Understanding Costs for Traceability Technology Implementation

SCOPING

SYSTEM SELECTION & INITIAL SCOPING

- Researching available systems
- Phone meetings with potential vendors
- In-person meetings & live demos
- Preliminary scoping
- Project consultant
- IT partnership development

INSTALLATION

SOFTWARE ADOPTION & INSTALLATION

- Initial software purchase/licensing
- Supporting software purchasing/licensing
- Software programming & installation
- Software customization

HARDWARE ADOPTION & INSTALLATION

- Hardware purchase
- Hardware installation & setup
- Infrastructure changes or additions

PRE-IMPLEMENTATION PREPAREDNESS & PROCESS DEVELOPMENT

- Data transfer & conversion
- New workflow plans
- Creating user manual & training curriculum
- Development of policy, audit, & compliance processes
- Consumables

IMPLEMENTATION

SYSTEM IMPLEMENTATION

- Staff training & education
- Reduced productivity
- Troubleshooting & modifications
- User errors & mistakes

MAINTENANCE

ONGOING COSTS

- Traceability software subscription
- GS1 membership
- Electronic Data Exchange (EDI) service
- Labeling supplies
- Tracking technologies (e.g. tags)
- Data entry staff
- Traceability system management
- Information management or data analysis
- Communications with suppliers

SYSTEM SERVICING & MODIFICATION

- System servicing & troubleshooting
- System modifications
- System testing

COST TYPE	COST CATEGORY	GENERAL DESCRIPTION	SAMPLE COSTS
SYSTEM SELECTION & INITIAL SCOPING			
Indirect/ Labor Costs	Initial Research	Most companies do a combination of online research, contacting industry colleagues, attending seminars or webinars, speaking with vendors at trade shows, and reading marketing materials to determine the capabilities of different systems and which might be a good fit for their business and traceability needs.	Approximately 50-150 hours spread across weeks, months, or years. (Though some companies wanting to uncover every stone have spent much more time.)
Indirect/ Labor Costs	Phone Meetings with Potential Vendors	Phone meetings usually occur once the list of vendors is narrowed down to the top two or three. **TENSION:** Potential traceability customers often want to speak with a vendor's technical staff in order to gauge goodness-of-fit, while vendors prefer for potential customers to only spend time with sales reps, not their programmers.	1-2 hours per call; 2-3 calls per vendor.
Indirect/ Labor + Financial Costs	In-person meetings and live demos	As the list of vendors is narrowed down, it may make sense to meet in person once or twice. Some vendors will pay their own travel costs while others will require the company to cover their expenses. Keep in mind the number of people that need to be part of these meetings, as those hours can add up.	2 hours per meeting + possible travel costs
Indirect/ Labor + Financial Costs	Preliminary Scoping	Some vendors with more customizable systems will conduct preliminary scoping in order to gauge the scale of the project and provide a cost range. Depending on the complexity of the system the preliminary scoping can be done remotely or in person. Preparing the information for such scoping can take time, and additional time, fees, and travel costs may be involved for an on-site visit.	2 hours (or up to 2 days if on site at large facility) + possible travel costs and scoping fees of $500-$2,500
Indirect/ Financial Costs	Project Consultant	An outside consultant may be hired to assist with research, project scoping, technology vetting, system design and configuration, installation, integrating with an existing system, implementation, training, etc.	$100,000 per year for up to 5 years
Indirect/ Labor + Financial Costs	IT Partnership Development	If the traceability project is going to involve integration with multiple existing or new technologies (e.g., ERP system, financial software, cloud-based traceability platform, barcodes/scanners, etc.) then it's necessary to convene IT representatives or programmers to scope that integration and determine feasibility. Some technology companies will charge a fee to participate in such conversations.	5-10 hours + up to $2,000 per participating IT representative

