USDA National Organic Program
Modernized Certified Organic Operations Database
Needs Assessment and Business Requirements Analysis

Summary

The National Organic Program (NOP) is responsible for ensuring the integrity of the USDA organic seal. Today, however, the NOP lacks the information technology needed to effectively enforce compliance with organic standards and to facilitate continued expansion of the global organic market. Investments in information technology are needed to provide up-to-date information about certified organic operations across the supply chain, and to increase the NOP's ability to oversee a growing network of certifiers and operators. This Needs Assessment and Business Requirements Analysis document describes the primary needs that will guide subsequent technology design and development efforts for a modernized certified organic operations database system.

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1.0 Introduction

1.1. Background and Overview of Need

The mission of the USDA National Organic Program (NOP) is to protect the integrity of the USDA organic seal, both domestically and abroad, and ensure that both producers and consumers trust the organic label. The NOP does this through marketing and regulatory activities related to organic agriculture, including administering the USDA organic regulations; accrediting and overseeing USDA-accredited certifying agents (called "certifiers") and State Organic Programs; and administering an organic compliance and enforcement program.

While the NOP is responsible for ensuring the integrity of the USDA organic seal, it currently lacks the information technology needed to effectively enforce compliance and to facilitate transparency for those interested in the organic market. Today, for example, certifiers provide the NOP with listings of certified organic operations on an annual basis. The NOP generates a consolidated spreadsheet with this information, and the new spreadsheet is posted online. This annual list of certified operations is quickly out-of-date because new operations become certified, or, have their current certification suspended or revoked. As a result, NOP and stakeholders across the organic supply chain cannot at any given time easily determine which operations are legitimately certified as organic. Furthermore, the information provided about each operation is currently quite limited; more information about each operation would make it a more useful tool.

The USDA Office of Inspector General (OIG) highlighted information technology concerns in its Organic Milk Audit Report (01601-0001-Te), released in February 2012. The audit report included the following recommendations related to the listing of certified organic operations, all accepted by the Agricultural Marketing Service (AMS), the agency in which the NOP[1] operates.

- Conduct an analysis of the NOP list of certified operations to develop and implement a plan to ensure the information is comprehensive and up-to-date. To meet the needs of all stakeholders, consider fields for the type of industry, the type of certificate, and the certificate status.
- Require certifiers to timely notify NOP when they issue new certifications for inclusion on the NOP list of certified operations.
- Develop and implement a process to timely update the NOP list of certified operations when certification actions, such as suspensions or revocations, are reported to NOP.
- Revise the instructions given to certifiers for submitting the annual list of certified operations, to include clarifying how to consistently and comprehensively update the primary scope, secondary scope, and products produced data fields of the list.

[1] USDA Office of the Inspector General, "Organic Milk Audit Report" (01601-0001-Te), February 29, 2012. Recommendations 2-5.

All of these recommendations reflect vital functional and business process requirements for a new modernized database of certified organic operations that is timely, of interest to the public, and of high quality and consistency.

In addition to meeting the OIG's recommendations, a modernized information technology system that allows U.S. organic stakeholders to more effectively compete on the world market would achieve the following goals:

- Identify and connect organic stakeholders across the supply chain, by providing up-to-date information about organic certifiers and organic operations, including the scope and scale of operations and their services and products.
- Support the growth of the organic industry, by helping organizations identify organic operations with complementary needs, and by helping people wishing to start an organic operation identify a certifier to work with.
- Increase both the transparency and integrity of the organic system, by posting the history of activities associated with certifiers and operations, and listing operations whose certification had been revoked or suspended.
- Improve the ability of the NOP to assess the impacts of regulatory changes by providing data on the type of operations that might be affected.
- Increase the NOP's ability to oversee accredited certifiers and ensure they are consistently implementing the USDA organic regulations, by providing greater visibility into the operations that certifiers work with.
- Streamline and standardize the current processes and mechanisms used by both certifiers and operators to issue, acquire, and maintain organic certificates. This standardization would also discourage fraudulent certificates, and increase quality control across all involved parties.
- Enhance the ability to protect consumers and organic operations from imported fraudulent organic products, by posting genuine certificates for comparison online.

Technology solutions to achieve these goals would directly support the continued growth of the organic industry by facilitating the oversight that leads to integrity and trust, increasing transparency across the organic supply chain, and increasing U.S. competitiveness and effectiveness in an industry that has proven its ability to create jobs and encourage economic prosperity.

