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MOSSAVAR-RAHMANI CENTER
for Business and Government

Growing Maine's Food Industry, Growing Maine

The Maine Food Cluster Project
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INTRODUCTION

Like many rural states in the United States, Maine has struggled to transition from its historic economy based on natural resources and manufacturing to a 21st century economy providing a decent quality of life for its people. Today, the state lags its New England neighbors and the nation on key economic indicators like gross domestic product, per capita income, productivity and job growth. And looking ahead, Maine faces demographic trends – an aging population and shrinking workforce – that will make significant progress on these metrics even more challenging.

Maine's current level of prosperity is a consequence of the fixed assets that it inherited – such as its location, its land and its marine resources – and assets that can change over time, such as its people, its culture of entrepreneurship, its research institutions, and its public policies. Its prosperity is also a product of the industries that have emerged as a result of these inherited and evolving assets, such as the forestry and boat-building industries. Related industries, and the organizations that support and enrich them, are called clusters.

The purpose of the Maine Food Cluster Project was to analyze Maine's agriculture, seafood and food and beverage processing cluster and its potential for growth, drawing on the latest knowledge of industry clusters and cluster-driven economic development and tools for cluster analysis. This report summarizes the project's findings and outlines recommendations for how Maine could build on the strengths of these industries as a springboard for business growth and job creation across the state.

The purpose of the Maine Food Cluster Project was to analyze Maine's agriculture, seafood and food and beverage processing cluster and its potential for growth.

The project drew on expertise about regional competitiveness and cluster analysis at the Institute for Strategy and Competitiveness at Harvard Business School (HBS) and perspectives on how the private and public sectors collaborate to solve public problems from the Mossavar-Rahmani Center for Business and Government at the John F. Kennedy School of Government at Harvard University (HKS). The team members brought research, policy and practitioner knowledge of regional competitiveness, industry cluster growth and cluster-driven economic development to the study. The project was funded by the Buzz Fitzgerald Endowment Fund, established at HKS in 2000 by the Portland, Maine-based Libra Foundation in honor of its former board member, Duane "Buzz" Fitzgerald.

As explained in more detail later in this report, the focus of the analysis was on the "traded" industries in Maine's food cluster, i.e. those industries that primarily sell to customers outside of their region. Industries that make up traded clusters are not constrained by a region's population to serve as their primary market, and therefore have greater opportunity to grow. Collectively, the industries that make up Maine's traded food cluster are agriculture (including vegetables, fruit, farmed fish and agricultural services), fishing and fishing products, food processing (including both food and beverages) and livestock processing.

To investigate Maine's food cluster, the team collected and analyzed data on:

- **Maine's economic performance and the performance of its food cluster,** from national data
- **Perspectives of business leaders in Maine's food cluster,** primarily through an online survey
- **The support system for Maine agriculture, fisheries and food processors, made up of nonprofit organizations, trade associations, universities, training institutions and public agencies,** via Internet research and interviews
- **Cluster growth initiatives from other regions,** through interviews and literature review

The study focused on the business and economic development dimensions of Maine's food system, and therefore did not examine broader food system issues such as access to affordable food or different production practices. Moreover, the project team did not examine global or local market data, dive deeply into production issues for particular crops or products, or carry out detailed analyses of specific supply chains or infrastructure needs. Its focus was to use cluster data and analysis tools to understand Maine's food industries and highlight current and potential strengths that could fuel greater company, job and income growth in the future. It also sought to understand how Maine is organized to strengthen its food cluster, and how well that support system meets the structural needs of the cluster.

CLUSTERS AND CLUSTER-BASED ECONOMIC DEVELOPMENT STRATEGIES

Industry clusters are regional concentrations of companies, suppliers, specialized services and infrastructure, and related organizations, such as research institutions, training programs and business associations. Examples of well-known clusters in the U.S. are biopharmaceuticals in greater Boston, insurance in Hartford, wine in northern California, and automobile manufacturing and parts in greater Detroit. By viewing state or regional economic activity through the lens of a cluster rather than individual industries, a cluster analysis captures the value of spillovers from one industry's technology know-how, skilled workers and information to companies in related industries. It can also identify opportunities for cooperative solutions and resources that benefit multiple companies more efficiently than those that address company challenges one enterprise at a time.

A region's clusters fuel its growth in wages, employment, the creation of new businesses and innovation. A key measure of a cluster's strength is its concentration of employment in a location (such as a county or state) – either as the region's absolute number of cluster jobs as a **share** of the nation's jobs in that cluster or the relative number of cluster jobs per capita in the region, called its **specialization**. (Specialization takes a region's population into account, e.g. Maine's Fish and Fishing Products industries rank fifth nationally in employment share but second nationally in cluster specialization.)

Industries in strong clusters create new businesses and grow employment faster than those in weak clusters (Delgado, Porter, Stern, 2012). Recent research has shown that industries that are part of a strong cluster have more dynamic employment growth as well as higher wage growth, numbers of establishments, and patenting rates. Moreover, industry growth is greater in regions where there are stronger related clusters and new industries are more likely to develop in regions where there are strong clusters (Delgado, Porter and Stern, 2014).

Industries in traded clusters are associated with more dynamic growth in employment, higher wages and more new business starts and innovation.

Regional economies are made up of traded and nontraded clusters. Nontraded clusters are commonly found in all regions and include clusters like local commercial services (such as printing, laundry or security services), local motor vehicle products and services (such as automobile dealerships or gasoline stations), and local entertainment (such as movie theaters). Industries in these clusters sell products and services locally, and therefore their growth is limited by the size of their local markets and populations; there are only so many people in a town who buy gas or need dry cleaning.

In contrast, traded clusters are made up of industries that sell products to customers across many regions and even countries, such as oil and gas companies and manufacturers of medical devices. Since their business is not tied to local customers, these companies can locate in regions where they have competitive advantages, such as access to natural resources, research institutions or manufacturing know-how. Because these industries compete national and globally for large markets, they are associated with more dynamic growth in employment, higher wages and more new business starts and innovation (Delgado, Porter, & Stern, 2012; Porter, 2003).

Unlike their nontraded cousins, traded clusters are located in those regions with inherited assets (such as proximity to oil fields, rich farmland, transportation and logistics hubs) and other factors (entrepreneurship culture, research institutions, favorable policies) that contribute to the proliferation and growth of companies in a set of related industries in that region. For example, according to the U.S. Cluster Mapping portal, California,Texas and Washington states have the strongest aerospace and defense clusters in the U.S. and the counties of Hall (GA), Buchanan (MO), Ford (KS) and Bladen (NC) have the strongest livestock processing clusters.

Therefore, every region has its own unique mix of traded and nontraded clusters with varied levels of employment specialization that drive local productivity and growth. Although there are more jobs in nontraded clusters than in traded clusters in most communities, the wages of the traded jobs are typically higher and the traded clusters are the engine of growth as they compete nationally and globally to sell their products. Because they operate in highly competitive markets, they are characterized by higher levels of innovation and productivity. And as the traded cluster companies grow, they purchase more supplies and services from local companies and hire new and (on average) higher-paid employees, therefore generating a greater economic multiplier effect in their region.

As awareness and data about the relationship between industry clusters and regional economic competitiveness and growth have expanded, some regions have launched efforts to strengthen their industry clusters. These initiatives, often organized as government-supported cluster programs, non-governmental organizations or public-private partnerships, carry out a range of activities including

company networking, training and attracting skilled workers, raising awareness about the region's cluster strengths, advocating for cluster-friendly public policies and regulations, providing cluster-specific business development support to companies, and showcasing innovation and entrepreneurial leadership in the cluster. Europe has been a particularly fertile region for cluster initiatives, due to consistent government support for cluster-driven economic development strategies, although there are cluster organizations found in many countries across the globe.[1]

At their core, cluster initiatives are a mechanism for bringing together private, public, nonprofit and university players to identify key constraints holding back related industries. They can help overcome divisions between these players by defining growth goals, based on data, that they can work towards together. Finally, they can boost the effectiveness of already-existing resources in the region like job-training programs, trade associations and federal and state economic development programs by focusing them in areas most likely to have broad impact across multiple companies, rather than helping one company at a time.

As cluster initiatives have proliferated around the globe, they have tried different strategies and tactics to accelerate the growth of emerging and mature clusters in their regions. Researchers have begun to gather data on these efforts, identify common practices, and measure their impact boosting company success and cluster strength. The majority of these studies have found a positive impact on firms that participate in projects initiated by cluster organizations, comparing these firms to otherwise similar peers (Ketels, February 2015). In addition, case studies have highlighted different structures, strategies and impacts of successful cluster initiatives (for example, Perry, 2014). However, more experimentation needs to take place and comparative research undertaken to understand the interplay between regional context, cluster type and initiative model/activity mix and to identify those cluster initiative practices associated with the greatest impact accelerating the growth of companies, jobs and, ultimately, prosperity in regions.

With this background, we now turn to Maine.

THE ROOTS OF MAINE'S CURRENT FOOD ECONOMY

In order to understand Maine's current food economy, it is important to understand its origins. One hundred and fifty years ago, Maine farmers had cleared the region's forest cover to its lowest level on recent record (70%) to make space for animals to graze and for fields to be planted and harvested (Donahue et. al, 2014). Maine was considered the breadbasket of New England; it had more than 520 operating grist mills and fed the Union Army during the Civil War. Fishermen caught cod and mackerel in great numbers off George's Bank for local and regional markets. And Maine entrepreneurs were in the forefront of processing innovation, with the Winslow Brothers of Portland among the first canners in the U.S., canning corn (Patrick, 2015). Other Maine canners followed, canning apples, beans, peas, blueberries, sardines and lobster, for year-round consumption and for export, and other food processing proliferated.

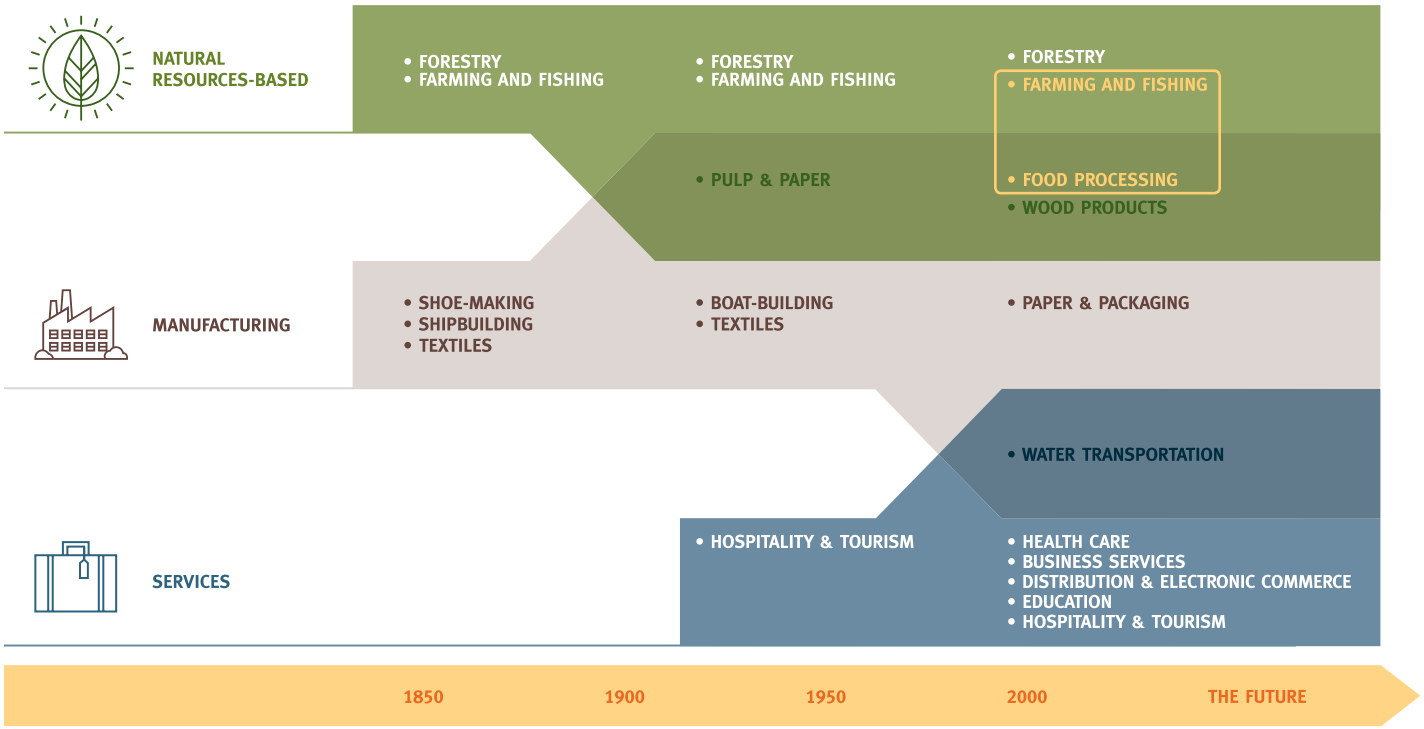
Over time, with industrialization and urbanization, food production became more intensive, and with more intensive farming the forest cover began to creep back. Maine's food system began feeding the bigger towns and cities. Cattle were fed grain and silage to produce more milk, and the region started to import more meat and grains. Local infrastructure for producing, processing and storing crops grew, shifted, or started to disappear. On the marine side, millions of fish were harvested from the sea, with many processed on shore (Donahue, ibid.). And the forestry and pulp and paper industries flourished.

