ONLINE LOCAL FOOD MARKETS:

Choosing the Right Software

Abstract

Online local food markets have proven effective by increasing access for customers and supporting farm and specialty food businesses. Starting an online market is a complex endeavor that requires time, planning, and many decisions. The engine for this type of market is the software, and, with so many options, it can be difficult to know how to get started. This publication is designed to help businesses, cooperatives, consultants, farmers, or any team to identify which software to choose. Using a three-step process outlined in this publication, anyone considering starting an online market can assess internal technological and business needs; evaluate technological considerations, functions, and categories; and evaluate and select the right software.

Introduction

According to a 2019 survey conducted by Coresight Research, online local food shopping has been on the rise for close to two decades, with a 23% increase in 2019 (Redman 2019). Driven in part by advancements in technology, food technology start-ups are helping to connect farm-to-plate channels across the country. Some of these businesses are proving to be financially sustainable and successful, while others are failing within the first year. This publication explores the history of online food purchasing, outlines the types of online local food markets, provides a step-by-step process to identify the appropriate software, and highlights a specific online marketplace in Washington State. The goal of this publication is to provide any community group, private business, or other entity interested in starting an online market with a concise guide to selecting a software package that will create the best chance for success.

A Brief History of Online Food Shopping

In the early 2000s, online grocery shopping companies (called e-grocers at the height of the boom) experienced a boom and bust cycle as they launched almost as quickly as they failed. Companies poured considerable money into warehouses, transportation fleets, and marketing. E-grocers at that time needed to meet minimum weekly sales goals in order to fund their expensive infrastructure, and when they were not able to reach these goals, they failed. What did show promising results, however, were larger grocery retailers (such as Safeway) who used their existing warehouse space to reduce food storage costs. These companies saw promising results with increased sales from 2005 to 2009 (Tedeschi 2002).

Despite emerging potential, the profitability of early online shopping was primarily concentrated in metropolitan areas. Analysts at the time concluded this was due to the fact that the ideal customer for online shopping would have a higher household income, and cities provided both income and infrastructure (Tedeschi 2002). Additionally, online grocery shopping still had not taken hold as convenient purchase platforms, such as smart phones, had not become available until the mid-2000s. As such, companies relied heavily on market online purchasing, which differs considerably from shopping culture today.

Online shopping sales and platforms jumped significantly beginning in 2014. Amazon Fresh trucks began delivering groceries in San Francisco, while Walmart, eBay, and Google

brought food to customers' doors. The first factor that made these and other companies successful was the investment they had already made in delivery infrastructure. Adding groceries to their preexisting delivery infrastructure cost less than starting up an online grocery business. A second factor contributing to online grocery shopping viability was the myriad software options. These software drastically reduced costs by combining logistics, personnel, ordering, and customer management into a single management platform. For example, a company called Instacart claimed to be able to deliver groceries in one hour, using an Uber-style delivery approach for its labor force (Wohlsen 2014).

In light of the successes of these approaches, a key issue that still remains is whether customers are in fact interested in buying food online. A 2016 Harris Poll of adults 18 and over found 31% had purchased food online in the past six months. While this poll did not distinguish between purchasing from a corporate chain or an independent business, online shopping continues to increase, especially by millennials and parents with children. Among adults surveyed, 52% reported they are most often seeking something special they cannot find in their grocery store (Harris Poll 2016). Further, a 2016 Hartman Group's Grocery Shopping Trends report illustrates that an increasing number of millennials buy their food from multiple outlets and not from one primary retailer.

While corporate grocery stores like Safeway and Walmart offer online purchasing and home delivery that is convenient for the customer, food is still being transported from great distances away. Worldwatch Institute reports that "food now travels between 1,500 to 2,500 miles from farm to table, as much as 25% farther than two decades ago" (Worldwatch Institute n.d.). This issue of "food miles" suggests an opportunity for online local food markets to fill the niche of providing source-identified food to customers wanting a quality product made close to home.

While challenges still exist for start-ups to fund and coordinate logistics for these markets, current software options, combined with increased customer awareness of local food and the desire to reduce the distance food travels, is creating an environment supportive of these types of local food markets.

