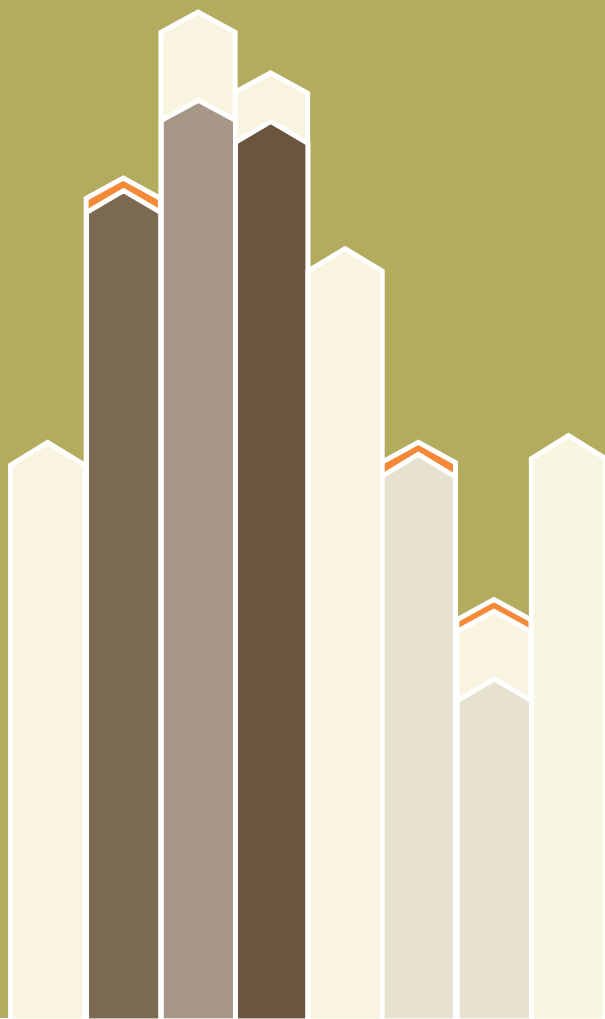


# MICHIGAN FOOD HUB IT PLATFORM FEASIBILITY STUDY PUBLIC SUMMARY



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For more information about this feasibility study, please contact Rich Pirog, MSU Center for Regional Food Systems (rspirog@msu.edu)

## STUDY BACKGROUND

The Michigan Food Hub Network conducted this feasibility study (in association with New Venture Advisors) to assess the need, function, ownership structure, and start-up and maintenance costs of a statewide IT platform for Michigan food hubs that would lead to improved performance and more seamless communication across all Michigan food hubs and their business partners.

The Michigan Food Hub Network (or “the Network”) was initiated in June 2012 with primary funding from The Kresge Foundation. The Network was developed in response to a set of identified challenges and opportunities for food hubs, which emerged from a collaborative process convened with farmers, food entrepreneurs, educators, and other stakeholders.<sup>1</sup> Since its inception in June 2012, the Network is co-convened by the Michigan State University (MSU) Center for Regional Food Systems (CRFS) and Morse Marketing Connections, LLC. The Network’s overarching goal is to build the capacity of Michigan food hubs and the partners that assist them so the hubs can better supply healthy food to underserved markets in the state. The Network uses statewide convenings, educational webinars, listserv communications, and technical services provided by consultants and Network team members to achieve project goals.

Through its ongoing support of, and discussions with, food hubs across the state, the Michigan Food Hub has come to recognize information technology (IT) as a challenge, barrier, and potential opportunity for growth for food hubs. Hubs participating in the Michigan Food Hub Network have IT needs ranging from a dynamic grower/buyer interface (i.e. web exchange function) to a more complex set of IT functions that include inventory, distribution management and complete traceability as the product moves to the final purchaser and ultimately to the end user. Additionally, as Michigan food hubs expand and new ones emerge, many hubs have become interested in the concept of an interdependent, statewide IT platform that enables hubs to seamlessly communicate, as well as transact with and support each other.

The Michigan Food Hub Network conducted this feasibility study (in association with New Venture Advisors) to assess the need, function, ownership structure, and start-up and maintenance costs of a statewide IT platform for Michigan food hubs that would lead to improved performance and more seamless communication across all Michigan food hubs and their business partners.

### PROJECT TEAMS

The core team responsible for executing the study included New Venture Advisors (NVA) and the Michigan Food Hub Network core team. New Venture Advisors is a Chicago-based consulting firm with expertise in the assessment, design, launch and development of businesses in the local food and sustainable agriculture arena. Since 2009, New Venture Advisors has worked on more than 40 food hub ventures and food systems projects across North America. The Michigan

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<sup>1</sup> These initial challenges and opportunities were identified through a set of three meetings in fall 2011 and winter/spring of 2012 that were co-convened by Michigan Department of Agriculture (MDARD) and the MSU Center for Regional Food Systems.

Food Hub Network provides a learning community to support Michigan food hubs to successfully work with their public and private partners to meet their business goals. Increasing food hub viability provides more opportunities for food hubs to develop effective and efficient ways to supply healthy food to low-income communities in the state.