Fast forward to the late 1960s, when one out of six Maine jobs – or around 63,000 workers – was in farming, food production and forestry (Colgan and Barringer, 2007). Regional competition began to play a more significant role in Maine's food economy. The potato industry in northern Maine peaked, and midwestern and western states began to overtake Maine as the leading potato producers. Large-scale chicken production moved to southern states. And the modernization of transportation and commodification of food meant that Maine farms and fishermen were now beginning to compete with producers of fruits and vegetables and meat and fish from across the globe. As time went on, Maine's manufacturing jobs as a proportion of the workforce plummeted and the service side of the economy expanded significantly.

Today, Maine enjoys the benefits and faces the challenges of being a rural, northern New England state in the 21st century and competing in a global food system. Maine has abundant land, water and marine resources, lower energy and living costs than other New England states, and is within one to two day's drive of large northeastern U.S. and eastern Canadian markets with 78 million in population. The state scores high for its quality of life, which can help attract workers from out of state and reduce employee turnover. However, it has below-average underlying economic conditions, a low population density, and an aging workforce with lower education and wage levels than most of its neighboring New England states. "End of the line" transportation and distribution costs pose an extra burden, particularly on companies reliant on shipping products outside of the state for sale.

Can Maine harness its heritage strengths in farming, fishing and food processing to drive greater business and economic growth in the 21st century? To answer this question, we must first look at how Maine's economy and its food cluster are performing on key measures compared to other regions in the United States.

THE EVOLUTION OF MAINE'S ECONOMY: NATURAL RESOURCES-BASED, MANUFACTURING AND SERVICES



MAINE'S ECONOMIC PERFORMANCE AND TRADED CLUSTER COMPOSITION

Maine's economic performance ranks low against other states on key indicators of competitiveness, as illustrated in its performance scorecard on page 8. The state ranks 44th in prosperity, 39th in wages, 40th in private sector job creation, 50th in labor productivity, and 38th in new business formation. Two features are of particular concern. First, in addition to performing poorly on most key measures, Maine's rankings are trending downward. This positions Maine's industry clusters poorly for growth. Second, Maine is 48th in the nation for the portion of its employees working in traded clusters, indicating that Maine's industry mix is concentrated in industries with limited growth potential. To shift its economy onto a stronger trajectory with greater potential for job growth and higher wages, Maine will need to expand employment in its traded clusters over time.

To understand the growth potential of Maine's traded clusters, the project team looked in depth at the concentration of Maine's employment in its traded clusters. Economists typically measure paid employment in terms of total or private non-agricultural employees, the standard measure as defined by the U.S. Bureau of Labor Statistics. This leaves out two categories of people who are particularly important in agriculture, fishing and food processing industries – agricultural workers and sole proprietors.

The Maine Food Cluster Project team combined data from the U.S. Census Bureau County Business Patterns, the U.S. Department of Agriculture's 2012 Census and data on sole proprietors in Maine to create a composite count of employment in Maine's largest traded clusters, backing out overlaps to avoid double counting. Incorporating these three categories of workers into one measure of traded cluster employment, the team determined that Maine's traded food cluster is the second largest of the traded clusters in the state, following Business Services and just ahead of Distribution and eCommerce.

MAINE PERFORMANCE SCORECARD: RECENT TRENDS

	STARTING NATIONAL RANK		CURRENT NATIONAL RANK
PROSPERITY GDP per Capita, 2001-2013	40	-4	44
WAGES Average Private Wage, 2001-2012	34	-5	39
LABOR MOBILIZATION Proportion of Working Age Population in the Labor Force, 2001-2013	29	+8	21
JOB CREATION Private Employment Growth, 1999-2001 and 2010-2012	16	-24	40
LABOR PRODUCTIVITY GDP per Labor Force Participant, 2001-2013	43	-7	50
NEW BUSINESS FORMATION Traded Cluster Establishment Growth, 1999-2001, 2010-2012	18	-20	38
INNOVATION Patents per employee, 2010-2012	40	+4	36
TRADED EMPLOYMENT Employment in Traded Clusters, 2007-2012	47	-1	48

LEADING STRONG CLUSTERS
By employment size, 2012
(employment, national rank)

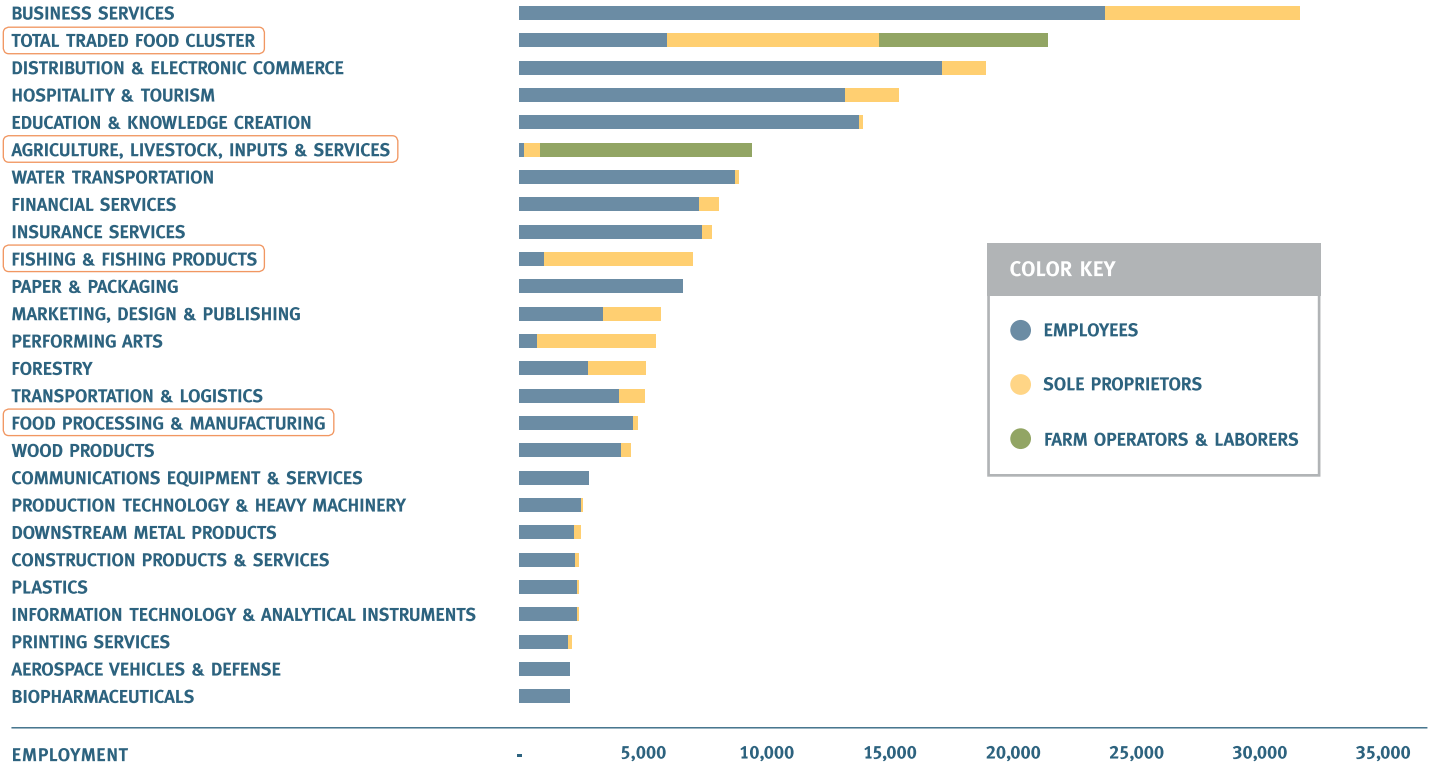
Water Transportation: 8,817 Rank: 8
Fish and Fishing Products: 7,040 Rank: 5

Paper and Packaging: 6,648 Rank: 25
Wood Products: 4,156 Rank: 28

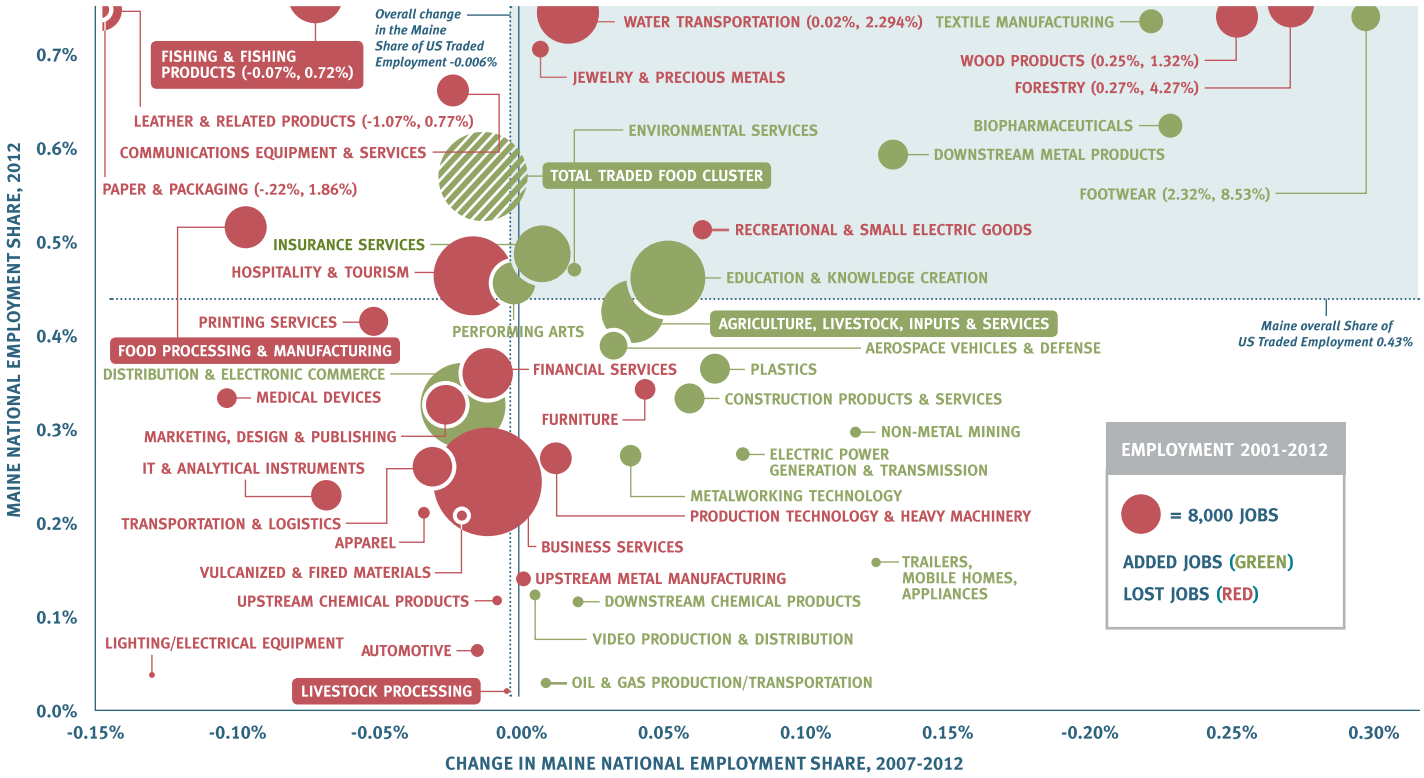
Forestry: 2,821
Rank: 7

NATIONAL RANK COLOR KEY: 1-10 | 11-20 | 21-30 | 31-40 | 41-50

EMPLOYMENT IN MAINE'S LARGEST TRADED CLUSTERS, 2012



TRADED CLUSTER COMPOSITION OF THE MAINE ECONOMY



As shown in the chart illustrating the traded cluster composition of the Maine economy, Maine has a higher concentration of employment in its traded food cluster than the nation. To evaluate the prospects for growth of Maine's traded food cluster, the project team analyzed Maine's agriculture, fishing and food processing components of the cluster and the factors underlying their strengths and shortcomings. Factoring in employment growth in Maine agriculture and declines in fishing, food and livestock processing employment over the period 2007-2012, Maine's employment share remained steady. A focused effort to strengthen and grow companies in Maine's traded food cluster would have the effect of moving the Total Traded Food Cluster "bubble" further into the upper right quadrant, distinguishing Maine's food cluster further and representing a resulting increase in the demand for workers and job growth.

