much more seriously and are much more engaged than those who receive services for free. When businesses receive services for free, they often do not fully value the services rendered.

One option for offering MEP center consulting services is to establish a sliding scale based on the size of the company. For instance, an MEP center could offer a 75% reduction in fees for a client with less than \$500,000 in revenue, a 50% reduction for under \$1,000,000 in revenue, a 25% reduction for under \$2,000,000 in revenue, and a 0% reduction for clients exceeding \$2,000,000 in revenue. This fee structure is only offered as one example for illustrative purposes, and is not necessarily the consortium's recommendation. However, a sliding scale fee structure would help make MEP center services more widely available to manufacturers of all sizes in Alaska.

D. Corporate Sponsorship

A remaining funding option for an Alaska MEP center is to seek out corporate sponsorships. This will likely not be a significant source of income for the program, but it may allow the organization to raise additional capital to help achieve match requirements. A reasonable expectation for corporate sponsorship is between \$20,000 and \$50,000 annually. This amount will likely be less, however, in the center's initial years as relationships with sponsors begin to develop.

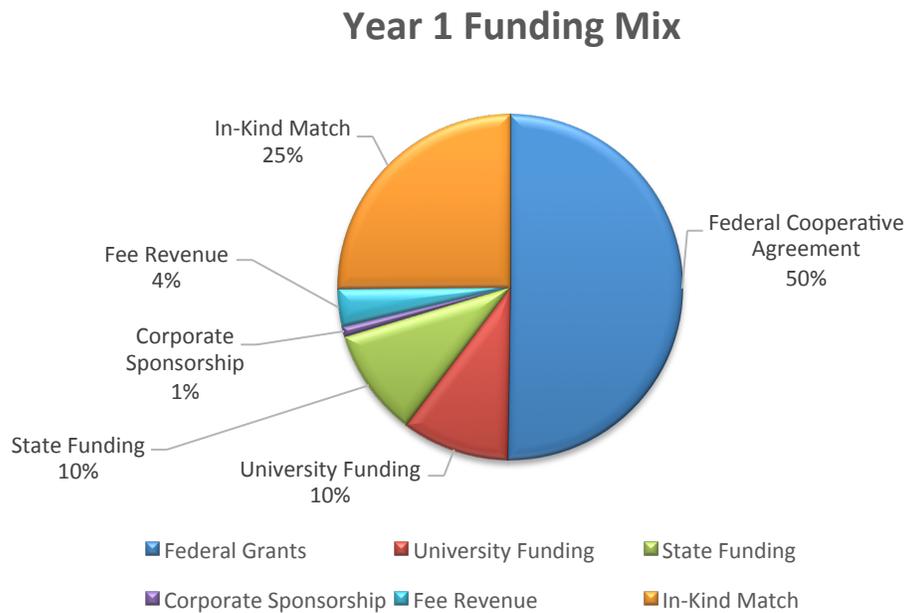
To achieve this level of sponsorship, the MEP center will need to closely engage with potential sponsors and clearly establish linkages and alignment with the funding priorities of that particular organization. The most likely candidates to serve as corporate sponsors include Alaska's oil companies, fish processors, and banking community. These sponsors will also expect recognition at any annual meetings or conferences hosted by the MEP center.

The consortium strongly feels that it is outside the scope of an Alaska MEP center to dedicate a staff member to corporate fundraising activities. Therefore, the idea of corporate sponsorship makes the most sense in a host organization which already has dedicated fundraising staff. For instance, the university and many large non-profits have full-time fundraising personnel that could raise cash and in-kind support on behalf of the new MEP center.

E. Funding Mix Breakdown

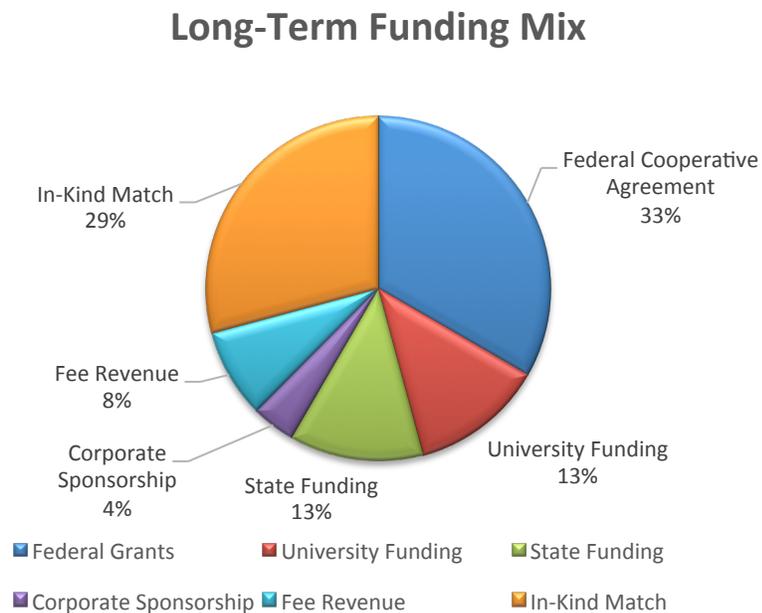
It is estimated that the overall funding mix of the new Alaska MEP center will be broken down in the following proportions in year one:

Figure 20: Projected Year One Funding Mix, Alaska MEP Center



As the MEP center is able to grow its services and client portfolio, it is believed that the long-term funding mix will likely change to the following:

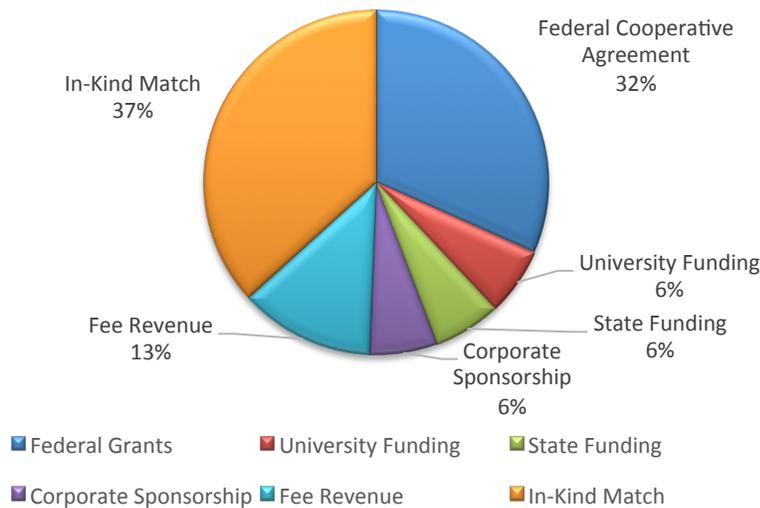
Figure 21: Long-term Funding Mix, Alaska MEP Center



The idea of funding an MEP center in Alaska at less than the \$500,000 minimum threshold was raised frequently with stakeholders engaged in the study. Given the frequency of these discussions, an analysis was also conducted on the projected long-term funding mix of an Alaska MEP center funded at the \$250,000 level. In this case, it is assumed that the ability to generate in-kind support will be unchanged, but that the level of state and university funding will decrease proportional to the decrease of NIST MEP support. This reduced funding award changes the financial composition of the new Alaska MEP center, but it offers a greater diversity of funding sources and less reliance on federal dollars.

Figure 22: Long-Term Funding Mix, \$250,000 Award, Alaska MEP Center

Long-Term Funding Mix at \$250,000 Level



As seen above, an MEP center funded at a modest \$250,000 level allows for a more diversified funding structure. Under this structure, the organization receives 1/3 of its support through its federal cooperative agreement with NIST MEP, 1/3 of its support through in-kind contributions, and an additional 1/3 of its support through a variety of other funding sources. Maintaining a highly diversified funding source will be key to the long-term success of an MEP center in Alaska, especially with the current volatility of state and university funding. It is worth noting that under this model the MEP center can still choose to grow over time if market conditions (including demand for services) warrant an increase in funding.

F. Income/Expense Statements

For the Alaska MEP center, three-year pro forma income statements for the organization have been produced, based on both the \$500,000 and \$250,000 funding levels.

***These income statements are meant to reflect only cash income and expenses, and do not reflect the impact of in-kind support and contributions.

Scenario One: Award Amount - \$250,000

Host: University, State, or Existing Non-Profit

Staff Structure: One full-time center director, one full-time professional staff member

Revenue	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Federal Cooperative Agreement	\$250,000	\$250,000	\$250,000
University/Sponsor Org Funding	\$50,000	\$50,000	\$50,000
State Funding	\$50,000	\$50,000	\$50,000
Corporate Sponsorship	\$10,000	\$25,000	\$50,000
Fee Revenue/Earned Income	\$35,000	\$55,000	\$75,000
Total Revenue	\$395,000	\$430,000	\$475,000
In-Kind Match (Non-Cash)	\$250,000	\$250,000	\$250,000
Expenses			
Facilities and Administration (33%)	\$82,500	\$82,500	\$82,500
MEP Director Salary	\$100,000	\$103,000	\$106,090
MEP Director Fringe (33%)	\$33,000	\$33,990	\$35,010
MEP Staff (1 employee)	\$100,000	\$103,000	\$106,090
MEP Staff Fringe (33%)	\$33,000	\$33,990	\$35,010
Travel Costs	\$17,775	\$19,350	\$47,500
Conferences, Conventions, Meetings	\$10,000	\$10,300	\$10,609
Marketing/Client Outreach	\$7,900	\$8,600	\$9,500
Supplies, Materials, Postage, etc.	\$3,950	\$4,300	\$4,750
Miscellaneous Expenses	\$5,925	\$6,450	\$7,125
Total Expenses	\$394,050	\$405,480	\$444,183
Net Income	<u>\$950</u>	<u>\$24,520</u>	<u>\$30,817</u>

*Travel costs are assumed to be 4.5% of revenue in years 1 and 2 as the MEP builds capacity and a stable funding source. Travel costs expand to 10% of revenue in year 3 as the MEP begins a stronger statewide push.