Sales Channels and Types of Online Food Markets

Use of online food market platforms can allow businesses and communities to coordinate complex logistics involving buying and selling of food across multiple parties. A potential community group or private business considering an online grocery platform needs to decide which of the following categories will be most successful, (1) a food hub using web-based functionality, (2) an online marketplace, or (3) an online community-supported agriculture (CSA) market. Two purchase pathways, direct-to-consumer and wholesale, or a hybrid of both, will also need to be decided. The decision to pursue any of these categories and pathways will depend on a number of variables, including the local food landscape, existing markets and untapped market potential, the business plan, and access to land, equipment, and financial capital. The following sections will provide an overview and some pros and cons for businesses and communities to consider in relation to selecting an online marketplace platform.

Online Marketplace Categories

Food Hub

A food hub is a business that coordinates, transports and brokers sales, and contracts between food sellers and food buyers. Larger food hubs often buy the food directly from sellers and then resell to buyers. However, that is not always the case, as food hubs can work with one large farm or many small farms to meet larger, institutional contracts. A food hub may have greater infrastructure needs compared to the other types of marketplaces, as warehouse space and trucks are often essential. Food hubs offer a combination of any of the following functions:

- Aggregation of orders and preparation for delivery
- Distribution of food
- Cold storage for rent
- Brokering of contracts with buyers, forward contracting
- Food processing equipment for rent
- Production planning, direct business and food safety support
- Marketing

Online Marketplace

Online marketplaces are useful to community groups or businesses intending to connect food sellers with food buyers and customers, for both wholesale and retail sales channels. This business structure facilitates the sale of food and coordinates distributing the food but does not necessarily purchase the food directly. Online marketplaces typically own far less infrastructure than food hubs; in many cases, community partners offer free or reduced rent for temporary aggregation of orders and customer order pickup. The volume of food being distributed is also typically smaller than food hubs. Depending on the chosen software, online marketplaces can track a significant amount of sales data to understand customer preference and help to drive business decisions. An online marketplace can also choose to offer some of the functions described above in the Food Hub section.

Online Community-Supported Agriculture (CSA) and Group Buying

Online CSAs are a form of online sales transactions most used by farmers, groups of farmers, or groups of individuals seeking to conveniently connect a farm or farmers to end customers. Much like an online marketplace, this type of market uses software to connect buyers with sellers and is useful in grassroots, community-led initiatives that do not necessarily require a new business to be developed. The software allows anyone within a particular geographic region to post and buy food for sale. The logistics of food distribution is often left to the

individual buyer and seller to negotiate. One drawback with this type of software is that custom reports tracking sales and customer data in aggregate over time cannot be run.

Sales Channels

Retail or Direct-to-Consumer Sales

Consumer-direct sales provide product directly from the food producer to the end-consumer with no intermediary transactions, such as with a grocery store or restaurant. Diversified, small-scale food businesses most often use this type of sales channel. These yield the highest price per unit as all of the sales dollars go directly to the food producer.

Wholesale Sales

Farms or food businesses of any size can readily incorporate wholesale markets into their business plan, whether for a $500 contract with a food bank or a large contract with a university or hospital brokered through a food hub. Because wholesale sales typically rely upon a broker, such as a conventional wholesaler, food broker, or food hub, food businesses yield a lower price per unit. This sales channel often utilizes forward contracting, in which buyers will commit to purchase a set amount of food at a negotiated price prior to the growing season. Forward contracting and production planning are complementary, because farmers are then enabled to order seeds and plan the cropping season based on committed sales.

Three Steps to Choosing the Right Software

At one time or another, community groups or businesses focused on creating or expanding sales of locally-grown or produced food will likely consider options for online sales. With several options to choose from, finding and selecting software to fit particular business models is difficult. As a result, a step-by-step process for selecting a technology solution may be helpful.

Before doing so, groups should evaluate their readiness:

- Choosing software is best after the strategic and operational foundations of a business are identified and stable.
- Groups interested in establishing online local food sales need to keep in mind that while there might be an urge to focus on software in the start-up phase of the business or initiative, building a strong foundation in the operations and internal processes will be beneficial to the sustainability of the business overall.

Having considered business readiness, the following steps and activities are meant to guide a team towards choosing the best software that matches their market. The following will ensure that teams have thought through the details and logistics of their business and have paired these details with software functionality. The outline below provides an overview of the steps and activities.