MAINE'S TRADED FOOD CLUSTER

The U.S. Cluster Mapping Project is a national economic initiative that provides open data and analytical tools with the goal of advancing industry clusters and regional economic development across the United States. The project is led by Harvard Business School's Institute for Strategy and Competitiveness in partnership with the U.S. Department of Commerce and U.S. Economic Development Administration. The initiative organizes economic activity into 51 traded clusters and 16 local clusters (www.clustermapping.us/cluster).

Using this rubric, the Maine Food Cluster Project's traded food cluster includes agriculture (including aquaculture), wild fish and fishing products, food manufacturing and livestock processing. These clusters are made up of non-overlapping industry categories set by the North American Industry Classification System, or NAICS (Appendix A).

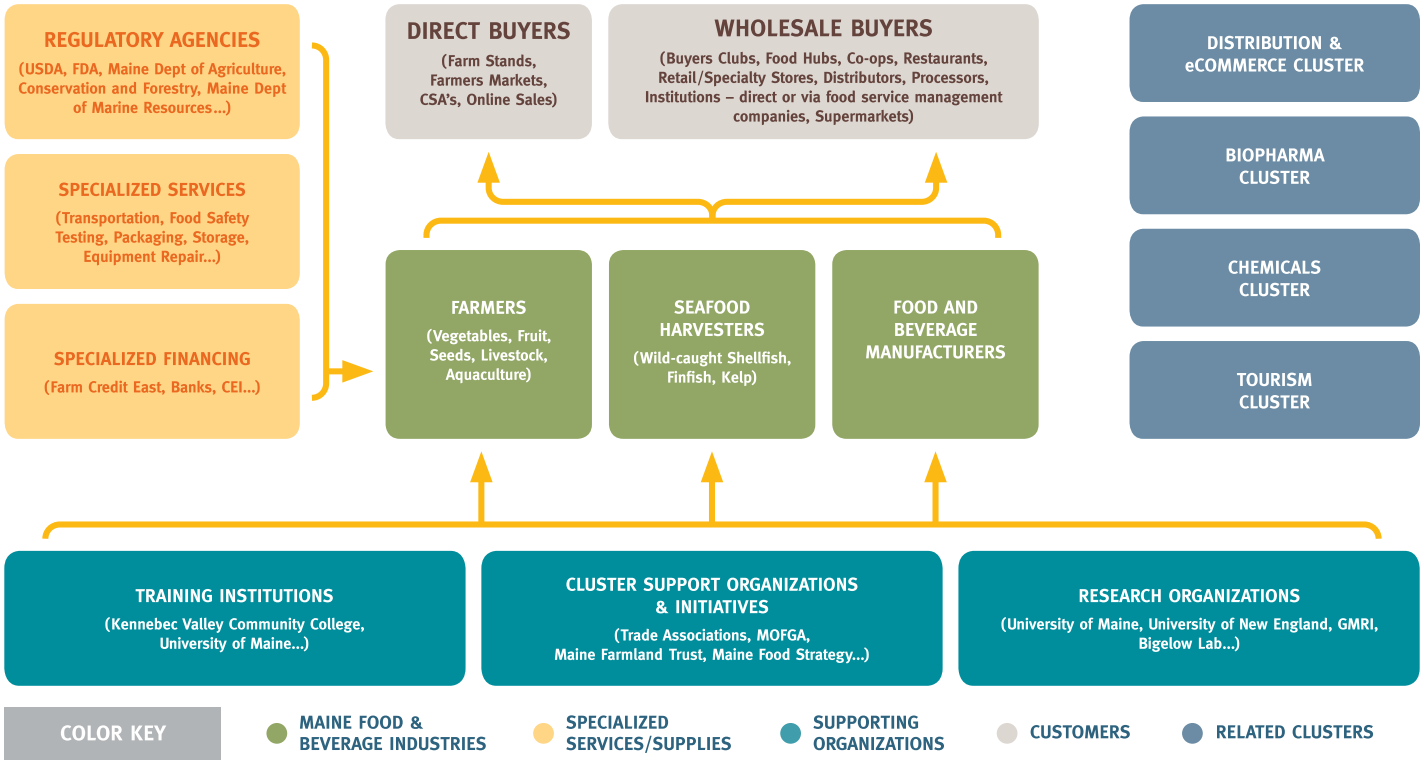
COMPONENTS OF MAINE'S TRADED FOOD CLUSTER, 2012

	EMPLOYMENT 2012	JOB CREATION 2007-2012	SPECIALIZATION (LQ)	SPECIALIZATION RANK
AGRICULTURE	9,417	1,326	0.99	26
FISH & FISHING PRODUCTS	7,040	-209	15.60	2
FOOD MANUFACTURING	4,853	-844	1.20	21
LIVESTOCK PROCESSING	103	-32	0.05	49

Looking at the components of Maine's food cluster, we see that Maine's strengths are distributed unevenly across these categories. Compared to the nation, Maine has a very high specialization of employment in fishing (ranked second) despite employment losses during the period 2007-2012 and a higher than average specialization of employment in food processing. It has an average specialization of employment in agriculture (which includes fish farming), though that sector is experiencing healthy job growth. Finally, Maine has a very low specialization of its employment in livestock processing.

The overview below illustrates the industry, regulatory, research, training and other support organizations that make up Maine's

OVERVIEW OF THE MAINE FOOD CLUSTER



traded food cluster. The boxes in the center represent the traded food cluster industries present in Maine. The boxes to the left (government policy and specialized services and financing) and below (research and training institutions and cluster support organizations and initiatives) are key elements of the cluster. Of the four related industry clusters shown in blue boxes on the right, three (Distribution and eCommerce, BioPharma and Chemicals) are defined by the Institute for Strategy and Competitiveness as related to food, agriculture or fisheries and one (Tourism) is listed due to Maine industry data (USDA Agricultural Census 2012).

The competitiveness of Maine's food cluster is influenced by its natural resources and infrastructure, the context shaping business strategy and competition, the existence of related and supporting industries and organizations, and the quality and size of its markets. Its advantages and disadvantages are summarized below in the chart illustrating Maine's food cluster competitiveness.

Responses from business leaders to the Maine Food Cluster Project survey, described later in this report, were consistent with quantitative data and anecdotal information collected. Advantages of operating their companies in Maine included access to a "pristine" environment with abundant land, water and marine resources, a dedicated workforce, and being part of a heritage industry and a "dynamic foodscape" in a state that values farming and food. Moreover, respondents cited the importance of Maine's quality of life and its "great reputation" for food produced in the state.

Maine is ranked 2nd in the United States for employment specialization in Fish & Fishing products.

Business leaders noted that the biggest challenges facing their businesses were infrastructure gaps and high costs in their industries and the state's poor competitive conditions. These included the high costs of processing and lack of processing capacity and accessible storage facilities as well as the cost of energy and affordability of labor in industries with slim profit margins. Distance to markets and the costs and logistics of getting the product to the customer received special mention. Competition from other Maine farms to meet local food demand was mentioned as frequently as competition from Canada and other global competitors, pointing to the need to invest in helping Maine farms expand into new markets at the same time as investing in the entry and success of new farmers. (One farmer wrote that his rural county has 48 certified organic farms competing for the food dollars of less than 40,000 people, and yet serving more distant markets is difficult.)

DETERMINANTS OF MAINE'S FOOD CLUSTER COMPETITIVENESS

The project team also looked at the distribution of traded food cluster employment across Maine's two Economic Areas, regions defined by the U.S. Bureau of Economic Analysis. Maine's Economic Areas are split between southern Maine (Portland Economic Area) and northern Maine (Bangor Economic Area) and differ in levels of prosperity, employment, wages and poverty, with southern Maine's economy on average more prosperous than northern Maine's. Importantly, employment in the traded food cluster in both Economic Areas is significant. In fact, food industries are the largest traded cluster employer in Northern Maine and is third highest in Southern Maine, after Business Services and Distribution and eCommerce (Appendix B).

ECONOMIC AND TRADED FOOD CLUSTER DATA - NORTHERN VS. SOUTHERN COMPARISON

ECONOMIC AREAS	PROSPERITY 2013 (GDP PER CAPITA)	PRIVATE, NONFARM EMPLOYMENT 2013	AVERAGE PRIVATE WAGE 2013	POVERTY RATE 2013	TRADED FOOD CLUSTER EMPLOYMENT
NORTHERN MAINE	$31,847	117,951	$33,268	16.11%	7,870
SOUTHERN MAINE	$35,964	407,329	$37,313	13.35%	13,542

Finally, the team noted a number of Maine food industry trends that are pointing in a positive direction:

Niche sectors in Maine like lobsters, scallops, aquaculture, craft beer and natural and organic foods are seeing growth in sales, in new businesses, or both. Moreover, Maine's diverse mix of food and beverage products means that its food economy is not dependent on a single crop or species. In fact, it can benefit from synergies that come from extending supply chains (such as growing organic feed for livestock) and rotating crops (barley, a rotation crop for potatoes, can be malted for craft beer).

Maine's farming sector is growing and attracting new farmers, and ranks high nationally for direct sales in local markets. This represents a robust foundation for growing sales to wholesale and institutional buyers in Maine as well as to much larger markets outside of Maine. Employment in Maine agriculture increased by over 1,300 jobs between 2007-2012 and Maine is bucking the national trend by attracting young people to farming. Moreover, Maine's growing natural and organic production is an asset at a time when the demand for fresh, healthy, sustainably-produced, and "authentic" food and beverages is growing nationally. Maine's farming sector can build on its success at direct sales, where the state is ranked high nationally, by doing more to reach consumers where they purchase most of their food and beverages – at grocery stores – and by building their capacity to sell to institutional buyers like universities, schools and hospitals.

Maine's growing distinction as a "foodie" destination has put the state on the map for delicious, locally-sourced food and beverages. Over the last decade, there has been a steadily-growing "buzz" about Maine – particularly Portland – in national travel, food and beverage magazines and websites.[2] Maine's reputation for award-winning restaurants, quality food and locally-produced beverages, such as craft beer, positions Maine well for a regional marketing effort connecting more consumers to the Maine people and communities that grow, harvest and make their food. Such an effort could help counter the challenges facing a food system made up mostly of small companies that individually have little marketing capacity but collectively are an attractive producer.

Maine companies and researchers are experimenting with innovations designed to lengthen Maine's growing season, boost production and add value to agricultural and marine products. Examples include energy-efficient greenhouses, hydroponics and aquaponics, multi-species grazing, and higher-value products like berry purees, medicinal syrups and functional foods. Maine's basic and applied research in agriculture, aquaculture, fisheries and food science takes place in several university and nonprofit research organizations: Bigelow Laboratory for Ocean Sciences (East Boothbay), the Downeast Institute for Applied Marine Research and Education (Beals), the Gulf of Maine Research Institute (Portland), Maine Aquaculture Innovation Center (Orono) and the University of Maine (Orono), which operates several agriculture, aquaculture and marine research stations and centers as well as its cooperative extension service. Large grants secured during the last 18 months include $20M for aquaculture-related research and $4.7M for research on organic grain, organic dairy and shellfish production.

The bottom line: Maine's traded food cluster has the potential to drive greater business and employment growth statewide.

- **The traded food cluster is a large employer in Maine.** There are approximately 21,413 Mainers working in the traded portion of these industries. Another 29,399 work in jobs that are part of the local or non-traded food industries like retail food stores, liquor stores and restaurants. A strategic and well-implemented action plan seeking to grow the traded food cluster could make a measurable impact on employment.

- **Maine's traded food cluster is a statewide employer, so a stronger, growing food cluster can benefit Mainers across the state.** It is the top traded cluster employer in northern Maine, and the third-largest traded employer in southern Maine. A concerted effort to grow Maine's food industries would be likely to expand economic opportunity statewide, through growth of enterprises and jobs as well as higher wages.

- **Although not meeting the definition of a "strong" cluster by traditional cluster metrics,[3] Maine's traded food cluster has strengths upon which it can build.** Its relative strengths in fishing and food processing and strong job growth in agriculture are areas of competitiveness that justify action.

- **Maine's food cluster mix of products is diverse and not dependent on one crop or industry.** Maine's top agriculture and seafood products include lobster ($334M sales), milk ($160M), potatoes ($148M), wild blueberries ($104M), eggs ($86M) and farmed salmon ($75M).[4] It is the leading producer of these food products in the New England region.

As Maine's traded food cluster is a large employer in both northern and southern Maine, growing Maine's food cluster can drive statewide business growth and job creation.

- **The underlying input and demand conditions for Maine's food cluster are promising.** Despite the relatively short growing season for some crops, Maine has an abundance of agricultural land, clean water and marine resources, and is within 1 to 2 days drive of large markets in New England (14.5 million), the Mid-Atlantic (41 million), and Eastern Canada (23 million). Furthermore, with the establishment in 2013 of a Portland shipping hub by the Icelandic transport company, Eimskip, Maine is now connected directly to Northern European markets.