**Marketing and client outreach is assumed to be 2% of total revenue

***Supplies, Materials, Postage is assumed to be 1% of annual revenue

****Miscellaneous expenses are assumed to be 1.5% of annual revenue

Scenario One (Continued): Award Amount - \$250,000

Revenue	Year 4	Year 5*	Year 6*
Federal Cooperative Agreement	\$250,000	\$250,000	\$250,000
University/Sponsor Org Funding	\$50,000	\$50,000	\$50,000
State Funding	\$50,000	\$50,000	\$50,000
Corporate Sponsorship	\$50,000	\$50,000	\$50,000
Fee Revenue/Earned Income	\$90,000	\$100,000	\$100,000
Total Revenue	\$490,000	\$500,000	\$500,000
In-Kind Match (Non-Cash)	\$265,000	\$280,000	\$290,000
Expenses			
Facilities and Administration (33%)	\$82,500	\$82,500	\$82,500
MEP Director Salary	\$109,273	\$112,551	\$115,927
MEP Director Fringe (33%)	\$36,060	\$37,142	\$38,256
MEP Staff (1 employee)	\$109,273	\$112,551	\$115,927
MEP Staff Fringe (33%)	\$36,060	\$37,142	\$38,256
Travel Costs	\$49,000	\$50,000	\$50,000
Conferences, Conventions, Meetings	\$10,927	\$11,255	\$11,593
Marketing/Client Outreach	\$9,800	\$10,000	\$10,000
Supplies, Materials, Postage, etc.	\$4,900	\$5,000	\$5,000
Miscellaneous Expenses	\$7,350	\$7,500	\$7,500
Total Expenses	\$455,143	\$465,640	\$474,960
Net Income	<u>\$34,857</u>	<u>\$34,360</u>	<u>\$25,040</u>

*Travel costs are assumed to be 4.5% of revenue in years 1 and 2 as the MEP builds capacity and a stable funding source. Travel costs expand to 10% of revenue in year 3 as the MEP begins a stronger statewide push.

**Marketing and client outreach is assumed to be 2% of total revenue

***Supplies, Materials, Postage is assumed to be 1% of annual revenue

****Miscellaneous expenses are assumed to be 1.5% of annual revenue

*****Starting in year 5, the MEP center must match 1.5 dollars to every 1 federal dollar (3:2 match)

*****Starting in year 6, the MEP center must match 2 dollars to every 1 federal dollar (2:1 match)

*****In-Kind Match support will increase from year 4 to 6 as the program is able to build its client base and better leverage in-kind contributions from third-party service providers

Scenario Two: Award Amount - \$500,000

Host: University, State, or Existing Non-Profit

Staff Structure: One full-time center director, two full-time professional staff members

Revenue	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Federal Cooperative Agreement	\$500,000	\$500,000	\$500,000
University/Sponsor Org Funding	\$100,000	\$100,000	\$100,000
State Funding	\$100,000	\$100,000	\$100,000
Corporate Sponsorship	\$10,000	\$25,000	\$50,000
Fee Revenue/Earned Income	\$35,000	\$55,000	\$75,000
Total Revenue	\$745,000	\$780,000	\$825,000
In-Kind Match (Non-Cash)	\$250,000	\$250,000	\$250,000
Expenses			
Facilities and Administration (33%)	\$165,000	\$165,000	\$165,000
MEP Director Salary	\$100,000	\$103,000	\$106,090
MEP Director Fringe (33%)	\$33,000	\$33,990	\$35,010
MEP Staff (2 employees)	\$200,000	\$206,000	\$212,180
MEP Staff Fringe (33%)	\$66,000	\$67,980	\$70,019
Third-Party Contractual Services	\$85,000	\$85,000	\$85,000
Travel Costs	\$33,525	\$35,100	\$82,500
Conferences, Conventions, Meetings	\$10,000	\$10,300	\$10,609
Marketing/Client Outreach	\$29,800	\$31,200	\$33,000
Supplies, Materials, Postage, etc.	\$7,450	\$7,800	\$8,250
Miscellaneous Expenses	\$11,175	\$11,700	\$12,375
Total Expenses	\$740,950	\$757,070	\$820,033
Net Income	<u>\$4,050</u>	<u>\$22,930</u>	<u>\$4,967</u>

*Travel costs are assumed to be 4.5% of revenue in years 1 and 2 as the MEP builds capacity and a stable funding source. Travel costs expand to 10% of revenue in year 3 as the MEP begins a stronger statewide push.

**Marketing and client outreach is assumed to be 4% of total revenue

***Supplies, Materials, Postage is assumed to be 1% of annual revenue

****Miscellaneous expenses are assumed to be 1.5% of annual revenue

*****Third-Party Contractual Services are fees paid to third-party consultants for project delivery to specific clients. These consultants essentially serve as part-time, contractual staff for the MEP center.

Scenario Two (Continued): Award Amount - \$500,000

Revenue	<u>Year 4</u>	<u>Year 5*</u>	<u>Year 6*</u>
Federal Cooperative Agreement	\$450,000	\$400,000	\$400,000
University/Sponsor Org Funding	\$125,000	\$150,000	\$150,000
State Funding	\$125,000	\$150,000	\$150,000
Corporate Sponsorship	\$50,000	\$50,000	\$50,000
Fee Revenue/Earned Income	\$90,000	\$100,000	\$100,000
Total Revenue	\$840,000	\$850,000	\$850,000
In-Kind Match (Non-Cash)	\$300,000	\$350,000	\$350,000
Expenses			
Facilities and Administration (33%)	\$148,500	\$132,000	\$132,000
MEP Director Salary	\$109,273	\$112,551	\$115,927
MEP Director Fringe (33%)	\$36,060	\$37,142	\$38,256
MEP Staff (2 employees)	\$218,545	\$225,102	\$231,855
MEP Staff Fringe (33%)	\$72,120	\$74,284	\$76,512
Third-Party Contractual Services	\$85,000	\$85,000	\$85,000
Travel Costs	\$84,000	\$85,000	\$85,000
Conferences, Conventions, Meetings	\$10,927	\$11,255	\$11,593
Marketing/Client Outreach	\$33,600	\$34,000	\$34,000
Supplies, Materials, Postage, etc.	\$8,400	\$8,500	\$8,500
Miscellaneous Expenses	\$12,600	\$12,750	\$12,750
Total Expenses	\$819,025	\$817,583	\$831,393
Net Income	<u>\$20,975</u>	<u>\$32,417</u>	<u>\$18,607</u>

*Travel costs are assumed to be 4.5% of revenue in years 1 and 2 as the MEP builds capacity and a stable funding source. Travel costs expand to 10% of revenue in year 3 as the MEP begins a stronger statewide push.

**Marketing and client outreach is assumed to be 4% of total revenue

***Supplies, Materials, Postage is assumed to be 1% of annual revenue

****Miscellaneous expenses are assumed to be 1.5% of annual revenue

*****Starting in year 5, the MEP center must match 1.5 dollars to every 1 federal dollar (3:2 match)

*****Starting in year 6, the MEP center must match 2 dollars to every 1 federal dollar (2:1 match)

*****In-Kind Match support will increase from year 4 to 6 as the program is able to build its client base and better leverage in-kind contributions from third-party service providers

*****Third-Party Contractual Services are fees paid to third-party consultants for project delivery to specific clients. These consultants essentially serve as part-time, contractual staff for the MEP center.

Scenario Three: Award Amount - \$500,000

Host: University, State, or Existing Non-Profit

Staff Structure: One full-time center director, two full-time professional staff members, two regional account managers (one in Fairbanks and one in Juneau)

Revenue	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Federal Cooperative Agreement	\$500,000	\$500,000	\$500,000
University/Sponsor Org Funding	\$100,000	\$100,000	\$100,000
State Funding	\$100,000	\$100,000	\$100,000
Corporate Sponsorship	\$10,000	\$25,000	\$50,000
Fee Revenue/Earned Income	\$35,000	\$55,000	\$75,000
Total Revenue	\$745,000	\$780,000	\$825,000
In-Kind Match (Non-Cash)	\$250,000	\$250,000	\$250,000
Expenses			
Facilities and Administration (33%)	\$165,000	\$165,000	\$165,000
MEP Director Salary	\$100,000	\$103,000	\$106,090
MEP Director Fringe (33%)	\$33,000	\$33,990	\$35,010
MEP Staff (2 employees)	\$200,000	\$206,000	\$212,180
MEP Staff Fringe (33%)	\$66,000	\$67,980	\$70,019
MEP Account Manager (1 FTE)	\$80,000	\$82,400	\$84,872
MEP Account Manager Fringe (33%)	\$26,400	\$27,192	\$28,008
Travel Costs	\$29,800	\$31,200	\$74,250
Conferences, Conventions, Meetings	\$10,000	\$10,300	\$10,609
Marketing/Client Outreach	\$14,900	\$15,600	\$16,500
Supplies, Materials, Postage, etc.	\$7,450	\$7,800	\$8,250
Miscellaneous Expenses	\$11,175	\$11,700	\$12,375
Total Expenses	\$743,725	\$762,162	\$823,163
Net Income	<u>\$1,275</u>	<u>\$17,838</u>	<u>\$1,837</u>

*Travel costs are assumed to be 4% of revenue in years 1 and 2 as the MEP builds capacity and a stable funding source. Travel costs expand to 9% of revenue in year 3 as the MEP begins a stronger statewide push.