Step 1: Assess Internal Technology and Business Needs

Activity 1. Internal Process Mapping with USDA's IT Self-Assessment Worksheet

Activity 2. Diagram the Business Processes

Step 2: Technology Considerations, Functions, and Categories

Activity 3. Understand and Decide on Levels of Software Functionality

Step 3: Evaluate and Select the Right Technology

Activity 4. Decide on Software Functionality

Activity 5. Identify Software Vendors and Fill out Blank Evaluation Template

Self-assessments are critical first steps in evaluating business tools of any kind. Key aspects of internal processes are the bedrock of improving functionality of those processes later on, particularly in building sales. The following activities and worksheets are based on the National Good Food Network's (NGFN) "Detailed Self-Assessment Tool" and the "Software Assessment Tool", found on the bottom of the page at http://ngfn.org/resources/food-hubs/technology. At present, the NGFN toolkit represents the only decision-making framework available to guide a team through choosing software for online markets.

Step 1: Assess Internal Technology and Business Needs

Assessing internal technology and business needs is only possible with a committed team. This team will conduct an internal needs assessment, build a potential list of software options, assess functionality, evaluate top options, and, finally, select the right technology solution; therefore, it is critical that expertise and member roles are both identified and clear.

Activity 1. Internal Process Mapping with USDA's IT Self-Assessment Worksheet

IT self-assessments are an aid to conduct an internal assessment, understand current business processes, anticipate future needs, and to help illuminate the requirements that will be needed. A consultant working with a food-based logistics business could choose to conduct a workshop with the team to complete this activity, or a representative on the team could fill out the worksheet and then run it by the team for discussion. It might take approximately four hours to complete, and once this information is filled out, it can be shared with a prospective software vendor or incorporated into a business plan or financing proposal.

To access the worksheet, go to http://ngfn.org/resources/food-hubs/technology, click on "Detailed Self-Assessment Tool," and begin on the "Process Mapping" tab for this activity.

Key questions from this assessment include:

- How would you describe your growers overall (i.e., how many, what do they grow or produce)?
- Who are your customers (distributors, restaurants, end customers)?
- How do you take orders from your customers? What is the order timeline and cycle? How and when are you paid?
- How are goods delivered (e.g., food hub deliverers, third party, pickup, combination)? How is delivery coordinated? Are delivery slips and routes developed? How is delivery paid for? How is it confirmed? What question and answer happens upon delivery?

Groups will be encouraged to complete questions and note what the current process and technology is at present for the market, noting how the process and technology could be improved. Completing exercises such as these gets the team to be on the same page before diagraming the business process.

Activity 2. Diagram the Business Processes

Essential to choosing the right software is understanding the internal processes of an existing or proposed enterprise, such as ordering, payment, distribution, and inventory, for example. These processes are best articulated by a team by developing diagrams and flowcharts.

Figure 1 provides an example of a process flow diagram for a direct-to-consumer online marketplace. Arrows show the flow of products, communication, and responsibilities. Growers and customers are linked through a system of orders, marketing, delivery, and software. A mapping process like this allows for a clear articulation of internal process connections and allows identification of gaps and needs. All of this will inform the team regarding software functionality.

Teams will begin this process by putting a large piece of paper on a wall or table. A shape is placed around key elements of the system, such as farmers, customers, and the market itself. Arrows are then drawn to show an action, whether it is communication or transportation of food, with a descriptor of what action each arrow represents. By the end of this activity, teams will have visually represented an entire markets operation.

Step 2: Technology Considerations, Functions, and Categories

When looking at software, selection considerations should focus primarily on what functions are needed, such as production planning, order fulfillment, and customer management. Additional considerations can include ease of use, the pricing structure, the total cost of ownership, the platform and architecture, open sources versus closed, data and IP ownership, integration, deployment approach, security and data protection, responsiveness, flexibility, and most importantly, the return on investment. Depending on the business strategy, the following functions should be considered:

- Production planning and forecasting
- Availability or price sheet development
- Inventory and product management
- Order fulfillment
- Analysis and reporting