Therefore, Maine's traded food cluster profile shows that this cluster has potential for growth. This was the project team's conclusion based on the economic performance and cluster analysis. The next step was to solicit input from industry leaders, asking about the challenges and opportunities facing their companies and the resources that they value and need for growth.

PERSPECTIVES OF MAINE FOOD COMPANY LEADERS

Maine boasts large, commercially-successful name-brand food and beverage companies like McCain's Potatoes, Stonewall Kitchen, the Smiths Farm (largest producer of broccoli in the Northeast), Cherryfield and Wymans (Maine's largest wild blueberry producers), Cooke Aquaculture (Maine's large farmed fish operation) and Shipyard Brewery (the fourth largest microbrewery in New England). It also is the home of thousands of micro and small farms, sole proprietor fishing and lobstering enterprises, and artisan food processors. Quantitative data is important but inherently backward looking, so hearing directly from a diversity of business leaders about the growth prospects and barriers that they expect to face in the future is an important dimension of an informed cluster analysis.

With the assistance of Critical Insights, a Maine market research firm, the Maine Food Cluster Project carried out an online survey of Maine food industry business leaders. The purpose of the survey was to solicit information from Maine food industry business leaders about their companies, the challenges and opportunities facing their companies, and their perspectives on Maine's business environment and resources. (See Appendix C for the survey methodology.)

Profiles of Food Company Survey Respondents

- **The majority (87%) of respondents were the company's owner or CEO.**
- **Respondents had little formal business training.** More than half (56%) trained for their business on the job or as part of their family business (17%). Only 18% received their primary business training through a four-year college or an advanced degree.
- **Most company respondents sell to Maine customers.** 79% were Maine businesses selling food and beverages primarily to customers based in Maine.
- **About half of the respondents were growers or harvesters and half were other company types.** 56% were farmers or fishermen/lobstermen. Another 17% were food or beverage processing companies and the remainder defined themselves as distribution companies, retail or wholesale food companies, or suppliers to the food industry.
- **Most companies reported low but growing sales levels.** One-third reported annual sales below $50,000, half reported sales between $50,000 and $2 million, and only one in ten reported $2 million or more. Two-thirds of the companies saw annual sales increases over the last three years while only one in ten saw sales decrease during that period.

Key insights from the survey were the following:

Maine food industry leaders face many business challenges, but the majority have little formal training in business to help them to overcome these challenges. The greatest challenges facing their enterprises were business challenges: managing operations and growth – particularly in a competitive and/or low-margin environment, expanding markets for their products and managing company finances and accessing capital for company growth.

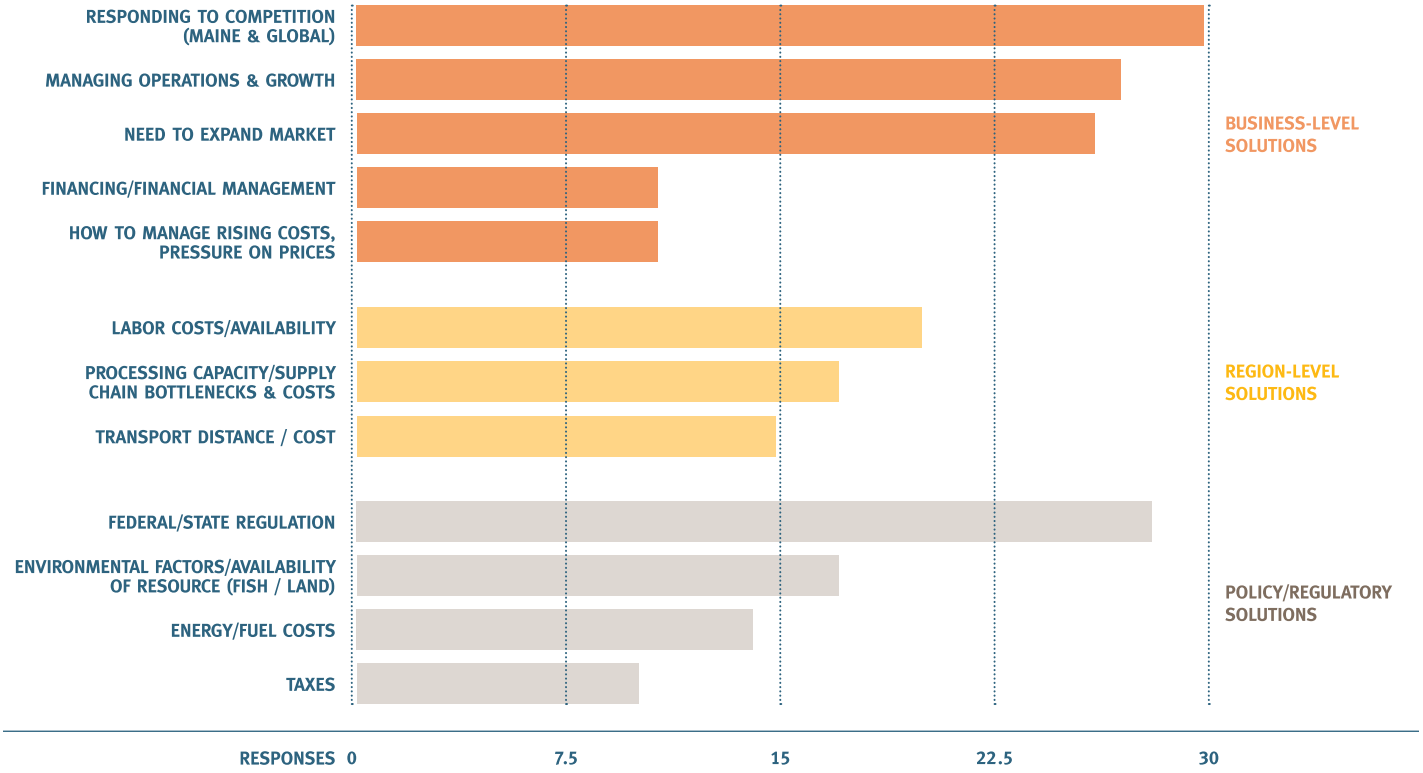
Other challenges cited by business leaders included external constraints over which entrepreneurs have little control, but are issues that could be addressed by cluster-wide initiatives (availability of skilled workers, affordability of labor, processing infrastructure gaps, supply chain bottlenecks, transportation costs) or policy levers (reducing federal or state regulations, energy/fuel costs, tax levels).

Only one out of five of the Maine farmers, seafood company owners and food processors reported having aggressive growth goals. Half of the business leaders responded that their goal is to remain the same size, and focus on becoming more profitable. This reflects Maine's small business culture and emphasizes the importance of matching business supports with companies based on their desired growth trajectory and management team business. As will be covered in the next section, Maine has business planning and development resources for start-up and early stage companies, well-publicized assistance for beginning farmers, and resources for early stage aquaculture operations and food processors through their trade associations and the University of Maine's Cooperative Extension programs. However, as companies grow, their production, food safety, packaging, distribution and logistics, sales and marketing challenges become more complex. They need more access to specialized expertise. And Maine's food cluster support system is not as well organized to assist mid-size companies to scale.

Entrepreneurs selling products outside of Maine differed in their attitudes about which types of organizations had been important to their success over the past three years. They were more likely than business leaders selling to Maine customers to cite the importance of banks and other sources of financing, industry associations (national and state), other Maine firms, and government agencies (federal, state and local) to their growth. They were less likely to cite university research or extension programs; nonprofit and foundations promoting Maine food, fishing or farming; or economic development organizations as important to their success.

When asked to give Maine's business environment a grade, most food company business leaders chose a grade of B (32%) or a C (37%). There is clearly an opportunity for Maine's food entrepreneurs to come together and engage with leaders of public agencies and nonprofit organizations active in Maine's food cluster to identify and prioritize cluster challenges and find ways to address them.

VERBATIM ANSWERS: GREATEST CHALLENGE FACING MY BUSINESS IN MAINE



MAINE'S FOOD CLUSTER SUPPORT SYSTEM

Recent research notes the importance of understanding the different dimensions of a cluster: its strengths and gaps, related clusters present in the region, the policy environment for the cluster, as well as "institutions for collaboration" (Ketels, 2013). These institutions are nonprofit and public sector organizations that make up the cluster support system in a region (Porter and Emmons, 2003). They are typically a mix of organizations, both generic and cluster specific, that carry out functions such as policy and regulation, networking and promotion, financing, economic and business development, research and training relevant to a particular cluster. How these organizations work together to solve common cluster problems and pool their resources impacts cluster company success. In some regions, these groups work together through organized efforts called cluster initiatives that are made up of companies, government agencies and other groups working to improve the competitiveness of a cluster.

In order to understand the organizational make up of Maine's food cluster support system, the project team identified organizations working to advance the food cluster at a state or regional level and the primary functions of these groups, (Appendix D). Over 100 organizations found were categorized by primary function and whether they were generic (i.e. supporting multiple industries, such as the University of Maine) or cluster-specific (primarily supporting the food cluster, such as the Maine Organic Farmers and Gardeners Association). A small subset of groups that support multiple industry clusters have staff with specialized experience in food and beverage industries, such as the Maine Manufacturing Extension Partnership and Coastal Enterprises, Inc. (CEI).

Strengths of Maine's food cluster support system include its diversity and level of activity, its breadth across key functions that are needed for cluster growth, and the collaborative spirit embodied in cross-organizational networks and initiatives. Examples illustrating the emphasis of existing cluster support activities are the promotion of natural and organic agricultural production and the sale of these products locally, the training of new farmers, the introduction of new fishermen and lobsterman to the trade, the introduction of aquaculture to ground fishermen, and the start-up of new food processing businesses.

EXAMPLES OF MAINE CLUSTER BUILDING ORGANIZATIONS (SEE APPENDIX C FOR FULL LIST)

PRIMARY FUNCTION	EXAMPLES	
NETWORKING & PROMOTION	• Lobstermen's Association • Maine Aquaculture Association • Maine Farmland Trust	• Maine Organic Farmers and Gardeners Association • Maine Potato Board • Maine Specialty Foods and Grocers Association
FINANCING/FUNDING	• Coastal Enterprises, Inc. • Finance Authority of Maine • Farm Credit East	• Maine Community Foundation • Maine Technology Institute • Slow Money Maine
ECONOMIC DEVELOPMENT	• Island Institute • Maine Development Foundation	• Maine International Trade Center
BUSINESS DEVELOPMENT	• Maine Center for Entrepreneurial Development • Maine Manufacturing Extension Partnership	• Maine Small Business Development Center • SCORE
RESEARCH	• Bigelow Lab for Ocean Sciences • Gulf of Maine Research Institute	• University of Maine • University of New England
EDUCATION & SKILLS DEVELOPMENT	• College of the Atlantic • Kennebec Valley Community College	• Unity College • University of Maine (Including Extension Program)
PUBLIC POLICY & REGULATORY	• Maine Dept. of Agriculture, Conservation & Forestry	• Maine Dept. of Marine Resources

That said, the results of the business survey indicated that there are gaps in Maine's cluster support system as well as opportunities to align activity so that Maine farms, fisheries and food manufacturers can reach their greatest potential. The food cluster support system is less a system than a diverse community of mostly small organizations working statewide (like trade associations and nonprofit groups promoting farming and food), with many more groups active in individual communities, such as farmers' markets. It lacks a broadly-accepted action plan focused on growing Maine food enterprises and employment. In fact, the large number of groups and their dynamism do not appear to be translating into strong food industry performance to the extent that has been observed in other states and regions.

Cluster support gaps and alignment opportunities include the following:

- **Growth-oriented farms, seafood companies and food manufacturers need business support with specialized industry experience to help them expand production and sell products outside of Maine.** In addition to existing one-on-one counseling resources, support organized around groups of growth-oriented companies can help build supply chains, shorten learning cycles, pool market knowledge, coordinate outreach, and create distribution efficiencies. Innovative distribution and sales models complementing Maine's small business-production system could be explored, such as Red Tomato, a venture that connects fresh farm produce from New England farms to wholesale customers across the Northeast, or branded "farm to fridge" technology platforms connecting consumers directly to food and food producers.

- **Processors need specialized equipment, facilities and guidance to scale from home kitchens or farms to full-scale commercial production.** Maine lacks food processor-focused business accelerators as well as sufficient infrastructure for intermediate expansion stages, like co-packers and accessible food-safety-certified commercial kitchen space. These resources can connect food manufacturers to industry expertise and capital, create economies of scale for supplies and services, introduce new sales opportunities, and create a community that celebrates entrepreneurs and innovators in Maine's food and beverage industries. Shared and mobile processing equipment can help a greater number of farms and food processors extract more value from products and create cost and time efficiencies.

- **Maine's strengths in production and processing of food for local consumers should be paired with a similar effort focused on larger, export markets.** There is anecdotal evidence that the growth in Maine farming is increasing local competition to meet Maine's consumer demand in some regions of the state, and that helping Maine farmers and food producers to reach larger

institutional and wholesale markets in Maine and elsewhere is needed. To do that will require connecting Maine's growth-oriented food and beverage producers with know-how, industry networks and experienced mentors and to potential buyers in other regions. This will also require cluster resources that help growing businesses succeed at attracting capital to fund new growth, create economies of scale for supplies and services, establish new sales channels, and celebrate growth and innovation in Maine food and beverage industries.