**Marketing and client outreach is assumed to be 2% of total revenue

***Supplies, Materials, Postage is assumed to be 1% of annual revenue

****Miscellaneous expenses are assumed to be 1.5% of annual revenue

*****MEP account manager expense covers the salary of a .5 FTE in two regional communities (Fairbanks and Juneau)

Scenario Three (Continued): Award Amount - \$500,000

Revenue	Year 4	Year 5*	Year 6*
Federal Cooperative Agreement	\$450,000	\$400,000	\$400,000
University/Sponsor Org Funding	\$125,000	\$150,000	\$150,000
State Funding	\$125,000	\$150,000	\$150,000
Corporate Sponsorship	\$50,000	\$50,000	\$50,000
Fee Revenue/Earned Income	\$90,000	\$100,000	\$100,000
Total Revenue	\$840,000	\$850,000	\$850,000
In-Kind Match (Non-Cash)	\$300,000	\$350,000	\$350,000
Expenses			
Facilities and Administration (33%)	\$148,500	\$132,000	\$132,000
MEP Director Salary	\$109,273	\$112,551	\$115,927
MEP Director Fringe (33%)	\$36,060	\$37,142	\$38,256
MEP Staff (2 employees)	\$218,545	\$225,102	\$231,855
MEP Staff Fringe (33%)	\$72,120	\$74,284	\$76,512
MEP Account Manager (1 FTE)	\$87,418	\$90,041	\$92,742
MEP Account Manager (33%)	\$28,848	\$29,713	\$30,605
Travel Costs	\$75,600	\$76,500	\$76,500
Conferences, Conventions, Meetings	\$10,927	\$11,255	\$11,593
Marketing/Client Outreach	\$16,800	\$17,000	\$17,000
Supplies, Materials, Postage, etc.	\$8,400	\$8,500	\$8,500
Miscellaneous Expenses	\$12,600	\$12,750	\$12,750
Total Expenses	\$825,091	\$826,837	\$844,240
Net Income	<u>\$14,909</u>	<u>\$23,163</u>	<u>\$5,760</u>

*Travel costs are assumed to be 4% of revenue in years 1 and 2 as the MEP builds capacity and a stable funding source. Travel costs expand to 9% of revenue in year 3 as the MEP begins a stronger statewide push.

**Marketing and client outreach is assumed to be 2% of total revenue

***Supplies, Materials, Postage is assumed to be 1% of annual revenue

****Miscellaneous expenses are assumed to be 1.5% of annual revenue

*****Starting in year 5, the MEP center must match 1.5 dollars to every 1 federal dollar (3:2 match)

*****Starting in year 6, the MEP center must match 2 dollars to every 1 federal dollar (2:1 match)

*****In-Kind Match support will increase from year 4 to 6 as the program is able to build its client base and better leverage in-kind contributions from third-party service providers

*****MEP account manager expense covers the salary of a .5 FTE in two regional communities (Fairbanks and Juneau)

G. Income Statement Scenario Comparison

When comparing the three scenarios presented in the previous section, conclusions can be drawn regarding the financial constraints driving the ultimate structure for an Alaska MEP center. A brief synopsis and discussion of a few of these constraints can be seen below:

i. Scenario One

Under scenario one, the Alaska MEP center will operate on a reduced award of \$250,000. The main purpose of a reduced award is to allow the MEP center to better attain its metrics and have an easier time generating the required 1:1 and ultimately 2:1 match required by the cooperative agreement with NIST MEP. Under this scenario, the first constraint encountered is the center simply doesn't possess the resources required to provide staff in any of Alaska's outlying hub communities. The center is also only able to employ two full-time staff members: one to handle marketing and client engagement, and one having specialized expertise with manufacturing and skills necessary to warrant being billed out to clients. Likely this specialty would be in lean manufacturing or ISO certification (or ideally, both).

One of the realities facing an MEP center in Alaska is the center will be unable to perform all of the specific functions required by local manufacturers. The needs of Alaska's manufacturers are simply too diverse to be met entirely by the projected limited staff. Therefore, Alaska manufacturers will benefit greatly from an Alaska MEP center that exposes clients to third-party service providers. Even with third-party providers offering services at a steep discount, it is unlikely that many Alaska manufacturers will be able to afford even the reduced price for these services. If remaining funds were available, the Alaska MEP center could contract with third-party providers, essentially bringing them on as part-time, contractual staff. The MEP center could then charge clients for working with these providers, at a price that makes these services accessible to manufacturers. Unfortunately, under the financial projections for a \$250,000 award, the center would not have the funds necessary to work with these third-party providers. This would mean that any business looking to work with a third-party provider would need to pay the full rate for these services (aside from any discounts offered by the third-party provider).

The final constraint of this scenario is that the MEP center will lack significant resources to put towards marketing and travel. With an MEP center operating primarily from one hub community, travel costs will be driven upward (given the need to travel across the state). Therefore, under this model, an MEP center will have a difficult time servicing businesses from all regions of Alaska. Further, with a reduced marketing budget an Alaska MEP center will have difficulty raising awareness of the program.

ii. Scenario Two

Under scenario two the Alaska MEP center is faced with relatively few constraints. The main issue with this scenario is simply that the MEP center will lack representatives from Alaska's many different regions. However, the MEP center will have a drastically increased

travel/outreach budget, as well as a more robust marketing budget. This could allow the MEP center better ability to promote their services across the state.

Furthermore, this scenario provides for \$85,000 for third-party providers. Having this dedicated resource available could help make MEP center services much more attainable for business owners that lack significant financial resources to pay for services, as well as enhance the suite of MEP center services available. Ultimately this scenario will help to carry out the mission of NIST MEP, to help grow the state’s manufacturing businesses.

iii. Scenario Three

The main advantage of scenario three is that it would allow the MEP center to have a regional presence across the state. This scenario would allow for two half-time employees that could be placed in Fairbanks and Juneau (or another hub community). These employees would be responsible for business development and client engagement in their respective regions. Essentially, the regional representatives would be responsible for marketing the MEP center in their region and generating client leads to be carried out ultimately by the MEP center’s full-time specialist staff, or through a third-party provider. The primary drawback with this scenario is that by staffing regional MEP center offices, the center lacks the available funds to hire third-party service providers, much like in scenario one.

Figure 23: Fairbanks Manufacturers, Such as the Great Alaska Bowl Company (seen below), May Benefit from a Statewide MEP Center Approach



Photo Courtesy of Greg Martin

VIII. Metrics and Measures

NIST MEP measures and evaluates the performance of centers through a multi-pronged approach that includes quantitative measures (Impact Metrics) and qualitative criteria (Center Diagnostics and Panel Reviews). Together, the Impact Metrics and Center Diagnostics form the CORE process, standing for Center Operations Reporting and Evaluation. While the much of this section is devoted to an analysis of potential outcomes related to the Impact Metrics, it should be noted that NIST MEP does not make funding decisions on the basis of quantitative metrics. The agency attempts to embrace a holistic view of center operations, giving weight to local and state priorities as well as nationally defined criteria. An Alaska MEP center can achieve high performance in qualitative terms with the right management, even if its ability to generate high numerical targets is limited.

A. Qualitative Measures

Both the Panel Reviews and Center Diagnostics utilize the following criteria:

- ❖ Market understanding
- ❖ Business model
- ❖ Partnerships
- ❖ Financial viability

The Panel Review process, which brings together a team of NIST MEP staff, center staff, and others familiar with the MEP network, also adds a “metrics” criterion to this mix. Center Diagnostics includes strategic alignment as an additional category. At the national level, NIST MEP is in the process of revising its evaluation framework, but the agency places strong emphasis on a balanced view of center operations, with quantitative metrics being only one component. This should ease the concerns of Alaska stakeholder groups that expressed consternation about numerical targets. Table 20 summarizes the major qualitative criteria that overlap between the Panel Reviews and Center Diagnostics.

As of the writing of this report, NIST MEP is moving toward an Annual Review process with a streamlined but similar set of criteria to that outlined above. Categories are expected to include Market Understanding, Program Management, and financial viability. Regardless of this change, the existing framework serves as a useful guide to developing and evaluating a strong MEP center for Alaska.

Table 20: Qualitative Measures used in Panel Reviews or Center Diagnostics

Criteria	Strategies for high performance
Strategic Alignment	Broken into two major components: innovation practice and next generation strategies. The center should align its efforts with statewide industry development initiatives (workforce, value-added processing of commodities) and diffuse innovative practices to score well here. As manufacturing operations in Alaska are smaller and less sophisticated than elsewhere in the country, the center will need to explore the types of innovations with the greatest impacts.
Market Understanding	Center should conduct and review industry analysis, and systematically target services to key segments. Client base should be relatively diversified in terms of size, industry, and geography.
Business Model	Major success factors include: <ul style="list-style-type: none"> • Systematic approach to sales management • Involvement of private sector decision makers in strategic direction • Balance between sales and service delivery • ability to take on long-term transformation projects with clients • Pipeline of upcoming projects • Appropriate skill levels of staff • Leadership development and succession planning • ROI evaluation of sub-recipients and contractors
Partnerships	Partnerships should align with center’s strategic plan as well as local/state priorities by increasing market penetration and skillsets. Center should have documented processes for establishing, managing, evaluating, and dissolving partnerships.
Financial viability	The center should reinvest in capacity, have diverse and stable non-federal funds, project fee revenue growth, and show growth in state-level funding support.

In addition to developing an understanding of the national evaluation criteria, the project consortium explored local priorities as well, inquiring about the value the proposed MEP Center might provide to the state’s existing goals and values. Based on stakeholder interviews and review of existing strategy documents, the consortium found that an MEP center’s contributions to statewide priorities could be broken into three broad areas: value-added processes, workforce

development, and seed cluster support. These three areas, along with MEP center strategies, are further described in Table 21.

Additionally, the consortium came to believe that Alaskan economic development provider organizations are generally not driven by numerical metrics. ARDORs and EDOs, for instance, do not generally report numerical measures such as job creation. Therefore, in addition to the NIST MEP reporting processes, the MEP center should embrace a consistent process of reporting “success stories” or other types of narratives to show alignment with existing strategies.