The Network is co-convened by Michigan State University's Center for Regional Food Systems (CRFS) and Morse Marketing Connections. Primary funding comes from the Kresge Foundation with additional funds from the W.K. Kellogg Foundation. CRFS is the project lead and provides a contract to Morse Marketing Connections for their work. MSU's CRFS works to engage the people of Michigan, the United States and the world in applied research, education and outreach to develop regionally integrated, sustainable food systems.

This public report is an edited version of a more comprehensive, confidential report provided by NVA to the Michigan Food Hub Network team. This public report focuses on the Michigan food hubs identified vision, goals, and technical needs, and the process used to work with a wide range of IT service providers to match those needs with provider capacities.

## ➤ SYSTEM VISION, BENEFITS AND GOALS

### VISION AND GOALS

The overarching vision that hubs and other stakeholders have identified for a shared IT platform is to **increase the purchasing volume of local farm products among wholesale buyers across the state and to catalyze increased production and sales of Michigan-grown products.** The system would help hubs achieve this mission by:

- Enabling buyers and hubs to access farm products across the state, rather than only in their more narrow network of producers
- Providing producers, hubs and buyers with a comprehensive and nuanced understanding of supply and demand across the state, including what types of products are produced and purchased, and at what volumes, as well as the quantity and type of products that buyers would purchase if supply were available. This knowledge may lead to improved planning and, over time, increased production.

To that end, the group identified the following set of goals for a shared IT platform:

#### **(1) Each hub will be able to more effectively and efficiently execute their current, day-to-day operations**

While some hubs are satisfied with the technology solutions in place to manage their internal operations (including sales, supply chain and supplier management, order fulfillment, payment processing, accounting, etc), others have either not yet made significant technology investments or are not fully satisfied with the breadth and depth of functionality offered by their current provider. As outlined above, given the diversity of business models across Michigan food hubs, the specific functional needs that hubs have vary. Some require online marketplace functionality (allowing growers to post their product availability and buyers to make purchases) while others require a robust enterprise resource planning (ERP) system for the management of inventory, warehousing, purchasing, invoicing and accounting.

#### **(2) Hubs, and eventually producers and buyers, across the state can effectively transact and collaborate**

There are at least seven current or emerging local food hubs across Michigan. While they vary in many ways – size, mission and legal entity, business model, current and projected growth – they are all interested in formalizing a more collaborative relationship that can increase the sales of their growers, improve their own revenue, strengthen their value proposition to their buyers, and improve access to healthy and locally grown food across the state.

In particular, hubs are interested in a technology system that facilitates:

##### **a) Cohesive, statewide supply, demand and production planning**

The system would ideally address the current mismatch between what buyers across the state are seeking and what growers produce, and in doing so, would help smooth out surges of extremely common products. It is hypothesized that this mismatch can be address through a system that enables (1) data tracking of historical statewide sales and supply, (2) capturing of forecasted demand and supply for the upcoming season, and (3) pre-season informal or formal agreements between producers, hubs and buyers.

##### **b) Statewide transactions, with cross-hub selling and/or buyers purchasing product directly from growers across the state, rather than from one hub's smaller radius of production**

Ultimately, the system would enable users to view product availability and pricing across the state and directly place and pay for orders. Components of this goal therefore include (1) enabling hubs and other users to have real time view into the current product availability and pricing from producers and hubs across the state, likely requiring the development of a portal through which producers and hubs can input and update their product availability lists on a regular basis; (2) enabling users to view available products and pricing based on filters (such as geographic radius or certifications); and (3) the ability of users to place, pay for and coordinate logistics of orders directly through the system.

**c) Order fulfillment, logistics optimization, third party logistics provider management**

Distribution and fulfillment of orders is one of the most challenging aspects of food, and local food in particular. Ultimately, the system would ideally support hubs in their ability to distribute orders beyond their current sales and distribution radius – to hubs and buyers across the state. Components of this vision would include (1) the ability for all users to input their weekly distribution capabilities, (2) the ability to filter availability of products based on specific distribution routes and schedules, and (3) the ability of third party logistics providers to engage in the system to provide and even bid on delivery services.

**d) Central information portal for sales, marketing and educational data and materials**

A content portal is needed through which hubs and other users can access information and resources that support their salespeople and marketing efforts. This might include statewide branding material, data to support sales pitches, one-pagers to share with prospective buyers, farm-level marketing materials and pricing and technical assistance resources.

**e) Comprehensive and easy to use reporting capabilities, statewide and at the hub level**

Ability of hubs and central administrative users to easily access a dashboard, reports and raw data to understand their performance against financial, operational and impact metrics. In addition, the hubs and the central administrative user can assess the overall economic, production and food access impact of Michigan’s food hubs.