COST TYPE	COST CATEGORY	GENERAL DESCRIPTION	SAMPLE COSTS
SOFTWARE ADOPTION AND INSTALLATION			
Direct/ Financial Cost	Initial Software Purchase/ Licensing	Some software systems have an initial licensing fee or off-the-shelf purchase price. This does not include the cost of customization, which can be many times higher than the base price. The initial purchase price varies widely based on the type of system, the capabilities of the system (i.e., modules implemented), the size and complexity of the seafood company's processes and needs, and the number of user licenses.	$10,000 - $100,000
Direct/Financial Cost	Supporting Software Purchase/ Licensing	Additional supporting software licenses may need to be purchased if a system is built on a third-party software platform, uses a separate data interface, or requires specific external software or software services to run optimally.	$100 - $1,000 per user license
Indirect/ Labor + Financial Cost	Software Programming/ Installation	Software installation includes set-up and programming, and involves a collaboration between the vendor's technicians (usually 2-3 techs) and the seafood company's IT or management staff (usually 2-3 managers at a minimum). The work usually happens during downtime—after hours or on the weekend.	2-7 days for 3 managers and any other staff
Direct/ Financial Cost	Software Programming/ Installation	The vendor's labor time may be billed as a separate installation cost (separate from the purchase price). And because installation usually happens over a weekend (to minimize downtime), the hourly rate is often doubled.	$1,000 - $4,000
Direct/ Labor + Financial Cost	Software Customization	Often the highest costs involved with traceability are incurred when customizing a new technology system to work with an existing technology or operational system (or vice versa). This is especially true when a system created for another commodity (e.g., produce or meat) is adapted for seafood. For many companies, customization is also an ongoing cost. When customization involves hard-coding changes into the software, the costs can be substantial. Software that is designed to be configured, on the other hand, is much more nimble and making different configurations is significantly less costly in terms of time and money.	$2,000-$250,000

COST TYPE	COST CATEGORY	GENERAL DESCRIPTION	SAMPLE COSTS
HARDWARE ADOPTION & INSTALLATION			
Direct/ Financial Cost	Hardware Purchase	Hardware associated with traceability is typically scanners (i.e., barcode readers), waterproof barcode label printers, electronic scales, and tablet computers. The size of the operation will determine the number of each type of hardware needed.	Scanners: $500-$1,500 Printers: $1,200-$5,000 Scales: $1,200-$2,000 Tablets: $500-$1,500
Direct/ Labor Cost	Hardware Installation & Setup	The process of installing the hardware and syncing it to the software system.	1-2 hours per device
Indirect/ Financial Cost	Infrastructure Changes or Additions	If not already installed, the selected system may require a local server, a local area network (LAN) or Wifi, or fiber optics. New offices or workstations may also need to be created.	Server: $500-$700 LAN: $300 Fiber Optics: $5,000-$30,000 Office/Workstation: $2,500-$7,500 each

COST TYPE	COST CATEGORY	GENERAL DESCRIPTION	SAMPLE COSTS
PRE-IMPLEMENTATION PREPARATION & PROCESS DEVELOPMENT			
Indirect/ Labor Cost + Direct Cost	Data Transfer & Conversion	Existing data, including product information, customer profiles, accounting information, will need to be input to the new system. This transfer may be done internally or with assistance from the vendor. Depending on the types of data being captured and tracked for different products, new labeling schemes and barcodes (if applicable) may need to be created. If using barcodes, this is an ongoing cost, as a barcode needs to be created with every new item that comes to the facility.	50-100 hours + $1,500-$4,000 for vendor labor
Indirect/ Labor Cost	New Workflow Plans	Implementation of traceability technology is going to involve changes to how product is received and handled, and how information is captured and saved. In order to adequately train staff on the new system, it's important to create and document any new workflow processes so that staff understand how their roles are changing and what new tasks are expected.	50-100 hours
Indirect / Labor Cost	Creating User Manual & Training Curriculum	In some cases, managers write the training manuals that will be used to train their staff. Note that vendors may provide manuals, but if significant modifications have been made to the software then new manuals and curriculum will be necessary.	150-300 hours
Indirect/ Labor Cost	Development of Policy, Audit, & Compliance Processes	Prior to implementation, the company should document and adopt any processes related to policy (including data security and system access), auditing, or government/certification compliance.	200-300 hours

COST TYPE	COST CATEGORY	GENERAL DESCRIPTION	SAMPLE COSTS
SYSTEM IMPLEMENTATION			
Direct/Labor + Financial Cost	Staff Training & Education	Training staff on the new system and educating them about the importance of traceability is critical to system success. Training is very time consuming and can be expensive. However, this is not the place to cut costs. Training can take a variety of forms, including: having a parallel system for practicing on before the new system becomes live; running weekly training classes for several months prior to the new system going live; running ongoing trainings even after the system is online, etc. Most companies rely on managers to conduct training, but some companies will hire an IT consultant or dedicated change management expert to assist. Another option is to have IT staff from the vendor on site to conduct trainings.	1-2 hours of training per week per employee for 6 months prior to system implementation; 1-2 hours of training per month per employee after implementation; Contracted trainer: $20,000 - $100,000
Direct/ Labor + Financial Cost	Reduced Productivity	If the newly implemented processes take more time than previous processes, it may be necessary to hire additional staff for those processes in order to maintain a certain level of productivity.	$20,000-$50,000 per additional employee
Direct/ Labor + Financial Cost	Troubleshooting & Modifications	Most bugs and other issues will arise in the first weeks or months of using the system. Dealing with those needs may require contacting the vendor to help troubleshoot a problem or to hardcode a modification or workaround. Some vendors may include a certain number of help-desk hours per year, but depending on the system and level of customization a company can easily exceed those hours, especially in the first year after implementation.	$2,000 - $30,000
Indirect Labor + Financial Cost	User Errors/ Mistakes	The change in operations can result in additional labor costs and product loss due to increased user errors during transition. Additional staff time may be needed to correct mistakes. Additionally, account credits or secondary deliveries may be required to satisfy customers affected by the errors.	