Table 21: Strategic Alignment with Alaskan Economic Development Priorities

Identified Economic Development Priority	MEP Center Activities to Address
<p>Value Added Processing. Alaska’s economy has historically specialized in the exporting of raw commodities, such as crude oil, minerals, and fish. State leaders have long sought solutions for adding value in-state to produce greater economic impacts.</p>	<p>Service emphasis on manufacturing related to resource extraction industries, assisting clients working to undertake processes that typically occur out-of-state. Center should communicate these strategies publicly and report outcomes to stakeholders.</p>
<p>Workforce Development. Several recent studies have identified severe shortages of skilled, semi-skilled, and unskilled labor in the state, which restrains business expansion.</p>	<p>MEP center should offer services with workforce training components, such as HACCP, lean, ISO, and others. Staff should communicate successes accordingly, and work closely with partner organizations serving workforce needs.</p>
<p>Seed Clusters. The <i>Alaska Forward</i> study identified several emerging growth areas for the state, including clean energy, cold climate technology, specialty solvents, aviation technology, and remote communications technology.</p>	<p>Center should pay close attention to emerging technologies, communicating its work with growth sectors appropriately. Additionally, the program should engage in a process of identifying emerging growth sectors and publicizing them, drawing in other partner organizations to assist as well.</p>

Realistically, any MEP center in Alaska will struggle to achieve high metric performance by NIST MEP’s nationwide standards. The state’s remote location and low population density make it one of the most (if not the most) challenging states to develop a manufacturing base. While NIST MEP has repeatedly expressed an interest in emphasizing factors other than quantitative targets, the subject still warrants careful attention. It is the belief of the project consortium that NIST MEP should be fully aware of the potential metric performance that an Alaska MEP center can generate, so that they can make the most informed investment decision with their resources moving forward. NIST MEP evaluates centers on the following categories:

- ❖ New sales
- ❖ Retained sales
- ❖ Jobs per \$1M of federal investment

- ❖ New investment
- ❖ Cost savings
- ❖ Clients served per \$1M
- ❖ New clients per \$1M

B. Quantitative Metrics

Throughout the planning process, NIST MEP staff repeatedly emphasized that Impact Metrics would not be used to evaluate whether or not to fund or continue funding an MEP center. As such, this section was developed to explore likely impacts, but not to render a judgment about the “feasibility” of an MEP center in Alaska. Stakeholders in the state should not be daunted if a center cannot score at the highest levels in this area, as it is only one aspect of the evaluation process. The numerical targets described here should be seen as conservative but realistic goals for a new center. Wherever possible, an MEP center should try to score as high as possible, but should not view Impact Metrics as the principle measure of success.

Given Alaska’s limited manufacturing success, in order to achieve reasonable Impact Metrics an Alaska MEP center will need to focus on key areas in which it has the best chance to score well. From the project consortium’s research, it has been identified that the bulk of the state’s manufacturers generally have low sales volumes by national standards (under \$5 million). Given this, the ability of an Alaska MEP center to generate new sales, retain existing sales, and create jobs will be quite limited. Despite these realities, an Alaska MEP center has many categories in which it score well: investment in new products/processes, cost savings, project clients, and new project clients. Even though the number of Alaskan manufacturers is small, there are enough that a highly motivated MEP center could bring a number of clients into the program, and thus score high on the “new clients” and “clients served” categories.

Given Alaska’s relative lack of a manufacturing base, the argument could be made that an Alaska MEP center might not need a full \$500,000 in federal funding from NIST MEP. If center beings operations by drawing a lower amount, an Alaska MEP center would not need as strong of a performance in the various metric areas to score well on the Impact Metrics, since metric targets are tied to funding. For instance, the difference in metrics required between \$250,000 in funding and \$500,000 in funding would be substantial. Of course, given Alaska’s higher cost of living, sparse population, and lack of a manufacturing base, the argument could also be made that Alaska desperately needs the additional funding in order to develop its manufacturing base and various related industry sectors. However, while a full \$500,000 in funding could aid in this effort, applicant entities would need to weigh the fact that the Alaska MEP center likely would not produce high Impact Metrics.

i. New Project Clients

One of the metrics utilized by NIST MEP is the number of new clients generated annually. In Alaska this creates a major challenge. Statewide, Alaska has just 530 total manufacturing

establishments, few of which have the ability or inclination to pay for services. Therefore, for an Alaska MEP center to be successful in achieving a good score on this metric, it will either need to provide services well below the market rate so that businesses have the ability to pay, or they will need to find a way to provide lower-end services to these businesses. The consortium believes helping a larger number of businesses is important to Alaska stakeholders.

When it comes to full-paying, full service clients of an Alaska MEP center, the project consortium estimates a realistic projection of approximately 10 new clients per year. This is also assuming that there would be a highly discounted price associated with the service. Furthermore, with only a small percentage of businesses capable of affording these services, NIST MEP needs to understand that these numbers are likely not sustainable for the center on a long-term basis. For instance, if there are 30 businesses capable of purchasing full service consulting from an MEP center, at a rate of 10 new clients per year the entire pool of Alaska businesses will have been served in three years. It is not likely that enough new businesses in Alaska will reach this same stage each year to keep these numbers sustainable year after year. Furthermore, many of the businesses interviewed expressed an opinion that they were not interested in the services of an MEP center, or that they were simply lifestyle businesses that had no interest in growth. So while the Alaska MEP center may have success in bringing in new clients each year in the first 3-5 years of operations, bringing in new paying clients after that will be a serious challenge without expanding to include smaller businesses (who often lack the ability to pay). A broader, membership-based model (which would supplement, rather than replace, the MEP center's other services), could allow the MEP center to reach out to more businesses and increase the number of new clients they see each year.

Considering all the above factors, the project consortium has come to the following conclusions regarding this metric:

- ❖ At a \$500,000 funding level, the Alaska MEP center would need 22 new clients per year in order to generate a full score of 15 out of 15.
- ❖ At a \$250,000 funding level, the Alaska MEP center would need 11 new clients per year in order to score 15 out of 15.
- ❖ A reasonable target for the Alaska MEP center would be 10 new clients per year, for a score of 7 out of 15 (at \$500,000 in funding).
 - This number could increase if the MEP center included a membership-based model

ii. Project Clients

In addition to new clients generated, another metric for the MEP center is the total number of clients served in that particular year. Over time, this will be a major opportunity area for the MEP center. If the MEP center can work with clients and build a solid reputation, they will be able to grow their book of business over time.

Given the very low number of potential paying clients, a long-term estimate of 20 total clients served per year would be optimistic but reasonable, although it may take quite some time before the MEP center can hit this number. At the \$500,000 funding level, the Alaska MEP center would need to work with 89 clients in a year in order to generate a maximum score of 15 out of 15. Under the proposed model, a long-term score of 3 out of 15 seems realistic (20 clients annually). It is worth noting that this number could be driven higher by engaging with clients through a membership-based model.

iii. New Jobs Created

The Alaska MEP center will also be scored based on the number of jobs it can generate. In all likelihood, the Alaska MEP center will be working with 20 clients on an in-depth basis per year. Given the small size of the typical Alaska firm (usually 10-15 employees if around \$5 million in annual revenue), it would be reasonable (but ambitious) to assume that two jobs would be generated for the average client. Therefore, it is possible that the Alaska MEP center could create 40 jobs per year in the long-term based on these assumptions. At 40 jobs created per year, the new MEP center would generate an impact score of 1 out of 10 for this metric. One particular bright spot of opportunity for job creation lies within the state's brewing sector, where Alaska has seen an employment boom in recent years.

iv. New Sales

New sales are very difficult to predict for an Alaska MEP center. In order to come up with the best estimates possible based on the gathered research from the study, the following assumptions were made:

- ❖ The new MEP center would closely work with 20 clients each year in the long-term.
- ❖ Each of these clients are medium to large businesses (by Alaska standards), with average annual sales of \$5 million (a reasonable estimate based on the research results).
- ❖ Each business would normally achieve an average annual sales growth of 5%.
- ❖ Each business that is closely working with the MEP center on a particular project would be able to achieve an annual sales growth rate that is 150% higher than they would otherwise achieve (12.5% annual growth rate).

Using these assumptions as a base-line rate for the metric projections, the following results are seen:

Table 22: Projected Impact Score (New Sales), Alaska MEP Center:

	Long-Term Annual Goal
Clients Served	20
Average Annual Revenue per Client	5,000,000
Total Annual Client Revenue	100,000,000
Sales Growth Rate when Working with MEP	12.5%
Total Annual Sales Growth Achieved	12,500,000
Metric Impact Score (Out of 20)	6

When looking at the previous table, it can quickly become apparent that it will be difficult for an Alaska MEP center to generate a high impact score based on the sales growth of their clients. While it will be a significant challenge for an Alaskan MEP center, with the right client acquisition and engagement, it may be possible to achieve reasonable sales growth figures.

v. Retained Sales

Another difficult figure to predict for an Alaska MEP center will be the total amount of retained sales the center is able to generate. The following assumptions were used in creating estimates for the Alaska MEP center:

- ❖ The new MEP center would work closely with 20 clients per year in the long-term.
- ❖ Each of these close clients are medium to large businesses with annual sales of \$5 million on average.
- ❖ Each business working with the MEP center as a close client would achieve an annual retained sales rate of 20%.

Using these assumptions as a base-line rate for the metric projections, the following results are seen:

Table 23: Projected Impact Score (Retained Sales), Alaska MEP Center:

	Long-Term Annual Goal
Clients Served	20
Average Annual Revenue per Client	5,000,000
Total Annual Client Revenue	100,000,000
Retained Sales Rate Working with MEP	20%
Total Annual Retained Sales Achieved	20,000,000
Metric Impact Score (Out of 10)	2

While the new MEP center’s retained sales figures will likely be low, this is again a function of a lack of a market demand for MEP center services in Alaska.

vi. Cost Savings

A major opportunity area for an Alaska MEP center is through cost savings for its clients. Alaska has some of the highest logistical and energy costs of anywhere in the nation. When it is also factored in that many of Alaska’s companies do not implement Lean Manufacturing principles, and that many do not implement any formal cost control reviews, it becomes clear that cost savings is a major opportunity area for an Alaska MEP center. For estimation purposes, the following assumptions have been made:

- ❖ The new MEP center would work closely with 20 clients in the long-term.
- ❖ Each of these close clients are medium to large businesses with annual sales of \$5 million on average.
- ❖ Each MEP center client has average annual costs that are 90% of total revenue.
- ❖ Each business working with the MEP center as a close client would achieve an annual cost savings rate of 10%.