The work plan for feasibility study had two phases (Table 1):

**Table 1 – Feasibility Study Phases**

Phase I: Refine and clarify the vision for an interdependent, statewide IT system for MFHN	Phase II: Quantify and evaluate the financial and technical feasibility of the system
<ul style="list-style-type: none"> <li>• Clarify the vision and objectives of the system and the desired benefits it will bring to food hubs, growers, buyers and other stakeholders</li> <li>• Finalize the system work flow and specifications, including prioritization of each module and functionality</li> <li>• Align on key constraints and parameters</li> </ul> <p><b>Interim Deliverable: Detailed synthesis of the vision, goals and technical specifications of a statewide system.</b></p>	<ul style="list-style-type: none"> <li>• Gain a preliminary understanding of how software companies and/or development teams would approach this project, and major risks and challenges they foresee</li> <li>• Gather initial cost estimates from a diverse set of providers</li> <li>• Quantify perceived costs and benefits of the system to food hubs, growers and any other relevant stakeholders</li> <li>• Conduct a baseline cost-benefit assessment</li> </ul> <p><b>Final Deliverable: Final report, and the detailed assessment and recommendation contained in this document.</b></p>

## GOALS OF STATEWIDE PLATFORM

Through surveys and interviews with hubs, growers, buyers, and IT providers and a full-day in-person planning session with the seven food hubs that were part of the Michigan Food Hub Network at the time, the following primary goals were identified for a Michigan IT platform.

While hubs, and other project stakeholders, would be interested in seeing 100% of these goals achieved, they also recognize the costs, resource investments and development time associated with achieving this full vision. The group therefore aligned on a collective prioritization of these goals as described in Table 2.

**Table 2 – IT Platform Goal Prioritization**

	<b>System goal</b>	<b>Proposed priority level for statewide system</b>	<b>Rationale</b>
<b>1</b>	<b>Hubs can better execute their own day-to-day operations</b>	<b>Low to moderate for statewide system</b> Note: This is a <u>very high</u> priority for hubs, but the group is open to it being addressed outside of a statewide system. If outside solutions are utilized for this goal, the statewide system should interface seamlessly with the internal software systems of each hub (without dual data entry being required)	<ul style="list-style-type: none"> <li>• Hubs' business models are distinct, evolving, making it difficult for a single system to effectively address them in a timely manner</li> <li>• Existing systems already exist to meet many of the hubs' distinct needs</li> <li>• Modularized approach may lead hubs to overpay</li> </ul>
<b>2a</b>	<b>Statewide supply, demand and production planning</b>	<b>High, immediate priority for statewide system</b> Note: Immediate need is for a system that tracks historical supply/demand, and allows growers and buyers to input forecasts. Pre-season communication or contracting between growers, buyers and hubs is not an immediate priority.	<ul style="list-style-type: none"> <li>• Addressing the mismatch between supply and demand, and helping producers scale up to meet demand is a critical and immediate goal for the system to meet</li> </ul>
<b>2b</b>	<b>Statewide transactions and availability list sharing</b>	<b>High priority for statewide system</b> Note: Timeline for the full ecommerce implementation is flexible (though weekly availability capturing and viewing is critical)	<ul style="list-style-type: none"> <li>• Initial need is the ability to view grower / hub avail across state</li> <li>• Early on, transactions can be completed "offline" by hubs</li> </ul>
<b>2c</b>	<b>Order fulfillment, logistics optimization, third-party logistics (3PL) management</b>	<b>High priority for statewide system, but can be a late phase module</b>	<ul style="list-style-type: none"> <li>• Logistics is one of the most challenging components of local food systems transactions</li> <li>• However this requires new, custom build of software; hubs can execute this through offline communication to start</li> </ul>
<b>2d</b>	<b>Central portal for sales, marketing and educational info</b>	<b>Low to moderate for statewide system</b> Note: This is of high importance to hubs and will strengthen their ability to market/sell product, it can be addressed outside of a statewide system, through a partner	<ul style="list-style-type: none"> <li>• Because this is mostly a content site, it may be best developed or at least spearheaded by the organization best equipped to create the content</li> </ul>
<b>2e</b>	<b>Comprehensive reporting capabilities for hubs and state-level stakeholders</b>	<b>High priority for statewide system</b>	<ul style="list-style-type: none"> <li>• A critical feature for hubs and one that is lacking for many in their current solutions</li> <li>• Will likely be important to organizational stakeholders and system funders; they will want to see this functionality fairly immediately</li> </ul>

## TECHNICAL SPECIFICATIONS

Table 3 provides a detailed description of the functionality that Michigan food hubs are seeking. As outlined above, hubs each have very distinct needs. The chart is comprehensive in listing all the needs flagged by hubs, grouped by general operational function. Note that some functions are relevant only for each hub's internal day-to-day operations, while others support both internal operations and statewide functionality.