- **Leaders of Maine's small companies note that their trade association is one of their most valued resources. However, most of the over 35 food trade groups have few or no staff, thus limiting their capacity to support member growth.** Some already cooperate, such as via network meetings of the Agricultural Council of Maine, but more ways of sharing back office and business growth resources, or even mergers, could be explored. Furthermore, the Maine Brewers Guild's Beer School, Beer Trail and Summer Beer Festival are examples of innovative and collaborative activities boosting production quality and branding Maine products industry-wide that could be adapted by other food and beverage industry trade associations.

- **With so many organizations in Maine's support ecosystem – and despite numerous examples of collaboration – there are many opportunities for inefficiencies.** The Maine Food Strategy has been working to identify ways to strengthen Maine's food system across many dimensions, and may become an avenue for greater coordination. At the metropolitan level, food production and access projects can share information with similar efforts in other parts of the state, split consultant costs, or jointly apply for funding. Finally, the sheer number of organizations is confusing to newcomers, so a roadmap identifying groups and their functions could help start-up entrepreneurs navigate resources.

Maine lacks a broadly-accepted action plan and implementation capacity focused on growing food enterprises and employment, and the dynamism of its cluster support system does not appear to be translating into strong industry-wide performance.

Cluster-Building Networks – Statewide/Regional:

- **Maine Food Strategy:** Foundation-funded, multi-dimensional effort to develop an action plan for Maine's farming, fishing and food economy. Hosted at University of Southern Maine.

- **Greater Portland Sustainable Food Production Cluster:** Goal to grow Maine food system and create 2,500 jobs in food production and manufacturing. Two-year certification provided by Federal government, without designated funding. Hosted by Greater Portland Council of Governments.

- **Mayor's Initiative for Healthy Sustainable Food Systems:** Volunteers from private, public and nonprofit sectors working to develop and promote projects like community gardens, farmer's markets, and composting programs in the City of Portland.

- **Harvesting Maine's New Wholesale Opportunities:** Business planning workshops for farmers exploring wholesaling of crops. Organized by seven Maine organizations. Conducted in 2015.

- **Other Cross-Organizational Networks include:** Maine Food Atlas, Maine Food for UMaine, Eat Local Foods Coalition, Maine Network of Community Food Councils.

Maine is fortunate to have many people who are passionate about farms, seafood, and food and beverage manufacturing working on association boards, as leaders and staff of cluster support organizations, and as volunteers working to strengthen different dimensions of Maine's food system. The activities of these organizations and networks span vital functions needed to strengthen Maine's food and beverage industries. How these organizations work together and and the extent that they pool and direct their resources strategically can make a significant difference in Maine. To learn lessons that could be instructive for Maine, the project team explored how other regions have organized efforts to grow their food industries and seen positive results.

LESSONS FROM CLUSTER INITIATIVES IN OTHER REGIONS

Vermont and Oregon have seen marked growth in jobs and new businesses in their farm to plate and food processing industries associated with their cluster strengthening efforts.

Over the decades in many regions of the U.S. and around the world, public agencies, industry groups and nonprofit organizations have experimented with different ways to build industry competitiveness. More recently, researchers defined and studied clusters (Porter, 1990) and subsequently cluster organizations, and began to categorize these efforts and measure the success of their practices (Ketels, et. al., 2003 and 2013; Sölvell and Williams 2013).

To identify lessons that could benefit Maine's food cluster, the project team looked for comparable regions (having rural geography, modest-sized population with natural resource-based economies) with food industry cluster initiatives that appeared to be contributing to industry growth. Three regions – Vermont, Oregon and Denmark – were selected as examples that appeared relevant to Maine and with track records of success strengthening their food clusters.

All three regions have engaged food business leaders and other key cluster organizations like state agencies, trade associations and university researchers in developing data-driven, regional food cluster growth plans with specific goals for growing farms and food businesses and metrics for tracking progress. This has enabled them to rally entrepreneurs, government leaders and nonprofit advocates to work together to solve problems that are constraining multiple companies – such as bottlenecks in meat processing – and to boost innovation and profitability industry-wide – through spreading energy-efficient and other green production techniques that reduce costs while contributing to brand value.

Vermont and Oregon have seen marked growth in jobs and new businesses in their farm to plate and food processing industries associated with their cluster strengthening efforts. Since the launch of Vermont's Farm to Plate initiative in 2009, the number of food companies in the state has risen by 5.9%, food manufacturing jobs have growth by 34.5%, and the state has added 4,189 jobs in agriculture. In Oregon, a Northwest Food Processors Association-led initiative contributed to food manufacturing employment growth of 7.8% during the period 2007-2012, while overall manufacturing employment shrank by 15.8%. Denmark's food cluster program, which launched more recently, has seen industry come together to identify cluster-wide business challenges, has built a network connecting large and small food companies in Denmark and has showcased innovative Danish food products and capacities to other European and global markets (Appendix E).

Lessons from the review of these three regional examples included the following:

- **The cluster initiative resulted from a crisis or an opportunity, or both.** In the case of Vermont, the emergence of the local and organic food movement created an opportunity to reduce Vermont's dependence on its dominant dairy industry, which often had irregular economic performance. Oregon's food processors industry was losing companies and jobs, which impacted the state's economy while threatening the sustainability of its regional food processors association. And a large Danish dairy company saw an opportunity to grow Denmark's food cluster by connecting its large and small food companies, promoting Danish companies through joint marketing, and developing a coordinated innovation strategy.

- **Engaging the private sector in an initiative targeting industry cluster growth was key to initiative success.** The Danish and Oregon cluster initiatives were driven and led by the private sector – directly or through an industry trade association. Vermont's public-private partnership model includes strong private sector participation, and its coordinating organization, the Vermont Sustainable Jobs Fund, has a business growth and economic development mandate, staff expertise in business development, and a track record of success growing Vermont companies. Finally, focused, entrepreneurial leadership has been an essential ingredient contributing to initiative credibility and success.

- **Initiatives started with data collection and planning but soon developed specific goals and measurable metrics to generate momentum and sustain support.** This initial period ranged from six to 18 months and engaged industry leaders as well as experts from key public and nonprofit agencies involved in strengthening food industries and the food system in the region.

- **Constructive ties with the public sector at appropriate levels maximized learning, policy and program alignment, and specific regulatory improvements.** Public sector support included recognition of and/or financial support for implementation of the action plan.

- **Business models and cluster initiative activities differed across these regions.** Despite these similarities, the three cluster initiative models were quite different and grew out of the particular context of the regional agricultural economy and industry structure. Personal leadership, organizational type and industry culture also played an important role shaping the cluster initiatives.

These three food cluster initiatives demonstrate the importance of engaging private sector leadership, crafting and gaining support for a regional cluster growth agenda, setting specific and meaningful goals and metrics to measure initiative progress, and mobilizing support and aligning public, nonprofit and foundation resources in support of the agenda. These are good practices that could be adapted in Maine in support of its own cluster growth efforts.

COMPARISON OF FOOD CLUSTERS AND CLUSTER INITIATIVE APPROACHES

	VERMONT	MAINE	OREGON	DENMARK
REGION	State	State	State	Country
SIZE (SQUARE MILES)	9,620	35,385	98,381	16,562
POPULATION (ESTIMATED 2014)	626,500	1,330,200	3,970,200	5,655,700
LARGEST FOOD PRODUCT CATEGORIES	Dairy ($504M) Beef ($61M)	Lobster ($334M) Potatoes ($148M) Dairy ($126M) Wild Blueberries ($63M)	Seeds ($378M) Wheat ($241M) Fruits ($235M) Fish ($152M)	Pork ($4.4B) Dairy ($1.9B)
NUMBER OF FARMS	7,338 (2012)	8,173 (2012)	35,439 (2012)	42,099 (2012)
NUMBER OF COMMERCIAL FISHERMEN	N.A.	8,763 (2012)	35,439 (2012)	5,400 (2012)
NUMBER OF FOOD PROCESSING COMPANIES	616 (2012)	639 (2012)	637 (2012)	
CLUSTER INITIATIVE MODEL	Public-Private Partnership	Mixed	Regional Industry Association	Private Sector
CLUSTER INITIATIVE FOCUS	State Farm to Plate	Multiple Initiatives	Food Processing	Food Innovation
DRIVER FOR CLUSTER INITIATIVE CREATION	State/Business/Foundations	N.A.	Industry Trade Association	Large Dairy Company
LEAD ORGANIZATION	Vermont Sustainable Jobs Fund	Multiple organizations active	Northwest Food Processors Association	Danish Food Cluster (Founded by Aria, a global dairy firm based in Denmark)
LEAD ORGANIZATION'S MISSION	To accelerate Vermont's green economy	N.A.	To enhance the competitive capabiltiies of its Pacific Northwest food processor members	To facilitate innovation through branding and cooperation through the whole food value chain, supporting the visibility and growth of its members
STATE RECOGNITION OF OR FUNDING OF CLUSTER INITIATIVES	YES	N.A.	YES (Oregon, Washington, Idaho)	YES
GOVERNANCE BY OR FUNDING FROM INDUSTRY	YES	N.A.	YES	YES

LOOKING AHEAD: GROWING MAINE'S FOOD AND BEVERAGE INDUSTRIES

Tackling Maine's food cluster shortcomings and focusing on growth opportunities could form the outline for an action agenda cultivating the cluster over the next decade.

Maine's traded food cluster can become a stronger food production and processing engine for the state's economy and more dynamic supplier of foods and beverages for local, regional and national markets. The state's abundant land, water, and marine resources, its cluster assets and its strategic location can provide a springboard for greater growth. But to unlock that potential Maine needs to set clear goals and take strategic steps that are fact-based and help make Maine a better place for its food and beverage companies to succeed. That business expansion can, in turn, produce greater wealth, higher wages, and ultimately, contribute to Maine's prosperity.

To succeed, Maine would need to harness the collaboration of leaders across its farming, fish and food processing and financing community, by:

- **Engaging food industry leaders** to craft and guide an action plan with the parallel goals of growing scalable food and beverage companies and filling in cluster gaps to make Maine a region where food and beverage companies can thrive,
- **Mobilizing key cluster support organizations** to align resources needed by growth-oriented farms, seafood companies and food processors to accelerate their growth, and
- **Prioritizing one or two specific growth opportunities** where Maine is positioned for success over a sustained period, setting clear metrics for tracking progress.

Tackling Maine's food cluster shortcomings and focusing on growth opportunities could form the outline for an action agenda cultivating the cluster over the next decade. A growth agenda would require guidance from company leaders and trade association heads. It would involve collaboration with traditional and mission-oriented capital sources, the research and extension community, education and training programs and nonprofits working to support Maine's food businesses. It would benefit from engagement and aligned investment by state agencies responsible for fisheries and aquaculture, agriculture, economic development and job training, as well as strategic outreach to Federal agencies like the U.S. Department of Agriculture, Small Business Administration and Economic Development Administration. The resulting cluster-wide solutions and business expansion could then translate into a more competitive food cluster, growing and sustaining more and better-paying jobs in all corners of the state.

BUILDING BLOCKS FOR A SUCCESSFUL FOOD CLUSTER INITIATIVE

WHAT	WHO
An action plan for business growth, with mutually-reinforcing activities (based on market and industry analysis) and clear metrics for tracking progress	Business leaders from the farming, fishing and food processing industries draw on industry data and experience to identify priorities and guide action
A public-private partnership or industry group that oversees the initiative via a steering or governance group	State agencies recognize, align with and support action plan and reduce regulatory barriers
Entrepreneurial leadership that strengthens connections between companies, coordinates activities and tracks results	Food sector nonprofit groups with missions and capabilities that complement the action plan engage and collaborate with the initiative
Sustained funding for these activities from a mix of sources (private and public sector, member or activity fees, foundations seeking to grow state's food economy and jobs)	Universities and other research institutions align research programs with cluster growth priorities
	Training institutions like universities and community colleges engage employers in identifying critical skill areas, developing curricula, coordinating internships, etc.

POTENTIAL TARGETS FOR A GROWTH AGENDA

Tackling ambitious opportunities over a sustained period of time would not only drive meaningful growth but also galvanize the experienced entrepreneurs, investors, policy leaders and food system advocates who would need to be engaged for the effort to succeed.

Potential targets for a growth agenda should drive resources towards pragmatic actions that:

- **Help more farms, seafood companies and food processors to accelerate their growth,** with a particular focus on scalable enterprises led by entrepreneurial management teams. This will require approaches that combine identifying and expanding into new and larger markets, accessing capital, developing appropriately-skilled workers, and transitioning to higher-value, higher-margin production.

- **Extend supply chains within Maine,** in order to harness the collective economic power of Maine's small business-oriented production system.