Table 24: Projected Impact Score (Cost Savings), Alaska MEP Center:

	Long-Term Annual Goal
Clients Served	20
Average Annual Revenue per Client	5,000,000
Total Annual Client Revenue	100,000,000
Total Annual Costs per Client (90% of Revenue)	90,000,000
Cost Reduction Rate Working with MEP	10%
Total Annual Cost Reduction Achieved	9,000,000
Metric Impact Score (Out of 10)	6

While the score for an Alaska MEP center in this category is not strong enough to make up for low scores in other metrics, this is still an area of opportunity for an Alaska MEP center to shine and record an above-average metric.

vii. Investments in New Products/Processes

A challenge for the Alaska MEP center will be to help aid the state’s manufacturing community in their efforts to invest in their companies. An Alaska MEP center will need to work with clients to help them make investments in their companies that will help to build sales and reduce their expenses. In creating estimates for this metric, the following assumptions were used:

- ❖ The new MEP center would work closely with 20 clients per year in the long-term.
- ❖ Each of these close clients are medium to large businesses with annual sales of \$5 million on average.
- ❖ Each close MEP center client would invest an average of \$250,000 annually into their company.

Table 25: Projected Impact Score (New Investments), Alaska MEP Center:

	Long-Term Annual Goal
Clients Served	20
Average New Investment per Client	250,000
Total Annual New Investment	5,000,000
Metric Impact Score (Out of 20)	3

viii. Overall Metric Assessment

After taking into account all different possibilities for an Alaska MEP center, from a metric standpoint, there is a major question to be asked regarding the organization’s ability to meet NIST MEP’s nationally scored metrics. There may, however, be opportunities to meet NIST MEP’s metrics if the funding level for the Alaska MEP center were to be reduced below the \$500,000 level, or if a membership-based model were to be employed to capture results from additional businesses. Regarding funding levels for instance, an MEP center funded at the \$250,000 level would likely be able to have an impact score of nearly double the projections given below:

Table 26: Projected Overall Impact Score, Alaska MEP Center:

Metric	Long-Term Annual Goal
New Clients	7/15
Clients Served	3/15
New Jobs Created	1/10
New Sales	6/20
Retained Sales	2/10
Cost Savings	6/10
New Investment	3/20
Metric Impact Score (Out of 100)	28

IX. Conclusions and Recommendations

After a thorough analysis of Alaska’s manufacturing industry and the challenges it faces, the project consortium has determined that there is a need for an MEP center in Alaska. The state’s manufacturing industry is small and nascent, and could benefit from the services that an MEP center would provide. While this need clearly exists within the state, the MEP center would in all likelihood not be able to generate high metric performance when compared with other MEP centers across the country. However, by showing alignment with existing economic development strategies, an MEP center add significant value to the state. The consortium is able to make recommendations towards establishment of a successful MEP center that advances manufacturing in the state.

The following overriding recommendations are offered towards establishing a successful MEP center in Alaska:

- ❖ Establishing qualitative and quantitative metrics that are rigorous, yet realistic and attainable to allow the Alaska MEP center greater ability to define success in a manner appropriate to the Alaska market. This can be achieved primarily by communicating successful engagements with clients in key growth industries.
- ❖ Starting with a smaller amount of funding and growing “organically” as the center gains clients and market acceptance. Establishing this lower threshold will not only reduce potential match burden for a host organization, but it should also support a softening of numerical metrics to again better position an Alaska MEP center for success.
- ❖ Continuing this NIST MEP effort of engagement. The consortium has conducted extensive stakeholder engagement, but NIST MEP should continue to engage decision makers in Alaska to further educate them on the value of an MEP center.

Additionally, the project consortium devoted considerable effort and thought into possible organizational structures for a future Alaska MEP center. The consortium’s conclusion is that Alaska would be best served with an award of \$500,000, rather than the smaller award mentioned above. The main issue with this, however, is whether or not the hosting organization would be able to generate the needed match support. As a result of this hurdle, the consortium recommends providing the option of a smaller award – organizations unable to produce \$500,000 in match can then propose a smaller amount for consideration.

Given the fairly limited resources that \$500,000 would offer to an Alaska MEP center, the following recommendations are offered regarding the organizational structure of an Alaska MEP center:

- ❖ Hire between one and three staff members (depending on whether the organization will operate satellite offices in Juneau and Fairbanks) who could serve as account managers for the program, helping to generate client leads and manage projects.
- ❖ Develop and work with an extensive third-party provider network of services, including working with MEP centers from outside of Alaska.
- ❖ Offer some high demand services (such as ISO and lean manufacturing) in-house within the MEP center, depending on available funds (likely one or two experts on staff). Some resources (either in-house or third-party) should be dedicated to either fish processing or oil and gas-related manufacturing, if possible.
- ❖ A “network” business model approach could achieve greater penetration of manufacturers, but must be weighed against the administrative complexity it creates. Any group proposing this must be able to demonstrate clear accountability channels for achieving goals.
- ❖ Utilize additional funding to provide further subsidies or grants to manufacturers within the state. This would allow businesses to access assistance even if they lack the ability to pay for services at the market rate.

In an effort to reduce the organization’s expenditures and expand their reach, an Alaska MEP center should seek to partner with existing economic development organizations whenever practical. This could allow the center to promote their services to a wide audience for relatively little cost, which is a method that has been successfully employed by the Innovate Hawaii. Furthermore, if possible, the center should partner with the university to employ graduate students for client engagements. This would allow the MEP center to leverage its full-time staff and its ability to generate fee revenue from clients. It would also have the added benefit of reducing the cost charged to clients.

Appendix 1: Advisory Group Members (with Biographies)

- ❖ **Bart Garber, President and CEO of Tyonek Native Corporation.** Mr. Garber heads an Alaska Native Corporation owned by 800 Dena'ina Athabascan shareholders with revenues approaching \$200 million annually. The corporation earns a large share of revenues through a wholly owned subsidiary, the Tyonek Manufacturing Group, based in Huntsville, Alabama, which builds components for the aviation industry. Mr. Garber, who has overseen the growth of Tyonek since 1995, holds an MBA and law degree. He has approached the UACED about leveraging his company's managerial and technical expertise to expand manufacturing opportunities in Alaska.
- ❖ **Theo Graber, Owner and Product Designer of Alaska Dynamics.** Mr. Graber founded the start-up Alaska Dynamics LLC in 2012 to prototype, produce, and market a patent-protected device that converts heat from wood-burning stoves into usable electricity. Prior to starting his own company, Mr. Graber worked for several manufacturers including the Alaska Distillery, the Alaska Brewing Company, and two separate machining companies. He brings the perspective of a start-up manufacturer committed to building his product locally, as well as a strong technical knowledge in product design, precision machining, 3D CAD design, and electronics fabrication.
- ❖ **Jeffrey Hoffman, Associate Professor of Engineering, University of Alaska Anchorage.** Dr. Hoffman directs the UAA Fabrication Laboratory, which offers 3D printing, injection molding, metal machining, and CAD design services to local businesses on a fee basis. His career spans both private industry and academia, and includes several years in R&D at a medical device maker, as well as other corporate employers. Mr. Hoffman has successfully published in leading engineering journals and holds several patents.
- ❖ **Jamie Kenworthy, Independent Capital Markets Professional.** Dr. James "Jamie" Kenworthy, Ph.D. is former executive director of the Alaska Science and Technology Foundation (ASTF) and was responsible for the overall management of the foundation, its projects and office personnel. Dr. Kenworthy through ASTF leadership gained insights into barriers and needs of industry working in forest products, rural sanitation, telemedicine and public health. Dr. Kenworthy is also a former member of the Advisory Board of Alaska InvestNet, a group that focused on non-traditional venture capital opportunities for Alaska businesses. He has an extensive background in finance and high-technology business and brings these perspectives to the Advisory Group.

- ❖ **Lynn Johnson, President and Founder of Dowland-Bach.** Founded in 1975 to service Alaska’s emerging oil and gas industry, Dowland-Bach is an Anchorage-based manufacturing company that specializes in control systems, wellhead control panels, process modules, stainless steel fabrication, and related products. Mr. Johnson and a co-founder grew the company from a garage to one of the most profitable Alaska manufacturers, and today the firm continues to manage expansion to markets outside Alaska. In addition to his 38 years of manufacturing experience, Mr. Johnson has a degree in business and recently contributed his time to Alaska Forward, an effort to strengthen and diversify Alaska’s economy.

- ❖ **Kim Kovol, Executive Director of Green Star, Inc.** Green Star is an organization that promotes a variety of environmentally friendly business practices, including energy efficiency and waste management. Under Ms. Kovol’s leadership, Green Star has implemented a successful E3 (economy, energy, and environment) program specifically for manufacturing businesses. She brings an E3 perspective to the Advisory Group.

- ❖ **Eric McCallum, Founder of Arctic Wire Rope, and Supply.** Mr. McCallum founded his company in 1983, which specializes in fabricating heavy lift rigging products for the oil and gas, construction, mining, and marine industries in both Alaska and the Russian Far East. Prior to starting Arctic Wire, Rope, and Supply, Mr. McCallum worked for BF Goodrich and Jackovich Industrial Supply, and has a degree in secondary education. Having retired from his company, Mr. McCallum spends his time mentoring small business start-ups, promoting energy efficiency initiatives, and assisting non-profits.