**Table 3 – IT Platform Functionality and Requirements**

Functionality	Goals	Requirements
<b>Pre-Season Planning</b>	<ul style="list-style-type: none"> <li>• Overarching goal is to address the current mismatch between what buyers want and what growers produce, smoothing out surges of extremely common products.</li> <li>• Growers can have a view into anticipated demand in their trading radius: (1) previous year's purchase orders of local food by product / buyer; (2) buyers' desired products that they haven't been able to order locally, and (3) potential impact of market building initiatives such as <i>Cultivate Michigan</i></li> <li>• Buyers can have a view into anticipated supply by product in their trading radius: (1) previous year's sales for growers, (2) growers' input on what products they could produce if demand existed</li> <li>• Data is aggregated at the statewide level, so growers and buyers can access demand and supply based on zip codes of interest</li> <li>• Buyers, growers and food hubs can communicate on topics such as pricing, volume, seasonal availability, etc.</li> <li>• Buyers, growers and food hubs can access historic pricing information by buyer type</li> <li>• Buyers, growers and/or food hubs can enter preseason agreements</li> </ul>	<ol style="list-style-type: none"> <li>1. The following data can be inputted by various users:               <ol style="list-style-type: none"> <li>a. Historic sales (buyers) and supply (growers). Ideally this would already exist in the system's database</li> <li>b. Potential / anticipated supply and demand (specific products and volumes)</li> <li>c. Seasonality of supply and demand</li> <li>d. Interest level in establishing preseason agreements (formal or informal)</li> </ol> </li> <li>2. Ability to download historical and anticipated sales data by buyer, radius and seasonality</li> <li>3. Ability to download historic product availability data by grower, geography and seasonality</li> <li>4. Ability to establish formal or informal agreements, through bidding process and/or direct grower and buyer communication</li> </ol>



Functionality	Goals	Requirements
<b>Grower/seller level product availability, price list development</b>	<ul style="list-style-type: none"> <li>• Growers are able to input their current product availability and pricing. System is designed for simplicity of data inputting to encourage active use by growers, and ensure data accuracy.</li> <li>• Hubs are able to input data on product availability and pricing on behalf of growers, and representing their own inventory.</li> <li>• Growers and hubs can prevent designated users (growers, buyers, others) from seeing a specific farm's information.</li> <li>• Hubs are able to view real time, accurate product availability among their growers, and develop weekly price lists.</li> <li>• Hubs can view product availability among all hubs' growers. Hubs can share availability lists with each other.</li> <li>• Buyers are able to view real time, accurate product availability filtered by product, certifications, radius and delivery zones and timeframe</li> </ul>	<ol style="list-style-type: none"> <li>5. Ability for growers to input delivery days/routes, product data and pricing, based on guidance and constraints set with respect to pack size, quality standards, ripeness, etc. Ability for hubs to input data on behalf of growers.</li> <li>6. Ability for growers and hubs to indicate flexibility in their delivery days or min order size.</li> <li>7. Ability for hubs to input their own product availability and pricing (for those hubs that hold inventory).</li> <li>8. Constraints on UOM, pack standards, descriptions, etc., can be set by food hubs or at the state level</li> <li>9. Ability for hubs and growers to set differentiated pricing by buyer / buyer type, geography, delivery needs, volume, etc., and ability to hide pricing from any designated users.</li> <li>10. Ability to search for, filter and download data and send farm-identified price lists to buyers based on their unique needs (food safety, geography, organic, etc.)</li> <li>11. Product availability is automatically updated to reflect purchases</li> <li>12. Ability for growers to be tagged to multiple hubs</li> </ol>
<b>Purchasing and Order Processing</b>	<ul style="list-style-type: none"> <li>• Buyers and hubs can view all products across the state available for purchase, based on any constraints (i.e. specific hubs, delivery route, delivery day, food safety, etc.).</li> <li>• System allows hubs to purchase from growers (and then sell directly to buyer) or for buyers to directly purchase from growers.</li> <li>• Buyers can place orders from hubs and directly from growers, and hubs can place orders directly from growers</li> <li>• Orders can also be made offline via purchase order and tracked/processed through the system. <ul style="list-style-type: none"> <li>○ Purchase orders can be made from buyers to hubs, buyers to growers, and growers to hubs.</li> <li>○ Hubs can input orders in the system based on calls, faxed, or emailed orders from buyers.</li> </ul> </li> <li>• Ideally, the system is designed to guide the purchasing process, by indicating when a hub or buyer has met order minimums (and how much more they have to purchase to meet minimums), suggesting products in their sourcing radius with the same delivery schedule to help them hit minimums, etc.</li> </ul>	<ol style="list-style-type: none"> <li>13. Ability for buyers to place orders for goods either through hubs or directly from growers. Ability for hub to place orders directly from growers.</li> <li>14. Ability for hub to accept orders from buyers via call/email/fax and input these orders into the system.</li> <li>15. Ability for buyers to generate and submit purchase orders to the hub or to growers. Ability for hubs to generate and submit purchase orders to growers.</li> <li>16. Buyer and hub purchase orders automatically update grower-level product availability.</li> <li>17. Hub's purchase orders automatically synch with internal inventory systems (i.e. item is "on order" and can be tagged as "booked").</li> <li>18. Ability for orders to be constrained with respect to unit of measure, pack size, delivery day, etc. Constraints put in place by hubs or growers.</li> <li>19. Status of orders are tracked in the system, and notes can be added for future reference</li> <li>20. EDI can be established with relevant buyers.</li> </ol>