1.2. Activities and Findings to Date

Developing information technology solutions to support the program, the industry, and the public has been a goal for the program since posting its first list of certified organic operations in 2009. In 2010-2011, the NOP worked with a contractor to outline NOP business processes, and to highlight considerations for database development.

Key findings from this business process assessment were as follows:

- **Business Process Maturity.** The NOP needs to continue to develop its internal business processes and workflow, governance, and usage of existing tools before embarking on a broader technology development effort.

- **User Groups and System Boundaries.** Many NOP business processes rely on steps and stakeholders outside its control, including certifiers, certified organic operations, and the NOP Appeals team. External data sources, business processes, and dependencies must be well understood and considered in identifying the boundaries and user groups of a development effort.

- **Functional Capability Identification.** While the business process assessment effort focused primarily on data elements and types, other factors such as architecture, security, permissions, user base/audiences, and support must be considered before a formal development effort.

- **Benchmarking.** The initial business process definition effort also assessed the match between NOP data elements and needs, and the elements and needs addressed by the Country of Origin Labeling (COOL) FACTS database. Additional benchmarking against other databases would be a valuable step in database design.

Since completing this business process mapping effort, NOP has continued to define, mature, and document its standard operating procedures. In addition, for both the 2011 and 2012 list of certified operations data calls, NOP continues to work with certifiers to increase the data quality and completeness of their submitted lists. The time is now ripe to develop this needs assessment to articulate future possible development paths for a modernized database to replace the current process and tool.

1.3. Document Purpose and Intended Audience

This Needs Assessment and Business Requirements Analysis document describes the primary needs for a modernized NOP certified organic operations database system. Its purpose is to provide sufficient information to initiate a technology requirements, design, and development effort. The document provides:

- Overview of the current business and regulatory environment
- Primary user groups and beneficiaries of the system
- Scope options for a modernized system
- Key functions that a modernized system could serve
- Considerations for a future development effort

This document has three primary audiences:

1. The intended primary users of the system, including NOP staff, NOP Appeals team, and certifiers. This audience will confirm that the proposed new system reflects the target business process environment appropriately, and meets core business needs.
2. Any development team that would develop detailed requirements and design the system.
3. Stakeholders within USDA and the Agricultural Marketing Service (AMS) with an interest in the future plans for this system.

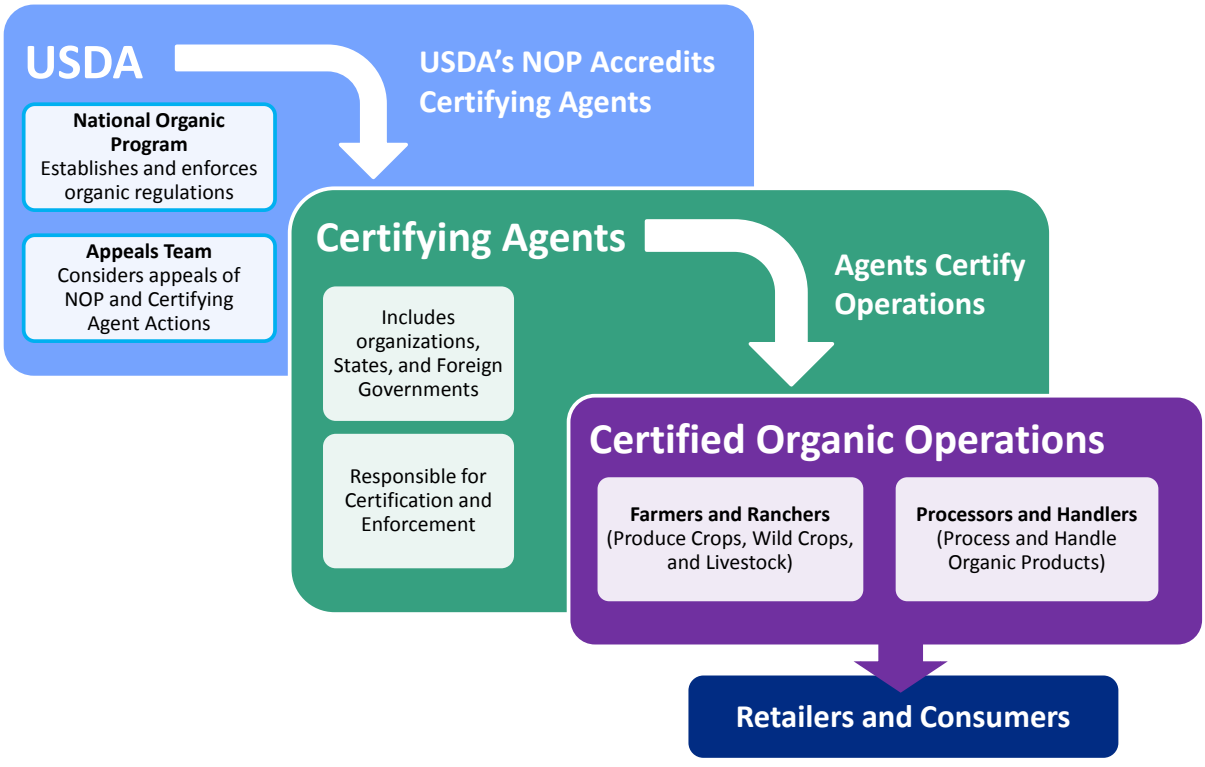
This document assumes that the reader has a foundational understanding of the NOP mission, structure, and operating environment. For example, the document assumes some baseline pre-existing awareness of what a certifier is and does, what it means to be a certified organic operation.