- ❖ **Barb Miller, President and Founder of Midnight Sun Brewing Company, President of Alaska Brewers Guild.** Ms. Miller co-founded Midnight Sun Brewing Company in 1995, becoming one of the pioneers of Alaska’s thriving micro-brewing industry. Under her leadership, Midnight Sun has expanded to become one of the most recognized brands in the state, and entered new markets. Ms. Miller also heads the Alaska Brewers Guild, bringing an industry-wide perspective to the Advisory Group.

- ❖ **George Roe, Research Professor, University of Alaska Fairbanks, Alaska Center for Energy and Power.** Mr. Roe’s career includes 35 years at Boeing in which he contributed to R&D efforts in thermal management, energy efficiency, and alternative energy among others. In his current role at the University, Mr. Roe assists communities in energy efficiency capacity building in addition to his research responsibilities. He brings a specialized knowledge base as well as an understanding of R&D at one of the world’s largest manufacturing companies, and its suppliers.

- ❖ **Ky Holland, Alaska Pacific University.** Mr. Holland is an assistant professor at Alaska Pacific University and the owner of his own consulting firm, *Holland Consulting*. Prior to his current role, Mr. Holland served as the General Manager at Envision CmosXray LLC, a manufacturer of digital X-ray equipment. Mr. Holland has conducted research into Alaska’s manufacturing industry, including his work entitled, “*A Constraints Based Analysis and Plan to Increase Metal Fabrication Manufacturing in Alaska*”. The study looked at ways to increase this small manufacturing sector in Alaska.

- ❖ **Hans Vogel, Triverus Manufacturing LLC.** Mr. Vogel is the owner of Triverus LLC, a machine shop with locations in Alaska and Vermont. His company has developed surface cleaning technology that cleans parking facilities, sidewalks, airport runways, and aircraft carriers. Mr. Vogel brings years of private sector experience and entrepreneurship to the advisory group.

Appendix 2: Interview Guide for Manufacturing Companies

Discussion Questions

1. Please indicate the name of the company. What is your role with the company?
2. How long has the business been in existence?
3. Did you have a manufacturing background before your current role? (Yes/No)
4. What products do you make?
 - ❖ 3D Printing and emerging technologies;
 - ❖ Resource development;
 - ❖ Fish processing;
 - ❖ Other food/beverage manufacturing;
 - ❖ Construction materials;
 - ❖ Fabrication;
 - ❖ Other, please specify _____
5. How many employees does the business have?
6. Is manufacturing your primary line of business or a secondary line?
7. Approximately what is your typical annual revenue?
 - ❖ Less than \$500,000
 - ❖ 500,001-1,000,000
 - ❖ 1,000,001-5,000,000
 - ❖ More than 5,000,000
 - ❖ Specify (if comfortable) _____
8. What percentage of your annual revenue comes from manufacturing?

Growth and Business Development

9. What are your biggest barriers to growth?
 - ❖ Obtaining capital
 - ❖ Entering new markets
 - ❖ Technological gaps
 - ❖ Need for operational upgrades
 - ❖ Workforce gaps
 - ❖ Regulatory or environmental challenges
 - ❖ Competition in the market
 - ❖ Input costs (power, labor, and materials?)
 - ❖ Other _____
10. In which cities/towns do you sell in Alaska?

11. Do you earn sales outside of Alaska? If yes, roughly what percentage of your revenue is earned out of state?

12. Have you tried to access markets in the Lower 48 or Hawaii? If yes, which state/states?

13. Please rank from 1 to 7 the factors which could prevent your company from competing successfully in the Lower 48 (1 is the most important factor).

- ❖ High labor costs
- ❖ Absence of skilled labor
- ❖ Cost of inputs
- ❖ Cost of shipping exports
- ❖ Non-competitive prices
- ❖ High competition with companies based in other markets
- ❖ Other factors, please specify _____

14. Have you tried to access international markets?

15. Which international markets?

- ❖ Asia;
- ❖ Europe;
- ❖ Canada;
- ❖ Latin America;
- ❖ Specific Countries _____

16. What do you think was the reason for your success or failure in accessing these markets?

17. Please rank from 1 to 9 the factors which could prevent your company from competing successfully in a global market.

- ❖ High labor costs
- ❖ Absence of skilled labor
- ❖ Cost of inputs
- ❖ Cost of shipping exports
- ❖ Non-competitive prices
- ❖ Language or cultural barriers
- ❖ Governmental regulations
- ❖ High competition with companies based in other markets
- ❖ Other factors, please specify _____

18. What services could a manufacturing assistance program provide to help your business improve competitiveness locally/in the Lower 48 markets/global market?

Technical and Operational

19. What is your greatest challenge with technology?

20. Is your facility and equipment up to date? Are you aware of upgrades that could result in cost savings or increased output?
21. If someone gave you an efficiency report saying you were in the top x% against competitors and stating recommendations to process improvement strategy, would that be useful?
22. Does your business use the services of any consultants for operational improvements, technological improvements, business development or other services? What firms do you use?
23. How much money would you be willing to invest in these services per year?
- ❖ Less than \$2,000
 - ❖ \$2,001-\$10,000
 - ❖ \$10,001-\$20,000
 - ❖ More than \$20,000
24. Are there technical, operational, organizational or other services you would pay for?
- Technical:** rapid prototyping, CAD software, custom programming, energy efficiency, engineering, R&D, CNC technology.
- Operational:** Lean, Six Sigma, ISO 9000, AS9100 process efficiency and improvements, supply chain, health and safety.
- Organizational:** management trainings, workforce trainings, business development, sales, export assistance, workforce training, regulatory, intellectual property.
25. Has your company ever done a thorough review of lean manufacturing principles? If so, how did you evaluate and implement?
26. Are there competencies or certifications that would improve your business, such as Six Sigma, ISO, or others? Would you pay an outside party to provide these services? Do you have customers (such as oil companies) demanding these certifications?
27. Does your workforce require special training? If yes, is the training needed on a recurring basis, and how are these needs met? Please specify what kind of training.
28. Does your business undertake cost control reviews on a regular basis?
29. Which investments would you prioritize most to improve profitability? (E.g. training, workers, strategic advice, process improvements, capital/equipment etc.)
30. What values/programs would a manufacturing assistance program need to communicate to you in order to gain your confidence and business?

Appendix 3: List of Manufacturing Companies Interviewed

Company name	Products	Industry Sector	Location
Ace Dragon Coatings & Foam Inc.	Other: 'duck ponds' chemical fluid catch	Miscellaneous Manufacturing	Nikiski
ADS-B Technologies	Other: Surveillance systems	Computer and Electronic Product Manufacturing	Anchorage
Advance Fitness Mobility	Fabrication	Fabricated Metal Product Manufacturing	Juneau
Aero Twin Inc.	Other: Modification parts for aircraft	Transportation Equipment Manufacturing	Anchorage
Alaska Bullet Works	Other: Big game hunting bullets	Sporting and Athletic Goods Manufacturing	Juneau
Alaska Chip Company	Other: Popcorn and potato chips	Food Manufacturing	Anchorage
Alaska Concrete Casters / Source LLC	Construction materials	Nonmetallic Mineral Product Manufacturing	Juneau
Alaska Countertops Inc.	Other: Countertops	Furniture and Related Product Manufacturing	Anchorage
Alaska Gem	Other: Wooden crafts	Wood Product Manufacturing	Ketchikan
Alaska Glacier Products, LLC	Other: Plastic bottles, bottled water, beverages	Soft Drink Manufacturing	Anchorage
Alaska Insulated Panels (R-Valued Homes)	Other: Insulated panels	Wood Product Manufacturing	Wasilla
Alaska Litho	Other: Printed material, ink on paper	Printing and Related Support Activities	Juneau
Alaska Mill and Feed	Other food/beverage manufacturing	Food Manufacturing	Anchorage
Alaska Native Arts	Other: Sculptures, jewelry, garden sculptures	Miscellaneous Manufacturing	Juneau
Alaskan Wilderness Wines	Other food/beverage manufacturing	Soft Drink Manufacturing	Kodiak
Alchem Inc.	Other: Urethane panels	Plastics and Rubber Products Manufacturing	Anchorage
Allen Marine, Inc.	Fabrication	Transportation Equipment Manufacturing	Sitka
Arctic Wire Rope and Supply	Other: Ratchet straps, cable slings, cargo nets, custom configurations	Miscellaneous Manufacturing	Anchorage

ATEC Marine	Other: Commercial fishing boats and trailers	Miscellaneous Manufacturing	Kenai
Auction Block Seafoods	Fish processing	Food Manufacturing	Homer
Baranof Island Brewing Company	Beer brewing	Soft Drink Manufacturing	Sitka
Bear Creek Winery	Other food/beverage manufacturing	Soft Drink Manufacturing	Homer
Blackdog Penworks	Fabrication	Fabricated Metal Product Manufacturing	Juneau
Blue Yodel Boat Manufacturer	Other: Aluminum boats, work skiffs, landing craft, work boats	Boat Building and Repairing	Kodiak
Capital Glass Northernm Windows	Other: Insulated glass panels	Nonmetallic Mineral Product Manufacturing	Anchorage
DAT/EM Systems International	Other: Digital mapping software, light hardware	Computer and Electronic Product Manufacturing	Anchorage
Denali Brewing Company	Beer brewing	Soft Drink Manufacturing	Talkeetna
Denali Dreams Soap Company	Other: soap, lotions, lip balm	Miscellaneous Manufacturing	Anchorage
Denali Materials Incorporated	Other: Asphalt products	Petroleum and Coal Products Manufacturing	Anchorage
Dorkfish Delights Pet Treats	Other: Pet Treats	Food Manufacturing	Ketchikan
Emerson Boat Works	Fabrication	Boat Building and Repairing	Kodiak
Equipment Source Incorporated (ESI)	Other: Generators and portable heaters	Machinery Manufacturing	Anchorage
Fairbanks Fur Tannery	Other: Tanned capes and hides	Leather Good and Allied Product Manufacturing	Fairbanks
Great Alaska Bowl Company	Other: Birch bowl	Wood Product Manufacturing	Fairbanks
Greer Tank	Other: Tanks	Fabricated Metal Product Manufacturing	Fairbanks
GripAll USA	Other: No-slip gripping surfaces	Plastics and Rubber Products Manufacturing	Fairbanks
Haines Brewing Company	Beer brewing	Soft Drink Manufacturing	Haines