Functionality	Goals	Requirements
<b>Internal inventory management</b>	<ul style="list-style-type: none"> <li>System enables hubs to have a comprehensive, real time, accurate view into products that they: (1) have ordered, but are not yet in their possession, (2) have in inventory and are not yet booked for an order, and (3) have in inventory and are booked for an order.</li> <li>Hub's internal inventory that is not tagged as "booked" is viewable as part of statewide product availability</li> </ul>	<ol style="list-style-type: none"> <li>Ability to track in-house inventory by "ordered, received, in warehouse, booked, etc."</li> <li>Inventory is tracked by shelf-life and aging and recognizes that "received by" is different than "age"</li> <li>Hubs can set their own parameters for linkage between inventory, sales and purchasing. For example, hub can set it up so a sales order cannot be placed if product is not in inventory.</li> <li>Compatible scanner system that allows for the scanning and easy information entry when products are received</li> <li>Data on hubs' internal inventory "shows up" on statewide product availability lists</li> </ol>
<b>Order fulfillment</b>	<ul style="list-style-type: none"> <li>Growers can easily organize, fulfill and load orders they receive from hubs and/or buyers</li> <li>Hubs can easily organize, fulfill and load orders they receive from buyers. For some hubs, this means the system enables them to easily fulfill orders at their warehouse. For other hubs, this means that the system enables them to easily manage transactions, product aggregation and distribution between their growers and buyers.</li> <li>Substitutions and other issues can be made, tracked and easily communicated to buyers, and are automatically reflected in invoices</li> <li>At the statewide level, when an order is made from multiple growers that represent multiple hubs, the system assigns a single hub to manage the order fulfillment.</li> </ul>	<ol style="list-style-type: none"> <li>System outputs pick lists based on purchase orders</li> <li>Pick lists tie in with actual inventory on hand when relevant, allowing for easy adherence of protocols such as "last in first out" (LIFO) or picking aging products, etc.</li> <li>System tracks verifications, substitutions, and issues throughout the fulfillment process, and seamlessly updates invoices for the customer.</li> <li>Hardware / tablet system in the warehouse allows orders to be tracked and adjusted throughout the fulfillment process</li> <li>System allows growers to download pick lists based on actual orders placed by buyers and/or the hub</li> <li>System tracks any grower substitutions and issues throughout the fulfillment process</li> <li>System automatically reflects substitutions and other order fulfillment issues in invoices</li> </ol>

Functionality	Goals	Requirements
<b>Distribution and Routing</b>	<ul style="list-style-type: none"> <li>• Distribution routes / radius (including weekly schedule) that growers, hubs and buyers can support are all tracked</li> <li>• Buyers and hubs can view availability of products based on specific distribution routes and schedules (but can also view products more broadly, without distribution constraints)</li> <li>• Optimal delivery routes are developed for growers, hubs and/or 3PL providers, based on specific orders that need to be delivered on any given day</li> <li>• Buyers, growers, hubs and 3PL providers can view opportunities to establish new distribution routes and can propose these (or bid on these in auction format)</li> <li>• Bill of lading can be tracked and updated in the system, and the system can accept delivery confirmation</li> <li>• Suggested cost of distribution can be calculated for growers, hubs and 3PL providers</li> </ul>	<ol style="list-style-type: none"> <li>33. Ability for all potential distribution providers (growers, buyers, hubs and 3PL providers) to draw or describe their delivery routes. This could be a delivery radius, specific point-to-point routes, and could include specific days of week and times of year.</li> <li>34. System can calculate the cost and market price of distribution using specific routes, and enables hubs or growers to add this cost as line items in their pricing</li> <li>35. System designs and outputs most efficient delivery routes, provides secondary routes (for traffic issues) and suggests time of day to start deliveries</li> <li>36. System outputs delivery slips for drivers and/or 3PL provider</li> <li>37. Ability to track updates of bill of lading, and tracking can be done through tablets/ smartphones or other hardware the driver has access to.</li> <li>38. Ability to submit delivery confirmation into the system through tablets/smartphones</li> <li>39. System enables 3PL providers to log in and access delivery schedule / route information</li> <li>40. System ensures that orders cannot be placed unless delivery minimums are met, or that don't fall within set delivery days / routes. System also allows for flexibility, so buyers/hubs/growers can communicate about requested orders that would require delivery outside of set windows.</li> <li>41. System outputs a visual and color coded map of delivery routes vis a vis growers, buyers and hubs in a set area.</li> <li>42. System enables users (growers, buyers, hubs) to request a new delivery route and enables other users to bid on these.</li> </ol>
<b>Invoice Generation and Payments / Accounting</b>	<ul style="list-style-type: none"> <li>• System can generate invoices based on purchase orders, and any issues / substitutions in the order fulfillment and/or delivery and project acceptance process. Invoices can be updated at any time, even after they are closed.</li> <li>• Buyers can make payments through the system for their orders that can be accepted by hubs or directly by growers. If hubs are accepting payments and then paying growers, this flow of funds is automated through the system. Any fees or margin the hub should receive is automatically calculated and dispersed through the system.</li> <li>• Buyers can submit payments outside the system and these can be tracked and reconciled within the system</li> </ul>	<ol style="list-style-type: none"> <li>43. Ability for growers and hubs to generate and edit invoices. These invoices are automatically updated based on data captured through the order fulfillment and delivery tracking process.</li> <li>44. Ability for growers and hubs to send hubs or buyers invoices via email, fax or print out with product delivery.</li> <li>45. Buyers and hubs can make payments (to hubs and growers) through the system via EFT or credit card, or via offline payment (check, cash, square, etc.)</li> <li>46. System reads and tracks invoices from growers. These can be automatically accepted through the system.</li> <li>47. System automatically calculates margin for food hub, and dispenses payments made directly through the system at regular intervals</li> <li>48. System sends regular reminders to growers and hubs of unpaid invoices</li> </ol>