- **Invest in skills needed by today's and tomorrow's entrepreneurial food and beverage enterprises,** so that Maine people can help to power Maine's food cluster growth and benefit from its success.

- **Promote innovation and attract young people to work in the Maine food cluster,** because they may be more open to operating in new ways and using technology to advance the cluster.

- **Unlock synergies across the Maine food and beverage cluster** – around strengthening Maine's brand, connecting Maine producers with wholesale and institutional buyers in Maine and the Northeast, increasing transportation and distribution efficiencies, building new technology platforms – that have not been fully leveraged, due in part to divisions in the cluster.

- **Boost production that is environmentally sustainable,** and therefore maintains and enriches the natural resources that are foundational assets for Maine's food cluster, and

- **Burnish Maine's reputation for producing quality, authentic and sustainably-produced food and beverages,** in ways that lift all Maine food and beverage producers and showcase compelling stories of Maine farmers, fishermen and food manufacturers for consumers.

A growth agenda guided by these principles would enhance economic opportunity by supporting business growth that raises, rather than lowers, wages and builds wealth in Maine. This is particularly important for a cluster with an average wage ($36,755) that is lower than the average private-sector wage in Maine ($38,454) and the average food cluster wage in New England ($42,122).

Maine food business leaders, heads of food and beverage industry trade associations, investors and food system advocates are the players who would need to come together and define a specific growth plan that fits Maine's food cluster. To succeed, this coalition would need to bridge existing divisions between conventional and natural/organic food producers, farmers and fishermen, rural and urban Maine, and between sometimes-competitive nonprofits, recognizing the collective benefits of working toward a better economic future for the food cluster, and contributing to greater prosperity for Maine.

The following are three examples illustrating the potential of Maine's food and beverage industries for growth:

- **Add More Value to Maine Food – Scale-up Maine Food Processing**

- **Expand the Production and Sale of Maine Food in Maine and the Northeast**

- **Expand the Production and Sale of Sustainably-Produced Protein**

These – as well as other options with high growth potential – could be the basis for discussion and prioritization by business and cluster leaders for creating a blueprint for Maine's food industry future.

Add more value to Maine food – support start up and scale up of Maine's food processing

Maine's food cluster's productivity is only 88% of the national average (Battelle, 2015). Higher productivity, which comes from innovation and adding more value to products, will boost competitiveness, leading to job growth and higher wages. Similarly, helping Maine food and beverage companies to transition from commodity to high-margin products will reduce Maine's cost and small business production system disadvantages.

HOW	EXAMPLES OF PRAGMATIC STEPS
Target critical transitions from home kitchen to commercial scale operation	**Identify equipment, facility and resource gaps** at key growth stages for food processing where market demand is greatest. **Hold a funding competition for food processing accelerators and other models** to address these gaps. Winning ventures should incorporate relevant best practices for business development, commercial kitchen facilities, and other shared resources like mobile equipment. Nonprofit and for-profit models could be eligible, but all should engage food manufacturing business leadership and have realistic plans for financial sustainability. **Assess whether and how these ventures and the University of Maine pilot kitchen can support processors in other parts of the state.**
Prepare a skilled workforce that can help accelerate sector growth	**Fine tune skills-training programs and university extension resources to meet food processor workforce and management needs.** Increase the frequency of quality "recipe to market" programs. Emphasize business skills in training programs. Explore establishment of food processor management and operations executive education and certificate programs.
Connect processors with larger markets across the Northeast	**Identify high-potential New England market niches and help Maine's small and medium-sized business expand into these markets through activities like regional trade missions and webinars.** Publicize resources for market research so that entrepreneurs can access and benefit from them.
Celebrate, inform and cultivate connections across the processor community	**Celebrate innovative and growing food processors.** Launch a monthly networking series and invite entrepreneurs and investors from Maine and other regions to share their stories in person and via webinars.

Expand Production & Sale of Maine Food in Maine and the Northeast

The state can build on its strong foundation in local sales by building business capacity to sell to large nearby markets. Maine ranks 3rd in the U.S. for farms with community supported agriculture (CSAs). Yet, the state is only one to two day's drive from much larger New England (14.5M), Mid-Atlantic (41.6M) and Eastern Canadian (23M) and has expanded shipping to northern Europe.[5]

HOW	EXAMPLES OF PRAGMATIC STEPS
Build the **capacity** of Maine companies to supply distinctive, quality food and beverages to institutional and grocery buyers in Maine and larger markets in the Northeast	**Launch a statewide food business accelerator program** targeting mid-sized growth-oriented Maine farms, seafood companies and food manufacturers. Follow a comprehensive, cohort-based best practices model that includes helping companies to secure the capital they need to grow. **Create a transportation & distribution working group** to identify supply chain and distribution efficiencies between Maine producers and Northeastern customers. Investigate innovative models that have worked to enable mid-sized producers to supply large or regional purchasers.
Increase the **number** of Maine food businesses with sales to institutional and grocery customers in the Northeast	**Connect entrepreneurs with information about regional market demand,** through matchmaking events and other activities that bring together growth-oriented producers with buyers. Engage grocery chains and independent grocers — where over 80% of Mainers buy their food — and other wholesale and institutional customers in initiatives expanding Maine food sales in Maine and the Northeast. **Support innovative ways to boost sales to regional institutional customers.** Examples can include meeting the growing customer demand for sustainable foods traced to the source (similar to Gulf of Maine Sustainably Harvested Seafood) and new technology platforms to improve sales efficiencies for small and medium-sized companies. **Develop an umbrella brand or campaign promoting Maine food and beverages,** capitalizing on the state's reputation for quality, authentic and sustainably-harvested food and drawing on compelling stories about Maine food producers. Consider how this relates to Maine's long-time "Get Real, Get Maine" marketing effort, its "The Maine Thing" tourism campaign, and explore collaboration with other New England marketing campaigns.

Expand production and sale of sustainably-harvested protein

According to the Food and Agriculture Organization of the United Nations, world demand for animal protein will double by 2050. Along with this massive growth in demand, public concern is increasing about environmentally-sustainable meat production, health and traceability. With abundant farmland and marine resources, can Maine leverage its seafood, dairy, livestock or egg production potential?

HOW	EXAMPLES OF PRAGMATIC STEPS
Identify niche opportunities for Maine companies to meet the growing demand for protein	**Create a protein demand and supply chain working group** to map global market niches in seafood, livestock, eggs and dairy where Maine has production promise and can be cost competitive. Consider ways to modernize Maine's protein processing in ways that move protein production up the value chain. **Develop a five-year action plan to meet current protein demand in promising market segments,** such as building out supply chains in aquaculture/seafood processing or organic dairy/organic feed supply chains. **Develop a long-term action plan to expand Maine's protein production targeting future market opportunities,** including research, extension and demonstration as well as business development. For example, sustainable expansion and intensification of livestock production in line with projected changing weather conditions between 2015 and 2050.
Launch a targeted initiative to compete in this highly competitive sector	**Launch a business accelerator program targeting growth-oriented Maine protein producers** – by segment (seafood, meat, dairy) OR a cross-cutting protein group. **Expand state and private sector investment in protein production and processing innovation as well as global market and trade promotion.**

SUPPORTIVE ACTIONS TO ENHANCE MAINE'S BUSINESS ENVIRONMENT FOR FOOD INDUSTRY GROWTH

A business-led effort aiming to grow Maine's food cluster will have the greatest impact if accompanied by supportive actions in the state's broader policy, research and training, and financing environment, through steps such as those that follow.

PUBLIC SECTOR

Align policies, resources and regulations in support of the cluster growth plan. Adopt an economic development agenda that encourages public and private investment in production and processing innovation and equipment upgrades, skills training, and development of distribution and sales channels to larger markets outside of Maine. Target state funding from programs such as Farms for the Future, Agricultural Development Grants and Loans towards projects likely to yield the greatest economic impact for Maine, such as high-value crops, growth-oriented companies, activity that impacts multiple companies, and entering larger markets. Engage public-private agencies like the Finance Authority of Maine, the Maine Technology Institute and the Maine International Trade Center that finance companies and promote innovation and exporting in the design and execution of the plan.

RESEARCH AND TRAINING

Marshal university and community college resources in support of industry growth priorities. Connect curricula, research and extension in agriculture, aquaculture and marine science more closely to business needs. Expand internships and course projects with Maine food and beverage companies. Increase degree, non-degree and certificate options for in-demand occupations. Add business school faculty with agribusiness experience. Do more outreach to inform the business community about resources that are underused, or shift resources to higher-impact uses.

Align workforce training resources with industry needs. Raise awareness about skills needed by growth-oriented farms, seafood companies and food processors and direct job training resources towards these needs. Consider launching a workforce attraction partnership involving employers constrained by chronic workforce needs and organizations working with job seekers interested in agriculture, fishing, aquaculture or food processing careers.

INVESTMENT

Build bridges between traditional lenders and investors, public financing sources, foundations and impact investors – and with food industry entrepreneurs – to increase financing for food industry growth. Create opportunities for people investing diverse types of capital to come together and learn about investment opportunities along the life cycle of high-growth and steady-growth food companies. Include New England-based investors specializing in relevant industries and foundation officers dedicated to the region's food systems and fisheries. Encourage expansion of financing that fits food cluster growth risk and return profiles and timelines (such as royalty-based financing, public-private financing structures, peer-to-peer lending, pooled loan funds) and needs (such as financing equipment modernization and companies integrating vertically along the producer/processor/customer supply chain). Build in opportunities for entrepreneurs to network with investors, get guidance on how to position their companies to succeed at raising needed capital, and get feedback when their efforts fall short.

CLUSTER PROMOTION

Boost cluster awareness, innovation and networking. Recognize Maine's innovative and growing farms, seafood companies, food and beverage processors with awards for leadership and growth. Promote creation and adaptation of models for aggregating, distributing and marketing food and beverages in this cluster populated largely by small businesses. Build the capacity of trade associations to grow their member companies, through skill-building and joint marketing activities such as the Maine Brewers Guild has done with the Beer School, Beer Trail and Summer Beer Festival.

Engage in ongoing assessment of cluster gaps and opportunities. Periodic analyses should draw on cluster data, business leader perspectives, food buyer input and consumer trend information. Include regular assessments of Maine's food cluster position relative to other regions in the U.S.

Leverage complementary clusters. Explore tapping Maine's strength in tourism by collaborating with the Maine tourism industry to boost agritourism. Assess growth opportunities that intersect with the biopharmaceutical and chemical clusters.

CAN MAINE SUCCEED?

Food is hot – nationally and in Maine. Across the U.S., large agribusiness and food and beverage corporations continue to innovate and make strategic purchases to position themselves as food preferences evolve, prices shift and as weather conditions (particularly precipitation patterns) change, affecting some of America's largest agricultural regions. In parallel, Federal and state economic development agencies and foundations are seeing greater connections between food production, environmental sustainability and expanding economic opportunity, particularly in rural regions. In Maine, there are daily articles in newspapers and online about the newest restaurants, the growth of independent grocers and coops featuring natural and locally-produced foods as well as reporting regularly on production levels of the state's signature potatoes, wild blueberries and lobsters and the next moves of its large food and beverage companies. Shifting global and local consumer demand and the potential of new and different investment and funding is prompting some Maine companies to innovate, new types of companies and business support efforts are being launched, and some reshuffling of the farming, seafood, food processing industry landscape and support system is taking place.

With change, comes opportunity. Maine possesses abundant farmland, water and marine resources, a cluster profile with some strong highlights, and is within one-two days shipping of large markets in the northeast U.S. and Canada. It has an expanding reputation for being a region known for producing healthy, authentic, locally-produced and delicious food and beverages. Its farming, seafood and food manufacturing industries are still dominated in numbers by micro and small companies, but a smaller group of mid-sized farms and companies are striving to scale and find their "sweet spot" by adding new lines of business, by integrating vertically to capture more value and by innovating to take advantage of growing and changing consumer demand. A few of Maine's cluster support organizations are working with selected Maine farms, seafood enterprises and food processors to scale to the next level of growth; other support organizations are themselves small and have few resources to dedicate to that mission, lack specialized staff with expertise in scaling food companies, or are focused on other dimensions of Maine's food system. Despite these efforts there is not yet a broadly-accepted agenda on the part of industry, nonprofits, research groups and public agencies focused on advancing growth of Maine's food cluster and beverage industries.

Maine can seize this opportunity. Its food cluster has strengths, but needs to organize itself more strategically over a sustained period to make Maine a region where significantly more food and beverage companies thrive in local and export markets. The recipe for success calls for engaged business leadership, an action plan for growth that builds on Maine's assets, clear metrics for progress, greater company- and system-level innovation, and constructive teamwork between the private sector, trade associations, government, nonprofit groups, training and research institutions, and investors.