2.0 Current Business Processes and Environment

2.1. Key Stakeholder Organizations and Activities

This section outlines key stakeholders and activities that will drive the functions that a modernized certified operations database could serve. The figure below summarizes the relationship between the primary stakeholder groups involved in organic accreditation and certification.

Figure 1: Organizations Involved in Organic Certification



The following bullets summarize these stakeholder groups and their key activities related to certification:

- Certifying agents ("certifiers") are independent third party organizations that are accredited by the USDA to certify organic operations. Certification involves a series of steps conducted by the certifier, including documentation reviews, initial on-site inspections, and annual renewal reviews and inspections. As such, the certifier maintains a detailed set of information and data about each operation certified.

- While all certifiers must comply with NOP's requirements in order to remain accredited, they are highly diverse in their organizational make-up and in their own internal business processes. Some are based in State Departments of Agriculture; others are for-profit companies. The largest certifiers may have 100+ employees; the smallest may have fewer than 5 full time employees.

- As of January 2013, there were 86 certifier organizations. As of the start of 2012, the largest 15 certifiers certified 58% of the approximately 27,500 total certified organic operations. At that time, seven certifiers managed more than 1,000 operations each; 37 of the certifiers certified fewer than 100 operations.

- Certifiers are also diverse in their use of technology. Some have sophisticated off-the-shelf or customized proprietary software systems that are used to manage the full life cycle of certification activities, including reporting to the NOP. Others manage their certification activities and tracking using basic spreadsheets supported by paper records. Certifiers also collect information from their certified operations in different ways.

- Some certifiers are accredited to administer multiple certification programs, all of which are administered in the certifier's single certification management system. For example, a single certifier may certify an operation to both the NOP standards and another set of standards, and manage both certifications for that operation in a single system. This has implications for how data may be extracted and reported to the NOP, and how interfaces with other systems may be constructed.

- Certifiers issue operator certificates to document an operator's status as a certified operation. Certificates are the primary artifacts that document an operation's organic status. Certifiers issue notices of noncompliance (NONC), proposed suspension, suspension, proposed revocation, renovation, and notices of resolution to those operations, as needed, based on changes in operator compliance over time. Certifiers all currently have their own formats for certificates, making certificates a target for alteration and even fraud from uncertified sellers

wishing to represent products as organic.

- Certified operations may hold multiple organic certificates that cover different business units and different scopes, such as crops, wild crops, livestock, or handing. Operations are generally called “producers” (generally those that hold a crop, wild crop, and/or livestock certificate) or “handlers” (those holding a handling certificate). (Note: Additional scopes may be added over time, such as apiculture, mushrooms, and aquaculture. As such, the list of scopes in the system must be changeable over time.) Many operations hold multiple certificates (e.g., livestock AND handling). All certified operations must undergo annual inspections and documentation updates to remain certified.

- The NOP accredits and oversees certifiers, but may also issue NONCs, notices of suspensions, and notices of revocation directly to certified operations as a result of compliance and enforcement activities.

- The NOP is also responsible for evaluating reinstatement requests for operations that have had their certifications suspended or revoked, by either a certifier or NOP. Reinstatement results in a change an operation’s status from “suspended” to “certified.”