Functionality	Goals	Requirements
<b>CSA Member Management</b>	<ul style="list-style-type: none"> <li>Members can manage their weekly orders – signing up, making substitutions if relevant, adding on grower items if relevant, putting their membership on hold for a given week, making payments, asking questions, etc.</li> <li>Weekly product set and quantities are recommended based on deliveries in a given week and product availability among growers.</li> <li>Weekly orders and product sets are automatically inputted as a food hub purchase order, triggering any ordering from growers and automatically ensuring these products are tagged as “booked”</li> </ul>	<p>49. Members can sign up and pay through the system</p> <p>50. Members can pay ongoing or up front, in full</p> <p>51. Members can hold their delivery on any given week</p> <p>52. Members can add on additional grocery items and/or substitute products.</p> <p>53. System recommends pick lists based on order volume</p> <p>54. System generates pick lists based on baseline delivery and each member's unique substitutions in a given week</p> <p>55. System automatically synchs with purchase order processing, ensuring that orders for the right products are made to growers and that any implications are reflected in internal inventory systems</p>
<b>Food processing</b>	N/A – Not currently relevant for participating hubs	N/A
<b>Food safety and traceability, transparency</b>	<ul style="list-style-type: none"> <li>System allows, and ideally forces, food safety and traceability across the supply chain – at the farm level and at the food hub level.</li> <li>Cases can be tracked in whatever numbering system works for the farm and/or hub (i.e. Julian date, Global Trade Identification Numbers - GTIN, etc.), and the formatting can be constrained by the hub if applicable</li> <li>Traceability and recalls are fully supported by the system. For example, case identification are included in invoices, or can be pulled from for every transaction.</li> <li>Full pricing transparency is supported throughout the supply chain.</li> </ul>	<p>56. Product availability lists can be source-identified (i.e. tied to farmer rather than showing just aggregated products and pricing) and show price to grower, price to hub and price to distributor.</p> <p>57. All incoming products have lot #s and the system forces assignment of lot #s to outgoing sales. System is flexible on the desired system that a grower and/or hub uses for case identification.</p> <p>58. Invoices break out price to grower, distributor, other service provider and the hub.</p> <p>59. System automates a recall, by pulling reports that outline buyers impacted by a recall and disseminating communication to these buyers.</p>
<b>Customer Relationship Management (CRM)/ supplier communication</b>	<ul style="list-style-type: none"> <li>Hubs can set and track sales goals with buyers and purchasing goals with growers, and view progress against these goals</li> <li>Hubs can easily communicate with buyers and/or growers, with newsletters or emails sent through the system, or with downloadable contact lists that allow for offline communication. Communications can be sent to a specific list of buyers or growers based on hubs' filters (i.e. grower or buyer type, location, active buyer, active grower, etc.).</li> </ul>	<p>60. All current and previous buyers who have ordered, including their order history, pricing levels, desired products, etc., are tracked and can be easily accessed.</p> <p>61. System enables communication with buyers and growers (either through output of contact info, integration with <i>MailChimp</i>, or a good newsletter system itself)</p> <p>62. Emails sent to growers and buyers can be tracked by the system (by blind cc'ing a unique system email address). Phone calls and offline communication can also be logged.</p> <p>63. Annual and quarterly goals can be set and monitored.</p>

Functionality	Goals	Requirements
<b>Reporting of operational, financial and social impact metrics</b>	<ul style="list-style-type: none"> <li>• Hubs can customize and view dashboards needed to manage their business. These should be easy to develop by hubs for data that is already tracked within the system.</li> <li>• Hubs can download raw data to allow for more robust offline analysis.</li> <li>• Data can be viewed at the statewide level, filtered by geography, buyer type, grower type, hub, etc.</li> <li>• Data and reports that are likely of interest include:               <ul style="list-style-type: none"> <li>○ Sales (with detail by buyer, by product type, by geography, etc.). Sales should be able to be isolated for food access-focused buyers, and/or for zip codes that have limited healthy food access.</li> <li>○ Volume of production and revenue to growers, including year over year growth</li> <li>○ Current inventory, and days of inventory on hand</li> <li>○ Accounts receivable, accounts payable</li> <li>○ Cost of goods and selling, general &amp; administrative expenses</li> <li>○ Net income and cash flow</li> <li>○ Production planning reports</li> <li>○ Volume of food donations made</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>64. System has a baseline set of dashboards that will be used by all hubs and already developed at the statewide level.</li> <li>65. Hubs and state level stakeholders can customize dashboards to include desired views based on any data fields tracked by the system</li> <li>66. Dashboards display data in different time frames – selected week, selected month, selected quarter, selected year, custom time frame, all available data</li> <li>67. Growers and buyers tracked at the zip code level to allow for geographic filtering of data. Zip codes can be tagged as “low income, low access.”</li> <li>68. Growers and buyers tagged by “type” to allow for filtering of data</li> <li>69. Growers and buyers tagged by “hub” (multiple hubs can be tagged to a grower or buyer) to allow for filtering of data by hub</li> <li>70. Data captured by the system can be downloaded (excel, csv, txt, etc.)</li> </ul>