COST TYPE	COST CATEGORY	GENERAL DESCRIPTION	SAMPLE COSTS
ONGOING COSTS			
Direct/ Financial Cost	Traceability Software Subscription	Some vendors charge subscription fees based on the number of licenses, users, transactions, size of company, or complexity of the system.	$2,000-$25,000
Direct/ Financial Cost	GS1 Membership	Although not widely used in the seafood sector, standard labeling across the supply chain would facilitate traceability as well as interoperability among trading partners. GS1 is the only existing standard for barcoding that some seafood companies have implemented	Initial cost of $250 (for 10 products) to $10,500 (for 100,000 products) to obtain a GS1 Company Prefix. Annual license renewal fee: $50-$2100
Indirect/ Financial Cost	EDI (Electronic Data Interchange) Service	Some seafood companies will use an EDI service in order to exchange data seamlessly with their trading partners. Only large seafood companies doing significant volumes have invested in hosting their own EDI server.	Cost of third-party EDI service depends on company size. $3,000-$50,000 initial setup fee $75-$6,000 monthly service fee
Direct/ Financial Cost	Labeling Supplies	Implementing lot-based traceability means printing (hopefully waterproof) labels. That means purchasing labels, ink, and special printers. These costs vary widely depending on the size of the company and the volume of product needing to be labeled.	$2,000-$50,000
Direct/ Financial Cost	Tracking technologies (e.g., tags)	Some companies will use RFID (Radio Frequency Identification) tags to track product.	$10,000 per year for mid-sized distributor
Indirect/ Financial Cost	Data Entry Staff	Implementing traceability and the product labeling involved means more data entry staff are often required. Ideally, trading partners would adopt standardized barcodes so that codes could simply be scanned and the fields would self-populate. Until that happens, data will continue to be entered manually–often multiple times as a product moves through the supply chain.	$20,000-$50,000 per employee
Indirect/ Labor Cost	Traceability System Management	Each company should designate a dedicated person on staff to oversees the traceability system and serve as the liaison with the technology vendor for both troubleshooting and in case system modifications are required.	10-40 hours per week
Indirect/ Labor Cost	Information Management or Data Analysis	Larger companies will have a dedicated person responsible for data management and analysis, while for smaller companies these tasks will fall to an existing IT or production manager. That person may also be the lead on the traceability system overall.	30 minutes per day
Indirect/ Labor Cost	Communications with Suppliers	Robust traceability requires that full and accurate data accompany all products entering a facility. Thus, companies may find it necessary to communicate these data needs with their existing and new suppliers so that suppliers can provide the relevant information in a usable format. For some this becomes an exercise in supplier education about which data are needed and why.	5-15 hours per month

COST TYPE	COST CATEGORY	GENERAL DESCRIPTION	SAMPLE COSTS
SYSTEM SERVICING, MODIFICATION & TESTING			
Direct/ Labor + Financial Cost	System Servicing & Troubleshooting	Some vendors will offer a certain number of help-desk hours per year with a service contract. Others will bill their customers for contacting technical service.	4-5 hours per year $100-$250 per hour
Direct/ Labor + Financial	System Modifications	Inevitably there will be changes that need to be made to the system, either to comply with government regulations or because customers will require new data fields or different data formatting. Unless the software can be configured easily, such modifications will involve engaging the technology vendor to hardcode the change.	2 hours per modification $2,000 per hardcoded modification 4-8 hours training staff per modification
Indirect/ Labor Cost	System Testing	Food safety experts suggest that companies test their traceability systems (through one-up one-down traceability activities or via mock recalls) on a regular basis. Doing so not only highlights any gaps or deficiencies in the system, but also prepares staff in the event of an actual recall.	15 minutes to 4 hours per drill