ENDNOTES

1 See the TCI Network website (www.tci-network.org) for a list of cluster organizations around the world.

2 Examples include: Bon Appétit (America's Foodiest Small Town, 2015 nominee for America's Best New Restaurant), Condé Nast Traveler (Best American Cities for Foodies #20), Zagats (Top 20 Winter Foodie Destinations), CNN Money (Seven Up-and-Coming Foodie Destinations), Forbes Travel (Top Ten American Breweries Worth A Visit), and Travel+Leisure (America's Best Beer Cities #3).

3 The U.S. Cluster Mapping project defines a strong cluster as being in the top 25% of regions for employment specialization in that cluster as well as meeting minimum criteria for employment and establishments (http://www.clustermapping.us/content/glossary-terms).

4 2014 data on cash receipts from the U.S. Department of Agriculture and from trade associations (lobster, salmon).

TABLE NOTES

The Evolution of Maine's Economy
Source: Maine Food Cluster Project, from Colgan and Barringer, Donahue et. al., and other secondary sources.

Maine Performance Scorecard
Source: Prof. Michael E. Porter, Cluster Mapping Project, Harvard Business School; Richard Bryden, Project Director.

Employment in Maine's Largest Traded Clusters
Source: Prof. Michael E. Porter, Cluster Mapping Project, Harvard Business School; Richard Bryden, Project Director; Census CBP, Census Nonemployer Stats, USDA NASS.

Traded Cluster Composition of the Maine Economy
Source: Prof. Michael E. Porter, Cluster Mapping Project, Harvard Business School; Richard Bryden, Project Director; Census CBP, Census Nonemployer Stats, USDA NASS.

Components of Maine's Traded Food Cluster
Source: U.S. Cluster Mapping Project, Rich Bryden. Census CBP, Census Nonemployer, USDA NASS.

Overview of the Maine Food Cluster
Source: Maine Food Cluster Project, interviews.

Determinants of Maine's Food Cluster Competitiveness
Source: Maine Food Cluster Project, interviews, online survey and varied data sources.

Economic and Traded Food Cluster Data – Northern vs. Southern Comparison
Source: Prof. Michael E. Porter, Cluster Mapping Project, Harvard Business School; Richard Bryden, Project Director; Census CBP, Census Nonemployer Stats, USDA NASS.

Profiles of Food Company Survey Respondents
Source: Maine Food Cluster Project online survey.

Verbatim Survey Responses: Greatest Challenge Facing My Business in Maine
Source: Maine Food Cluster Project and Critical Insights, survey responses, January 2015.

Examples of Maine Cluster-Building Organizations
Source: Maine Food Cluster Project interviews and websites.

Maine Cluster-Building Networks – Statewide and Regional
Source: Maine Food Cluster Project interviews and websites.

Cluster-Building Networks – Statewide/Regional
Source: Maine Food Cluster Project, interviews and websites.

Comparison of Food Clusters and Cluster Initiative Approaches
Source: Maine Food Cluster Project interviews and websites.

Employment in Largest Traded Clusters – Southern vs. Northern Comparison
Source: Prof. Michael E. Porter, Cluster Mapping Project, Harvard Business School; Richard Bryden, Project Director; Census CBP, Census Nonemployer Stats, USDA NASS.

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APPENDIX A

TRADED FOOD CLUSTERS AND CORRESPONDING NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CODES

Agricultural Inputs and Services

This cluster includes establishments primarily engaged in farming and related services. Farming includes soil preparation, planting, cultivation, harvest, fertilizer creation, and post harvest activities. It also includes services that supply farm labor, support for animal production, and additional operations management.

Number of Industries - 9

115111	Cotton Ginning
115112	Soil Preparation, Planting, and Cultivating
115113	Crop Harvesting, Primarily by Machine
115114	Postharvest Crop Activities (except Cotton Ginning)
115115	Farm Labor Contractors and Crew Leaders
115116	Farm Management Services
115210	Support Activities for Animal Production
325311	Nitrogenous Fertilizer Manufacturing
325314	Fertilizer (Mixing Only) Manufacturing

Fishing and Fishing Products

Establishments in this cluster are engaged primarily in catching fish and other seafood and processing the catch for consumption.

Number of Industries - 4

114111	Finfish Fishing
114112	Shellfish Fishing s
114119	Other Marine Fishing
311710	Seafood Product Preparation and Packaging

Food Processing and Manufacturing

This cluster includes firms involved in the processing of raw food materials and the manufacturing of downstream food products for end users. This includes millers and refineries of rice, flour, corn, sugar, and oilseeds. These upstream products contribute in part to producing specialty foods, animal foods, baked goods, candies, teas, coffees, beers, wines, other beverages, meats, packaged fruits and vegetables, and processed dairy products.

Number of Industries - 44

311111	Dog and Cat Food Manufacturing
311119	Other Animal Food Manufacturing
311211	Flour Milling
311212	Rice Milling
311213	Malt Manufacturing
311221	Wet Corn Milling
311224	Soybean and Other Oilseed Processing
311225	Fats and Oils Refining and Blending
311230	Breakfast Cereal Manufacturing
311313	Beet Sugar Manufacturing
311314	Cane Sugar Manufacturing
311340	Nonchocolate Confectionery Manufacturing
311351	Chocolate and Confectionery Manufacturing from Cacao Beans
311352	Confectionery Manufactured from Purchased Chocolate
311411	Frozen Fruit, Juice, and Vegetable Manufacturing
311412	Frozen Specialty Food Manufacturing
311421	Fruit and Vegetable Canning
311422	Specialty Canning
311423	Dried and Dehydrated Food Manufacturing
311511	Fluid Milk Manufacturing
311512	Creamery Butter Manufacturing
311513	Cheese Manufacturing
311514	Dry, Condensed, and Evaporated Dairy Product Manufacturing
311520	Ice Cream and Frozen Dessert Manufacturing
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing
311821	Cookie and Cracker Manufacturing
311824	Dry Pasta, Dough, and Flour Mixes Manufacturing from Purchased Flour
311830	Tortilla Manufacturing
311911	Roasted Nuts and Peanut Butter Manufacturing
311919	Other Snack Food Manufacturing
311920	Coffee and Tea Manufacturing
311930	Flavoring Syrup and Concentrate Manufacturing
311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing
311942	Spice and Extract Manufacturing
311991	Perishable Prepared Food Manufacturing
311999	All Other Miscellaneous Food Manufacturing
312111	Soft Drink Manufacturing
312112	Bottled Water Manufacturing
312113	Ice Manufacturing
312120	Breweries
312130	Wineries
312140	Distilleries
327213	Glass Container Manufacturing
424510	Grain and Field Bean Merchant Wholesalers

Livestock Processing

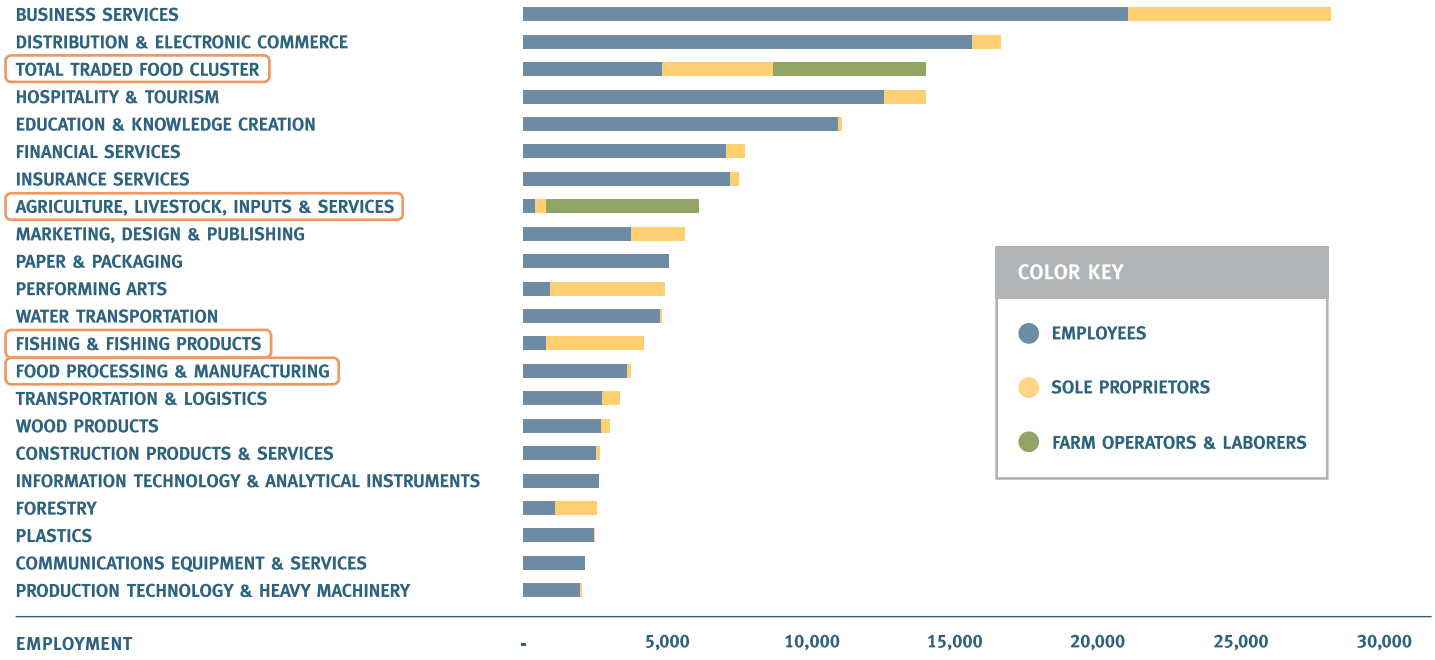
This cluster contains establishments engaged in processing meat from livestock and livestock wholesaling.

Number of Industries - 5

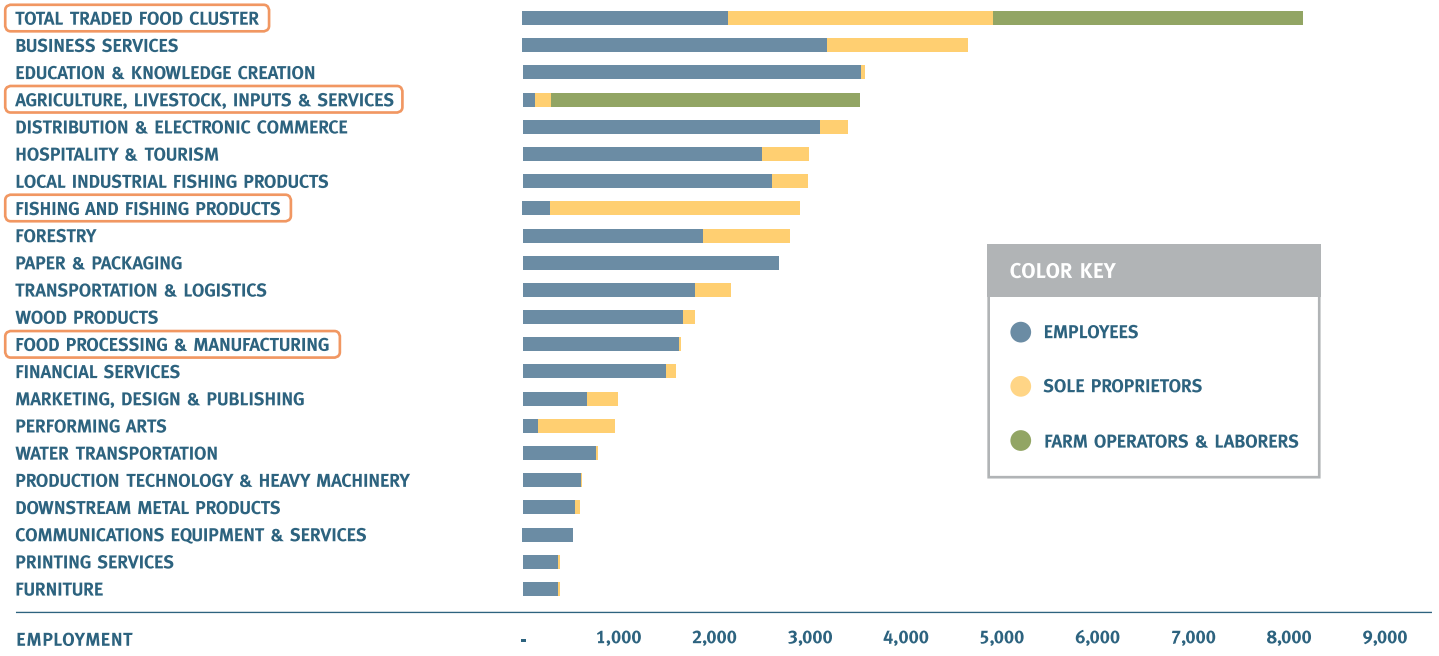
311611	Animal (except Poultry) Slaughtering
311612	Meat Processed from Carcasses
311613	Rendering and Meat Byproduct Processing
311615	Poultry Processing
424520	Livestock Merchant Wholesalers

EMPLOYMENT IN MAINE'S TRADED FOOD CLUSTER: SOUTHERN VS. NORTHERN COMPARISON

SOUTHERN MAINE ECONOMIC AREA EMPLOYMENT IN LARGEST TRADED CLUSTERS, 2012



NORTHERN MAINE ECONOMIC AREA EMPLOYMENT IN LARGEST TRADED CLUSTERS, 2012



APPENDIX C

MAINE FOOD CLUSTER PROJECT SURVEY METHODOLOGY

A survey was conducted of leaders of Maine food cluster companies, with the support and guidance of Critical Insights, a Portland-based market research firm.