Functionality	Goals	Requirements
<b>Sales, marketing, and education information</b>	<ul style="list-style-type: none"> <li>• Hubs can access an information and resources portal that supports their sales force. This might include:               <ul style="list-style-type: none"> <li>○ Statewide branding campaign materials and resources, that may be provided by <i>Cultivate Michigan</i><sup>2</sup> or other similar entities like <i>Taste the Local Difference</i><sup>3</sup></li> <li>○ One pagers that discuss the merits of buying local</li> <li>○ List of low income / low healthy food access zip codes to support hubs in their food access initiatives</li> </ul> </li> <li>• Hubs and growers can access reports and data on historical pricing for local and non-local crops (including organic) as well as relevant market information (i.e. weather patterns in California, weather patterns in the Midwest, etc.) that would impact supply and pricing</li> <li>• Buyers and hubs can access a point of sale support page, with farm profile information (and branded, printable sheets for each farm), hub profile information (and branded, printable sheets for each hub), and more general marketing materials promoting local purchasing efforts</li> <li>• End consumers can access a branded, information and marketing portal that describes the merits of buying local, and directs them to venues that are purchasing from Michigan growers / food hubs. Consumers can also view farm and hub profiles.</li> </ul>	<b>Four potential “portals”</b> <ol style="list-style-type: none"> <li>71. [Only hubs have access] Hub sales and marketing support           <ol style="list-style-type: none"> <li>a. Designated content manager(s)</li> <li>b. Hubs would ideally be able to add content and material (would be approved by content manager)</li> </ol> </li> <li>72. [Growers and hubs have access] Pricing and market trends           <ol style="list-style-type: none"> <li>a. Pricing data would ideally automatically pull and be calculated from USDA’s terminal market reports</li> <li>b. Market trend data would ideally automatically pull from USDA research</li> <li>c. Designated content manager(s) could coordinate with local agencies to strengthen information</li> </ol> </li> <li>73. [Hubs, growers and buyers have access] Point of sale marketing materials and farmer profiles           <ol style="list-style-type: none"> <li>a. Set fields (farm name, crops, description, photos) must be filled in and sales materials are automatically generated</li> <li>b. Growers and hubs can log in and create / add to their profile</li> <li>c. Hubs can create and/or update grower profiles</li> <li>d. Designated content manager(s) can create and/or update grower profiles and approve final profiles and marketing materials before buyers can have access</li> <li>e. Each grower profile page (with printable marketing materials) has a QR code generated for it, for the development of case stickers that direct buyers to the right profile page</li> </ol> </li> <li>74. [Any user has access, including end consumers] Basic “buy local” promo materials and branding campaigns           <ol style="list-style-type: none"> <li>a. Designated content manager(s) create and maintain materials on this portal</li> </ol> </li> </ol>

<sup>2</sup> For more information on *Cultivate Michigan* go to: <https://www.cultivatemichigan.org/>

<sup>3</sup> For more information on *Taste the Local Difference* go to: <http://www.localdifference.org/>

## EVALUATION OF POTENTIAL SOLUTIONS - CATEGORIES

The team agreed upon detailed specifications for a statewide IT platform, which was shared with a number of technology providers. These providers were invited to share initial input on how they would approach the development of this system, likely cost structure, timeline potential for development and deployment and major concerns or risks they would anticipate. The team deliberately sought out several categories of technology providers.

- **ERP solutions providers:** Enterprise resource planning (ERP) is a business process management software that allows organizations to use a system of integrated applications to manage their business and automate multiple functions, including purchasing, supply chain management, inventory management, distribution, accounting, human resources, etc.
- **Custom developers:** Development teams focused on envisioning, developing, deploying, hosting and managing custom solutions. These teams generally work with a variety of developers, and can therefore build custom solutions on a number of different platforms.
- **Food hub software:** Generally cloud based solutions (SaaS) designed specifically to meet the unique needs of the emerging and growing food hub space.
- **Open source solutions:** Open source software designed for food hubs. Open source is code that is available publically and can be freely used, changed, modified, and shared by and with anyone.
- **Online local food marketplaces:** Online marketplace designed to connect growers and food hubs with buyers. Most of these systems direct all suppliers to a single website and buyers to a single storefront where they can purchase among the full set of producers listed.

Detailed input was received by eight different providers spanning all of the categories outlined above.