Heritage Coffee Roasting Company	Other: Roasting coffee	Food Manufacturing	Juneau
Hoffer Glass	Other: Windows	Nonmetallic Mineral Product Manufacturing	Fairbanks
Homer Brewing Company	Beer brewing	Soft Drink Manufacturing	Homer
Insulfoam	Other: EPS insulated foam	Miscellaneous Manufacturing	Anchorage
International Seafood of Alaska (ISA) Fish processor	Fish processing	Food Manufacturing	Kodiak
J & R Fisheries	Fish processing	Food Manufacturing	Seward
Kelly Building Supply	Construction materials	Millwork	Juneau
Kodiak Fishmeal Company	Other: Fish meal, fish bones	Food Manufacturing	Kodiak
Kodiak Island Brewing Company	Beer brewing	Soft Drink Manufacturing	Kodiak
Kodiak metals Inc.	Other: Fishing industry vessel components	Fabricated Metal Product Manufacturing	Kodiak
Kodiak Print Master	Other: Printing, signs shirts, vinyl	Printing and Related Support Activities	Kodiak
Lime Solar	Other: Solar racking for arctic conditions, electrical components for renewable energy projects	Miscellaneous Manufacturing	Anchorage
Moosetard	Other food/beverage manufacturing	Food Manufacturing	Fairbanks
Nomad Shelter Yurts	Other: Yurts	Miscellaneous Manufacturing	Homer
NOMAR	Other: Outerwear clothing, upholstery, and tarps	Miscellaneous Manufacturing	Homer
North Pacific Seafoods	Fish processing	Food Manufacturing	Kodiak
Pickled Willy's	Other: Pickled fish, smoked fish	Food Manufacturing	Kodiak
Pure Sea Salt	Other food/beverage manufacturing	Food Manufacturing	Sitka
Seafood Producers Coop	Fish processing	Food Manufacturing	Sitka
Signco	Other: Signs, buildings' facades	Miscellaneous Manufacturing	Anchorage

Skagway Brewing Company	Beer brewing	Soft Drink Manufacturing	Skagway
Stitch Whizz Embroidery	Other: Custom embroidery	Miscellaneous Textile Product Mills	Kodiak
Superior Pellet Fuels LLC	Other: Pellet fuels and logs	Wood Product Manufacturing	North Pole
The Wood Shop	Other: Wooden crafts	Wood Product Manufacturing	Ketchikan
Timemachinist	Other: Watches and watch accessories	Watch, Clock, and Part Manufacturing	Juneau
Tongass Forest Enterprises	Other: Custom milled products and pellets	Millwork	Ketchikan
Totem Equipment And Supply	Other: Fuel and water tanks, heater trailers, Pressure Washers etc.	Fabricated Metal Product Manufacturing	Anchorage
Transparent Devices	Other: Science Education Devices	Miscellaneous Manufacturing	Juneau
Walker LLC, DBA Capitol Embroidery	Other: Embroidery, screen printing, garment printing	Miscellaneous Textile Product Mills	Juneau
Wintersong Soap	Other: Bath products	Miscellaneous Manufacturing	Sitka

Appendix 4: Interview Results, Alaska Manufacturers

Table 27: Interviewed Manufacturers at a Glance

Question	
Total number of interviews	67
Average length of time in business	20 years
Did you have a background in manufacturing before your current role?	31% Yes
Average number of employees	23 employees
Is manufacturing your primary line of business	58% Yes
Do you earn sales outside of Alaska?	63% Yes
If yes, average % that comes from out of state	37.74%
Have you tried to access markets in the lower 48 or Hawaii?	60% Yes
Have you tried to access international markets	39% Yes
Has your business ever employed the services of a consultant?	52% Yes
Has your company ever done a thorough review of lean manufacturing principles?	14% Yes

Table 28: Interviewed Manufacturers by Sector

Manufacturing Sector	Number of Companies Interviewed
Other/Miscellaneous Manufacturing	18
Food Manufacturing	13
Drink Manufacturing	9
Fabricated metal Product Manufacturing	5
Wood Product Manufacturing	5
Nonmetallic Mineral Product Manufacturing	3
Computer and Electronic Product Manufacturing	2
Plastics and Rubber Products Manufacturing	2
Boat Building and Repairing	2
Millwork	2
Miscellaneous Textile Products	2
Printing and Related Support Activities	2
Transportation Equipment Manufacturing	2

Table 29: How long has your business been in existence?

0-5 Years	6-10 Years	11-20 Years	20+ Years
13 (19%)	13 (20%)	16 (24%)	25 (37%)

Figure 24: Did you have a background in manufacturing before your current role?

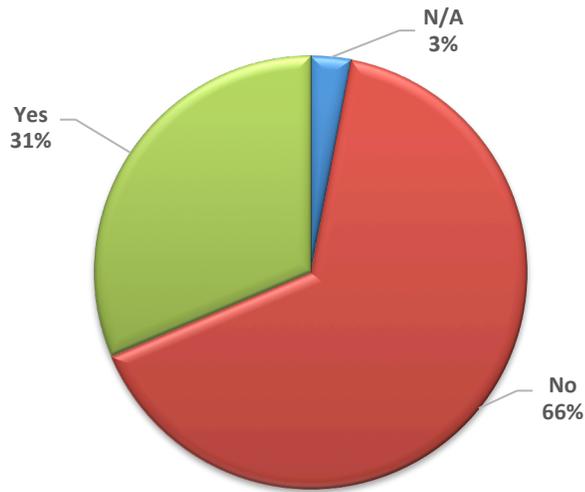


Table 30: How many employees does the business have?

1-5	6-10	11-20	21-50	51-250
23 (34%)	14 (21%)	14 (21%)	11 (16%)	5 (8%)

Figure 25: Is manufacturing your primary or secondary line of business?

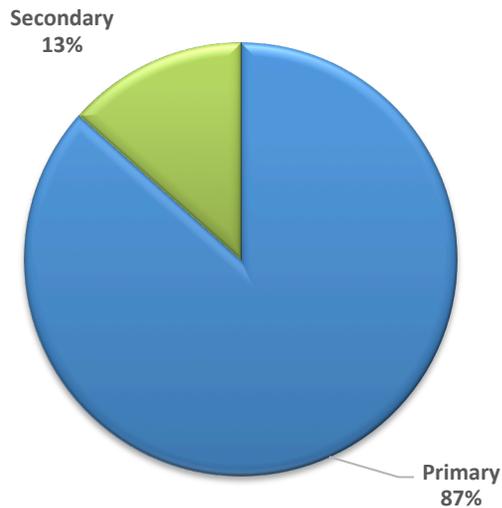


Table 31: Approximate Annual Revenue, Interviewed Manufacturers

Less than \$500,000	\$500,000-\$1,000,000	\$1,000,000-\$5,000,000	\$5,000,000+
23 (34%)	13 (20%)	17 (25%)	13 (19%)

Table 32: What percentage of your sales are from manufacturing?

% from Manufacturing	0-25%	26-50%	51-75%	75-100%
# of Responses	5	11	7	44

Figure 26: Primary Barriers to Growth, Alaska Manufacturers

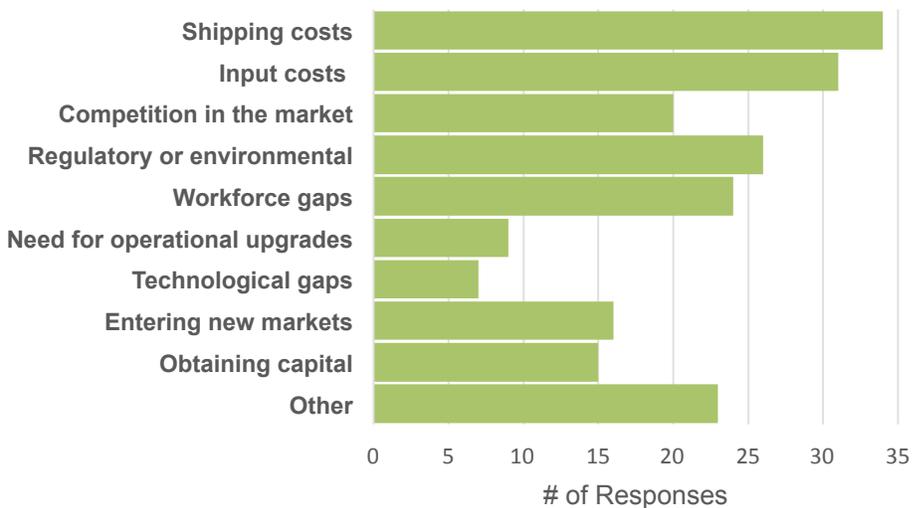


Table 33: “Other” Barriers to Growth Mentioned

Other Barriers	Number of Companies
Time of shipping	1
Limited local market	4
Absence of additional space	5
No desire to grow	3
Lead time for raw materials supply/Absence of local raw materials supply	4
Marketing	3
Other logistical challenges	1
Distance from market	2

Table 34: What regions of the state do you make regular sales?

Region	Number of Companies	Share out of all companies
Southcentral	41	61%
Southeast	34	51%
Southwest	15	22%
Western	18	27%
Arctic	22	33%
Interior	26	39%

Figure 27: Does your company earn regular sales outside of Alaska?

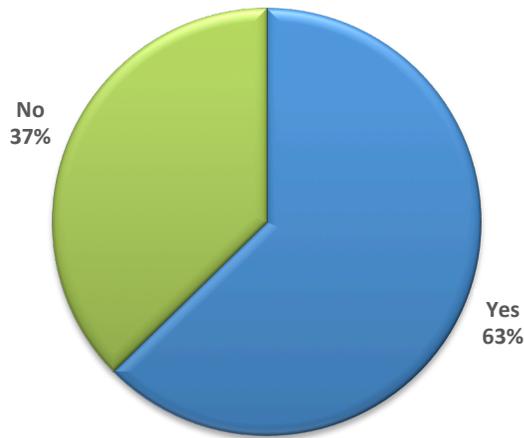


Table 35: If you make sales outside of Alaska, what percentage of your sales are out of state?