An introduction of the project and link to the survey tool was sent via email to food cluster company leaders. Contact lists of companies were secured via internet research and outreach to organizations working with Maine food cluster companies. Companies were also reached via industry trade associations.

Survey questions covered characteristics of the respondents' companies, perspectives on the industry, and views on the elements of Maine's business environment helping and hindering their companies' growth.

Data were collected between January 13-31, 2015 via an online survey developed by project team. Critical Insights of Portland provided guidance on and conducted the survey.

320 businesses responded; 235 completed all questions. Responses were confidential.

APPENDIX D

MAINE FOOD CLUSTER SUPPORT ORGANIZATIONS

This list includes organizations carrying out cluster-building functions statewide that support Maine's traded food industry clusters. Some work only with farms, seafood industry or food manufacturers, while others also work with industries not related to food. A few initiatives hosted by other organizations were also included (in italics). The list does not include local organizations, such as farmers markets. Moreover, it does not include regional offices of key Federal agencies such as the Economic Development Administration, the Food and Drug Administration, the Small Business Administration and the U.S. Department of Agriculture.

BUSINESS DEVELOPMENT

Casco Bay Technology Hub
Maine Aquaculture Innovation Center
Maine Center for Entrepreneurial Development
Maine Manufacturing Extension Partnership
Maine Small Business Development Centers
Portland Fish Exchange
SCORE
Startup Portland
Target Technology Incubator

ECONOMIC DEVELOPMENT

Androscoggin Valley Council of Governments
Aroostook Partnership for Progress
Eastern Maine Development Corporation
Envision Maine
Greater Franklin Economic Development
Greater Portland Council of Governments
Island Institute
Kennebec County Valley Council of Governments
Maine & Company
New Ventures Maine
Maine Development Foundation
Maine International Trade Center
Mayor's Initiative for a Healthy & Sustainable Food System
Mobilize Maine
Northern Maine Development Commission
Piscataquis County Economic Development Council
Somerset Economic Development Corporation
University of Maine Cooperative Extension Service
Western Maine Economic Development Council

EDUCATION & SKILLS

Central Maine Community College
College of the Atlantic
Cultivating Community
Eastern Maine Community College
Kennebec Valley Community College
Maine Academy of Natural Sciences
Northern Maine Community College
Southern Maine Community College
Unity College
University of Maine
University of Maine Cooperative Extension
University of Maine - Machias
University of Maine - Presque Isle
University of New England
University of Southern Maine
Washington County Community College
Wolfe's Neck Farm

FUNDING

Broad Reach Fund
Coastal Enterprises, Inc.
Elmina B. Sewall Foundation
Farm Credit East
Farms for the Future
Finance Authority of Maine
Harvard Pilgrim Foundation
Maine Community Foundation
Maine Angels
Maine Harvest Credit Union
Maine Initiatives
Maine Technology Institute
Maine Venture Fund
Quimby Family Foundation
Sandy River Charitable Foundation
Slow Money Maine

NETWORKING & PROMOTION

Agricultural Council of Maine
Associated Fisheries of Maine
Cobscook Bay Resource Center
Eat Local Foods Coalition of Maine
Good Shepherd Food Bank
Heart of Maine Dairy Goat Association
Lobster Institute
Maine Angus Association
Maine Aquaculture Association
Maine Association of Conservation Districts
Maine Beef Producers Association
Maine Brewers Guild
Maine Cheese Guild
Maine Coast Fisherman's Association
Maine Cranberry Growers Association
Maine Dairy Industry Association
Maine Dairy Promotion Board
Maine Dry Bean Growers Association
Maine Farm Bureau
Maine Farmland Trust
Maine Federation of Farmers Markets
Maine Food Strategy
Maine Grain Alliance
Maine Grass Farmers Network
Maine Greenhouse Association
Maine Grocers & Food Producers Association
Maine Highland Cattle Association
Maine Lobster Marketing Collaborative
Maine Lobstering Union Local 207
Maine Lobsterman's Association
Maine Maple Producers
Maine Milk Commission
Maine Network of Community Food Councils
Maine Organic Farmers and Growers Association
Maine Organic Milk Producers
Maine Pork Producers Association
Maine Potato Board
Maine Poultry Growers Association
Maine Restaurant Association
Maine Seaweed Council
Maine Sheep Breeders Association
Maine State Beekeepers Association
Maine State Chamber of Commerce
Maine State Pomological Society
Maine Sustainable Agriculture Society
Maine Vegetable and Small Fruit Growers Association
Maine Winery Guild
Midcoast Magnet
Mid-Maine Greenhouse Growers Association
Penobscot East Resource Center
Wild Blueberry Commission of Maine

POLICY & REGULATION

Maine Dept. of Agriculture, Conservation and Forestry
Maine Dept. of Economic and Community Development
Maine Dept. of Marine Resources

RESEARCH

Bigelow Laboratory for Ocean Sciences
Downeast Institute
Gulf of Maine Research Institute
Maine Aquaculture Innovation Center
University of Maine
(includes agriculture, aquaculture and marine research stations and centers)

APPENDIX E

CLUSTER INITIATIVE PROFILES: VERMONT, OREGON AND DENMARK

Vermont Farm to Plate Initiative (vtfarmtoplate.com)

The Vermont Farm to Plate Investment Program (F2P) is a statewide public-private partnership with decentralized leadership and a data-driven strategy that targets and aligns investment, taps expertise and leverages the strengths of Vermont companies, public agencies and nonprofit organizations. The ten-year initiative has three goals: 1) increase economic development in Vermont's food and farm sector; 2) create jobs in the food and farm economy; and 3) improve access to healthy local food. The Vermont Sustainable Jobs Fund, a statewide business development organization, provides operations support to the F2P initiative.

The Vermont legislature launched the F2P program in 2009 to bolster its faltering dairy industry and accelerate its local food and farming movement. The F2P network, made up of business, government and nonprofit leaders, implements the ten-year action plan. The network's steering committee oversees groups working on: consumer education and marketing; education and workforce development; production and processing; aggregation and distribution; and farmland access and stewardship. Each group works on priority issues within their area; for example, the Aggregation and Distribution working group has "Farm to Institution" and "Supply and Demand" task forces. The network also looks into cross-cutting aspects of the food system, such as financing, soil and water, labor, and research.

The Meat Processing Task Force illustrates an early success forging new supply chain linkages, expanding processing company profitability, and boosting employment for meat cutters and other processing and livestock production jobs. Though the conventional wisdom was that Vermont needed more slaughterhouses, two studies countered that the real bottleneck might instead be a lack of sufficient storage and cut-and-wrap capacity. The Task Force evaluated Vermont's smaller processors financial position, provided technical assistance to processors and conducted workshops for farmers and processors. Based on evidence from these early activities, the State provided funding for slaughterhouse certification, a meat-cutting apprenticeship program and processor capacity grants. Task Force members provided planning and technical assistance to processors. In addition, business leaders toured facilities in other regions to learn different meat processing operations, which boosted connections between the Vermont firms and produced at least one joint venture. With their processing capacity and profits now increased, Vermont's meat processors have turned to working with farmers to encourage more growth of livestock.

Overall, since the inception of F2P, Vermont's food cluster has grown by 3%, outpacing the state's growth of 1%. The number of food businesses in the state has grown by 28%, creating 3,600 direct jobs and another 9,000 induced and indirect roles. The economic impact of this growth equates to $1.7 billion in new economic activity. Ultimately, funder coordination and strong local engagement has enabled Vermont to become a leader in leveraging local food and agricultural industries for economic growth.

Chuck Ross, Secretary of the Vermont Agency of Agriculture, Food and Markets, sums Vermont's key to success this way. "I am a firm believer in a systems approach that leverages networks and systems mapping … to move broad and important efforts like this forward. …In large part our success is because of the common agenda we have built through the Farm to Plate planning process, and now the coordinated action between 350+ members of the Farm to Plate Network." (Perry, 2014)

Northwest Food Processors Association (nwfpa.org)

Originally established in 1914, the Northwest Food Processors Association (NWFPA) had evolved to serve a wide range of food processing companies in Oregon, Washington, and Idaho. However, by the early 2000s, the regional industry was facing a crisis. The industry had lost 57 independent food processors within six years. Increasing energy costs, thinning margins, reduced power in the supply chain, commoditization, workforce challenges, and globalization threatened the sector's vitality. Recognizing that these issues needed to be addressed, NWFPA leadership sought support from its membership and government funding to launch a cluster initiative.

After conducting a competitive assessment and planning process, the NWFPA produced a strategy and recommendations to "reposition Northwest food processors to better compete globally as an industry cluster through productivity and innovation." It did so by working collaboratively with the food manufacturing industry, three governors and their corresponding state and regional agencies, education organizations and other cluster partners. The initiative had five key objectives: 1) increase the capacity of the Northwest's food processing innovation infrastructure, 2) improve transportation infrastructure and services, 3) develop a robust workforce pipeline, 4) form strategic alliances to improve the industry's competitiveness, and 5) increase the industry's operational productivity.

To execute this strategy, the NWFA engages volunteers to participate on industry-focused committees and task forces and works with partners on cluster growth projects. The cluster organization's work includes government advocacy, issue management, print and online publications, events, and professional development and leadership opportunities. Through these activities, the NWFPA has become the nation's largest regional food processors association, involving 75 large food manufacturers, over 80 smaller food processors (with revenue of less than $1 million), and 350 suppliers.

One central activity of the initiative is its annual Northwest Food Processors EXPO and Conference, which connects and trains over 4,000 participants and showcases "The Taste of the Northwest" food products. Another has been its work with members that has led to measurable improvements in energy efficiency, operating cost savings and environmental sustainability of processing operations. A third has been to educate the three states' Federal delegations and to collaborate to pursue Federal funding opportunities consistent with the cluster strategy.

The organization's activities have substantially improved the Northwest food processing industry's competitiveness and boosted employment growth. Between 2007 and 2012, in Oregon alone, food processors saved $13 million and avoided more than $100 million in costs. Cluster employment during the same period grew by 7.8% during a period when overall manufacturing growth shrank by 15.8%. Careful cluster assessment, identification of strategic opportunity areas, and effective execution have enabled the NWFPA to achieve positive results for its cluster.

Danish Food Cluster (danishfoodcluster.dk)

In 2013, leaders at Arla Foods, a dairy company and Denmark's fifth largest business, grew concerned about the future of their country's food sector. A growing disconnect between large-scale food industry players and innovators in academia and food startups threatened the industry's innovation ecosystem. Thus Arla championed an industry-led initiative to drive greater collaboration and growth across the food cluster. In December 2013, support had grown sufficiently to convene a General Assembly, where 60 food industry stakeholders established the Danish Food Cluster.

The Danish Food Cluster's vision is to build a world-leading food innovation cluster, a hub for talent, investors, companies and science. Its mission is to increase innovation through branding and cooperation along the food value chain and through supporting the visibility and growth of its members. These members include food manufacturers, retailers, business parks, consultants, research institutions, non-profits, and public agencies, as well as food technology, ingredient, and packaging companies. To achieve its goals, the Danish Food Cluster board and member-led subcommittees focus on the following three areas of activity.

Branding, recognition, and visibility. The cluster organization works to build the international brand recognition of Danish foods through publicity, international tradeshows and events, by partnering with international food innovation initiatives, and by establishing relationships with high priority government agencies. For example, the cluster initiative has hosted U.S. and European food companies in Denmark for a six-day food innovation conference, developed a branding kit for its members, showcased the Danish food innovation at Food Tech 14, one of Northern Europe's key food summits and represented Denmark at BioJapan. It featured the Danish food industry for over 50 delegations in its first year.

Maximizing Innovation. The Danish Food Cluster mapped Denmark's food cluster competencies and innovation capacities as well as opportunities and needs across its membership. With this information, the Danish Food Cluster staff strengthens the network of companies, universities and other groups across the cluster and strategically connects small companies to large enterprises through its company pitch program. It organizes events and publishes blogs about the future of food, global food innovation, and tips on food product innovation that disseminate key information throughout the industry and research community.

Networking & Interaction. The Danish Food Cluster is building its membership network through conferences, seminars, company visits, and a member directory. To date the organization has signed on more than 150 members, with plans to have 250 members within three years. Three conferences, ten company visits, a closed digital network for over 300 individuals, as well as numerous seminars and member activities have all contributed to strengthened connections among members. Though the initiative is only a year old, its 150 members include four universities, several government-sponsored research institutes and companies representing 75% of Denmark's food industry activity.

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