## ➤ EVALUATION OF POTENTIAL SOLUTIONS - CRITERIA

The completion of the vision for the system, hubs' goals for the system and detailed technical specifications (as described in the previous two sections) moved the project into Phase II. Phase II was focused on soliciting feedback from technology providers on how they would tackle the development, deployment and management of the desired statewide Michigan IT platform.

This section describes the criteria the project core team developed to seek feedback from and evaluate technology providers who were engaged, as well as the detailed input received from these providers.

### EVALUATION CRITERIA

At the onset of soliciting feedback from technical providers, the team identified the following evaluation criteria to keep in mind throughout the interviews and ensured comprehensive input was gathered through these conversations.

- *Scope of requirements that could be addressed by their system:* Could the provider currently provide or develop functionality described for a statewide IT platform? Which requirements could be met currently, what needs to be developed and what is unlikely to be feasible even in the future? How confident is the provider that the highest priority components of the solution could be provided in the short or medium term?
- *Risks and concerns:* What are the major risks of pursuing the development and management of this software solution - for hubs, for growers, for buyers, for the provider, for the Michigan Food Hub Network? What concerns does the provider have in taking on the development of this platform?
- *Partnership openness:* How open is the provider to collaborating with other software providers or developers who can more efficiently, effectively or more quickly address functionality needs that cannot be met currently by their own system? Have these types of partnership strategies been explored before by the company?
- *Upfront cost:* How much would the development of this solution cost upfront? Upfront costs typically include system setup and deployment costs (incurred per hub) and development costs. These development costs may ultimately be spread out across multiple months or even years, depending on the proposed phasing of development.
- *Ongoing costs:* How much would hubs be charged on a regular (usually monthly) basis? How would these costs vary by hub? Would hubs be offered the option of self-hosting versus virtual hosting (often called software as a service or SaaS)<sup>4</sup>?
- *Timeline and phases:* How does the software provider recommend phasing the development of functionality, and is this driven by their internal priorities, Michigan hubs' priorities or other factors? What is the provider's anticipated timeline for each proposed phase?

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<sup>4</sup> Traditional software is generally hosted "on-premises" or "self-hosted." This means the software and the software data is hosted on your own computer, or on your company's server. Recently, many software systems are being offered as *Software as a Service*, or SaaS. With SaaS solutions, users pay a monthly fee for the use of a platform. The software and software data is hosted by the technology provider, and is accessed through a web-based interface. Many software packages offer both an SaaS and a desktop version. For example, QuickBooks, the most popular accounting solution for small businesses, offers a desktop version and an SaaS version, each with their pros and cons.



- *User engagement:* How does the technology provider anticipate engaging hubs and other users, such as producers and buyers, in the development, beta testing and deployment process? What cost would hubs incur for this user engagement?
- *Public agency involvement:* Given that the project would likely secure funding from public agencies or foundations, is the technology provider open to a public / private partnership? Has this been pursued in the past?

## STRATEGIC RECOMMENDATIONS

### RESEARCH SYNTHESIS

Through the project's two phases of work, the following insights emerged that should be considered when identifying next steps.

- **Statewide networking functionality is the main priority**
  - While it is critical that food hubs across Michigan can successfully identify the right technology solutions to meet their internal operational needs, the distinctions in these hubs' business models are so varied that a single solution may not necessarily be the best approach.
- **Multiple, viable approaches have been identified that warrant further consideration**
- **All approaches would benefit from a Phase 0 planning effort and ongoing engagement of a product and project manager**
- **None of the solutions are perfect**
- **Estimated, quantified benefits are high**
- **Additional, unquantifiable benefits are also high**
- **Costs can be moderate, depending on size of the hub**
- **Ongoing cost structure is a more important consideration than upfront costs**

### RECOMMENDATIONS FOR IMPLEMENTATION

NVA provided the Michigan Food Hub Network core team and the participating Michigan Food Hubs a complete confidential report, assessing each of the interviewed company's capability to meet the Michigan food hubs' identified needs. NVA also provided the Michigan Food Hub Network and participating food hubs a four-phase plan in which to take the feasibility study report and move forward in creating the platform. The NVA and Michigan Food Hub Network teams then met via phone with the Michigan hubs to discuss in detail the report's finding and recommendations. This public report overlaps with the confidential report by documenting the Michigan food hubs vision, goals, and technical needs, but does not include the assessment of IT service provider capabilities. As of this publication date, the Michigan Food Hub Network team and the Michigan food hubs have implemented a modified version of the first recommendation phase by initiating conversations with three IT service providers that most closely meet the hub's identified overall needs. This first phase includes a recent insight that our Michigan hubs need to each do some basic value stream mapping of their operations to better understand how they can work collectively and best use the services of one or more IT service providers.

The Michigan Food Hub Network believes sharing this edited, public version of the feasibility report will be helpful for food hubs and food hub networks in other states that are looking to broaden their hub-to-hub cooperation and rethink how their information technology (IT) systems can best serve them in the future. By working and learning together in the information technology space, food hubs can increase operating efficiency and reduce various marketing, supply development, and IT-related costs



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