Percentage of Sales Made out of State	0-10%	11-25%	26-100%
# of responses	20	6	17

Figure 28: Have you tried to access markets in the lower 48 or Hawaii?



Figure 29: What are the most important factors preventing your company from competing in the lower 48?

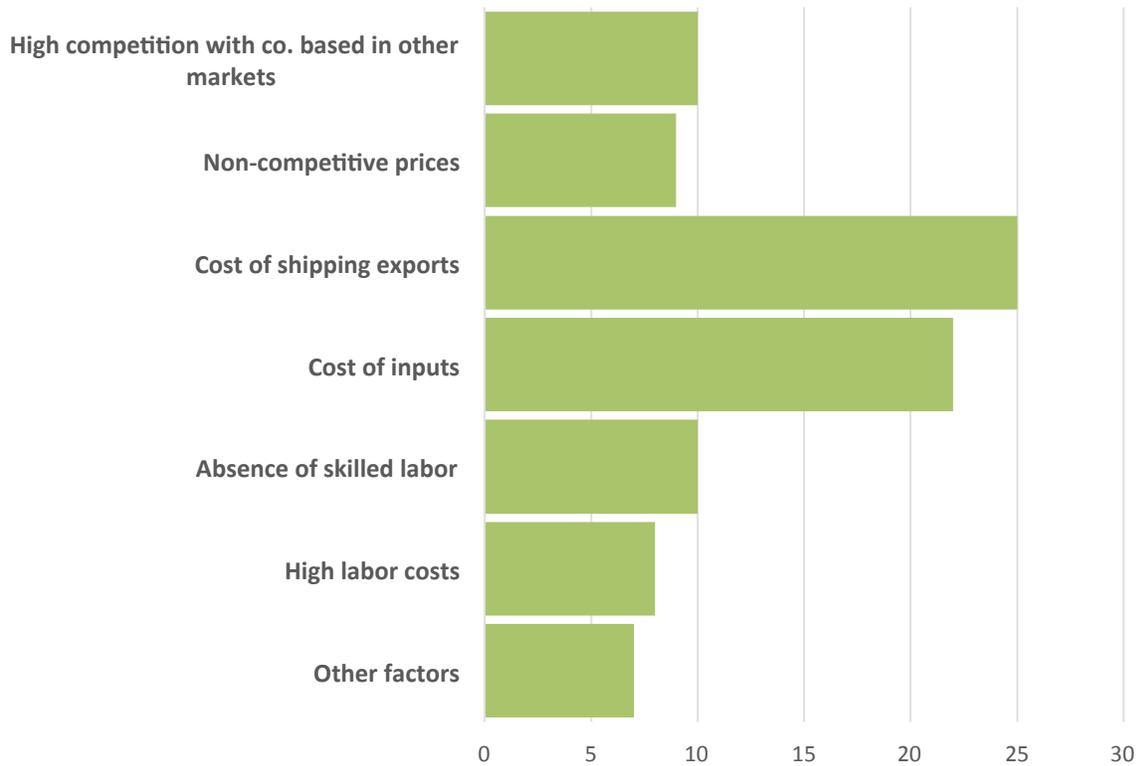


Figure 30: Have you tried to access international markets?

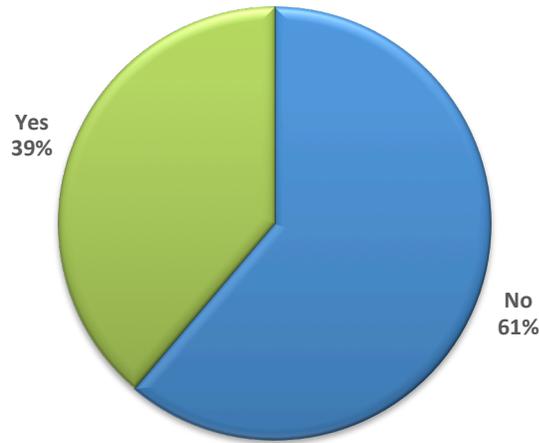


Figure 31: What international markets do you sell to (if any)?

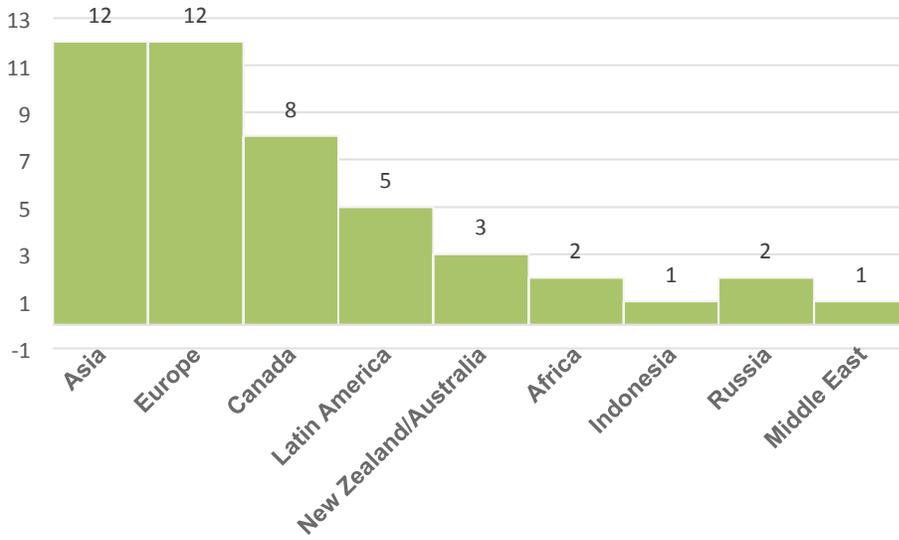


Figure 32: What factors have most prevented your ability to access global markets?

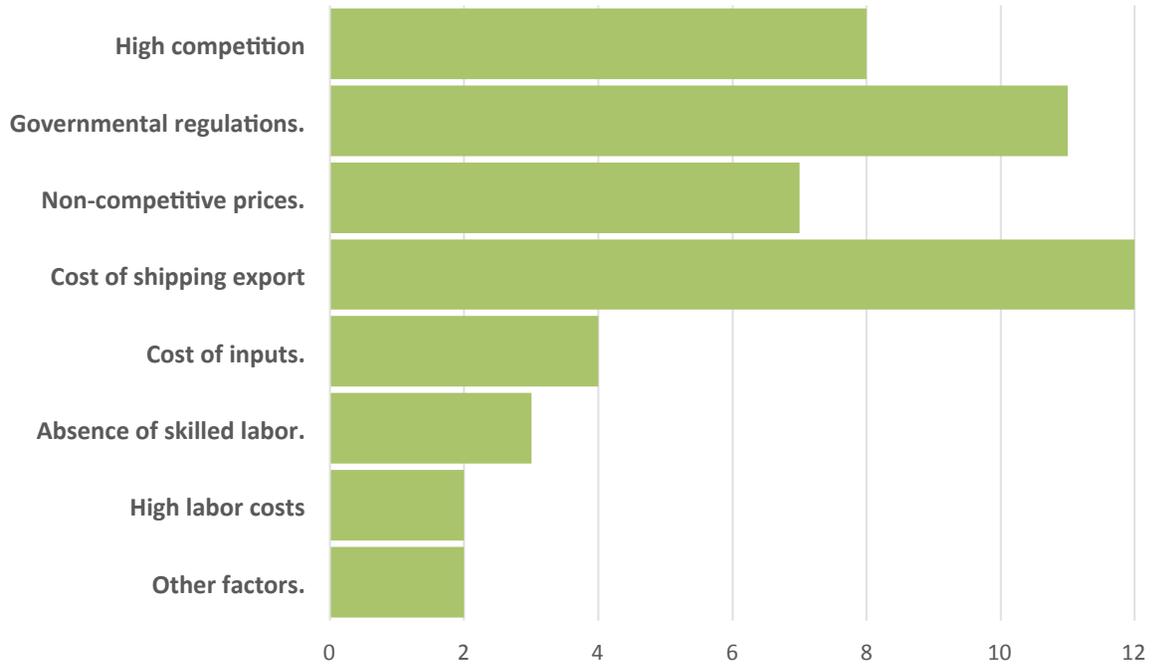


Figure 33: Has your business ever used the services of any consultants?



Figure 34: How much could you see your company investing in consulting services each year if they provided operational improvements to your business (note that only 23 businesses total responded to this question)?

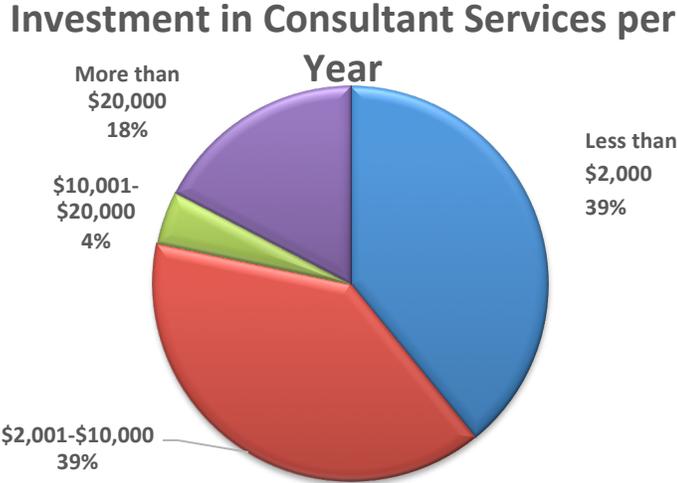


Figure 35: Has your company ever done a thorough review of lean manufacturing principles?