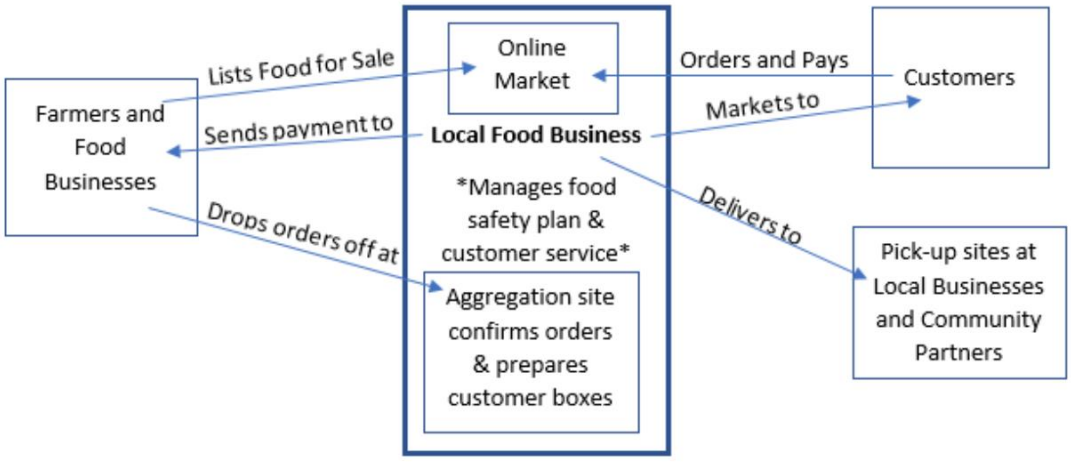

Figure 1. Example business process map.

- Supplier and supply management
- Order processing and customer management
- Food processing management
- Routing and delivery
- Accounting or QuickBooks integration
- Purchasing
- Web exchange
- Traceability
- Customer resource management
- Human resources and payroll

Activity 3: Understand and Decide on Levels of Software Functionality

Enterprise resource planning (ERP) is a term used to describe integrated management software for any logistics-based business, because it integrates multiple functions, such as human resources, inventory, and sales data. ERPs are helpful to teams considering online food sales because it brings together in one place the many parts needed to operate an enterprise.

Table 1 outlines seven categories of ERP software options laid out by the USDA National Good Food Network that can be used to guide software decisions. Having gone through Activity 1 and Activity 2, the team is prepared to assess existing technology options. Some time will be required to read through and understand the categories laid out in Table 1 before proceeding to Step 3.

Step 3: Evaluate and Select the Right Technology

Having completed the previous steps and activities, the team is ready to research software options. It is highly recommended that all groups take as much time as needed to complete Step 1 and Step 2, because technology solutions can only support existing strategies of specific businesses and must be adapted to internal processes. Technology cannot be a solution for an issue that the group has not already mapped a process for.

Activity 4: Decide on Software Functionality

Software functionality allows a market to operate as intended and provides a desired outcome. The "Software Assessment Tool" leads a team through a functionality matrix, which outlines key software functions and provides various levels of standards to understand the difference between what software companies offer (National Good Food Network 2009). For example, this assessment tool gives a silver standard for having a function of tracking routing and delivery that "pinpoints delivery routes on a map and suggests optimal routes." A platinum standard for routing and delivery "allows goods to be tracked throughout distribution through tablets/smartphones and confirmation is received and synched into the system." Teams will choose and determine functionality options and decide what is needed for their market.

Activity 5: Identify Software Vendors and Fill Out Blank Evaluation Template

With the rapid development of online local food purchasing platforms, it can be difficult to know which vendors to evaluate. Table 1 and the NGFN "Software Assessment Tool" can help identify which vendors to start to evaluate. These resources can provide a starting point for identifying potential software platforms and pursuing further research. It is recommended that each team conduct their own research on software companies.

To aid in the evaluation of vendors, a team should:

- Go to http://ngfn.org/resources/food-hubs/technology and click on the "Software Assessment Tool" at the bottom of the page.
- Read through the second tab in the Excel worksheet titled "Technology Categories."
- After reading through the "Technology Categories" tab, the team is ready to fill out the third tab in the "Software Assessment Tool" titled "Blank Evaluation Template."

Table 1. Software vendors by category, taken from the National Good Food Network "Software Assessment Tool."

Software Categories	Software Vendor Options
Traditional ERP These are business management software that collect, store, and interpret data across many activities (planning, inventory, marketing, shipping). They provide an integrated view of core business processes. These are "traditional" ERP systems that focus on the internal flow of goods. These are typically designed for wholesale/manufacturing/distribution businesses specific to the food sector.	Acctivate Blue Ocean Systems Edible Software MAX ERP Famous Software Food Connex NetSuite Produce Pro JustFood Entrée

Software Categories	Software Vendor Options
Food Hub ERP These systems were designed to meet the specific needs of small- to midsize food hubs and provide functionality that most traditional ERP systems do not (e.g., supplier management, online exchange and content management, customer ordering, route planning). However, they are generally limited or lacking in terms of their functionality with respect to complex internal and distribution operations. Most have route planning and delivery slip creation but do not allow for tracking or confirmation, etc. Outside software would generally be needed to cover those pieces of functionality.	Delivery Biz Pro Local Food Marketplace Local Orbit Lulus Local Food
Online Marketplace This option is for an e-commerce website where growers and hubs can post products and buyers can make purchases. Unlike "Food Hub" ERP systems, there is one single online marketplace for transactions, branded by the technology provider.	FarmLogix Local Dirt Shopify
Community-Supported Agriculture (CSA)/Group Buy These platforms meet the unique needs of CSAs and CSA food hubs. The most critical functionality that these systems offer is allowing CSA members to manage their subscriptions, and they allow synching CSA member information with the order fulfillment, picking, and delivery systems.	CSAware Delivery Biz Pro Farmigo From the Farmer The Produce Box Farm Runners Harvest to Market
Specific Farm Systems These systems support farm planning and management, such as crop planning, supplies management, cost tracking, etc. They are not relevant for traditional food hubs.	Ag Squared Farm Logs Sure Harvest
Function Specific Systems that specialize in specific functionality, such as accounting, traceability, human resources, and customer resource management. These are often excellent solutions to deploy alongside an ERP system.	ADP HarvestMark iTradeNetwork osCommerce QuickBooks Salesforce VistaTrac Accountedge FreshBooks Toggl NexTraq
Custom Solutions and Open Source This can include hiring a developer to build your system or outsourcing development to a contractor. Many of these options are open source, with baseline functionality already available. Companies can connect with a network of developers who specialize in the open source software to customize the system to meet their needs.	Open Food Network Microsoft Dynamics Apache OFBiz xTuple Open Pro Silver Creek Software Magneto NAV

Online Market Spotlight: Kitsap Fresh

With no year-round farmers market in peri-urban Kitsap County, Washington, a group of local farmers, food advocates, and Washington State University (WSU) Extension organized a board of directors to operate a cooperative called Kitsap Fresh in 2015. From 2015 to 2018, the board of directors developed an aggregation and distribution system with a small amount of financial resources and significant volunteer support.

The goal of Kitsap Fresh was to connect local food sellers with buyers and provide a market that could incubate new and beginning farm and food businesses. Decisions about which software to choose were made through a process of identifying where the cooperative would like to be, diagramming business processes, and understanding what kind of software functionality was desired.

Software was selected for its ability to collect sales data over time, integrate bookkeeping functions, manage producer lists, and confidentially manage customer information. A key strategy employed by the team was to balance supply with demand and bring in enough weekly sales to cover costs. These costs included paying for the software and the purchase of supplies, like produce boxes and tubs for aggregation of customer orders. Through consistent marketing and community outreach in the first year, Kitsap Fresh was able to bring enough food to the market during the first growing season with enough customer purchases to cover costs from the beginning.

Some start-up enterprises employing online sales may need to operate in the red or utilize volunteers for a period of time. Kitsap Fresh was able to offset the true cost of operating this market for the first few years through volunteers who organized customer boxes at the aggregation site and who drove the food to multiple pick-up locations throughout the County. In-kind donations can also be essential for getting an operation off the ground. For Kitsap Fresh, community partners, such as breweries, small independent grocers, and other independently owned businesses, provided free space for customers to pick up their orders. Outside funding can also be critical to the financial success of a start-up like this one. Partnering with WSU Kitsap County Extension allowed the market to be awarded a USDA grant for three years, providing some financial security during the start-up phase of the business. The grant ended in July 2018 and the board has grown the market to include 38 farms and food businesses selling food to over 2,000 registered customers with 1.5 full time employees hired by the cooperative.

Operating a year-round, direct-to-consumer online marketplace is about managing logistics in all aspects of operations, food safety, and transportation. The goal of this particular market was to give food businesses an additional market besides farmers markets and farm stands to sell directly to customers, and to give customers who could not shop at farmers markets a chance to purchase local food. This type of market is really about food distribution and community partnerships, so attention to who can drive food where and developing relationships for customer pick-up sites was crucial to success. The board built strong connections with community-oriented businesses, farmers, food businesses, and customers who are now all working to see this market succeed. This model has proven to be successful as it is now in its fifth year of operations with a 40% increase in sales in 2019, showing a hopeful and positive financial future. The success of this particular online market rests with a very dedicated group of individuals committed to supporting a local food sector and the ability of these individuals to move through the process outlined in this publication. In the end, software will be a useful tool if the people who are making decisions collectively understand and connect the purpose of the market with the design of the operations, rooted in the local economic and community landscape.

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