- The NOP Appeals team is responsible for evaluating cases where a certified operation appeals an adverse action (such as a notice of proposed suspension or proposed revocation) that has been issued by either the NOP or a certifier. Certifiers can also appeal adverse actions issued by the NOP. The result of an appeals decision will often determine whether an operation is suspended or revoked, either through an AMS Administrator’s decision or through a settlement agreement.

- The general public, including trade stakeholders, are able to access a list of certified operations on the NOP website, which is updated annually. Common searches include looking to see whether a particular operator is certified, or searching for operators in a particular state or for operators that produce a particular product.

2.2. Regulatory Setting and Operating Environment

The regulatory and operating environment that defines the relationship between the USDA and certifiers and operations is a vital consideration in designing and developing a modernized certified operations database. As introduced above, certifiers are third party organizations responsible for certifying and overseeing certified organic operations. While governed by the USDA organic regulations, certifiers are independent organizations that do not receive any funding from USDA to engage in certification; their success is driven by their own individualized business and operating models.

Regulatory Setting

The primary linkage between the NOP and the certifiers is the set of requirements included in the Organic Foods Production Act (OFPA), the USDA organic regulations, and the NOP Handbook, which is a collection of Instructions, guidance, and policy memos that govern certifiers and their certified operations.

Section 205.501 of the USDA organic regulations (7 CFR 205) currently includes a limited set of reporting requirements from the certifier to NOP; Instructions contained within the NOP Handbook provide additional details about how this information is to be submitted. Section 205.501 requires certifiers to submit to the AMS Administrator the following:

- A list, on January 2 of each year, including the name, address, and telephone number of each operation granted certification during the preceding year.

- Any notice of denial of certification…, notification of noncompliance, notification of noncompliance correction, notification of proposed suspension or revocation, and notification of suspension or revocation sent…. simultaneously with its issuance.

- An annual report on or before the anniversary date of the issuance of the notification of accreditation.

The current regulations do not require that certifiers report the certification of a new operation to the NOP, other than in their annually submitted certified operations list. Requiring certifiers to report newly certified operations to the NOP as soon as certification is granted would be an additional requirement for certifiers, and is not currently covered by the USDA organic regulations.

The current regulatory language is a significant factor in considering the path forward with a development effort. Building a modernized database with “up-to-date” and even “real-time” lists of certified operations provided by certifiers would require more frequent updates than the current regulations specify.

Informal discussions with some certifiers suggests that more frequent reporting **may** not be a problem, **if** a system is designed to allow for automated or easy regular data transfers from the certifier’s system to the NOP’s system. Given the diversity of systems and processes currently used by certifiers, this is a central challenge for any future requirements, design, and development effort.

Another regulatory consideration for a database effort would be Office of Management and Budget (OMB) statutes and regulations related to data collection under the Paperwork Reduction Act (PRA). Requiring additional data reporting from third-party certifiers would require a change in current data collection practices, which would likely be governed by PRA requirements.

Current Reporting Processes

Currently, most reporting from certifiers to the NOP is done using e-mail, with files as attachments. Large volume documents, such as Annual Reports, may occasionally be mailed on electronic media such as thumb drives or discs. Examples of such transmittals include:

- Certifiers email notices of non-compliance, proposed and final suspension, and proposed and final revocation as attachments to the NOP Appeals team, which logs final suspension and revocation actions in a spreadsheet. (This process is discussed further in a later section.)

- Certifiers send their annual reports and Excel spreadsheets with annual lists of certifiers to a shared NOP e-mail box designated for incoming messages from certifiers. (This process is discussed further in a later section.)

The NOP accreditation team and the NOP Appeals team currently store and manage incoming documents from certifiers on separate shared drives on the AMS network. Other than a consolidated list of certified operations each year, the documents are not currently publically posted. (Note: The posting of Appeals decisions has been discussed, and will likely be implemented beginning in Spring 2013.)

Certifier Consistency of Terms

Currently, operator certificates are issued differently by different certifiers in complex supply chain scenarios. For example, a handling operation may have a wholly owned handling subsidiary at a different location, and also work with exclusive subcontractors, also at different locations. Currently, different certifiers consider these operations somewhat differently. Some certifiers may require that each organizational entity or location be certified separately; others may require that only the operation holding responsibility for the final product be certified, as long as all other involved parties are included within the operation's organic system plan for the certified products. The implication of this is that the lists of certified operations across certifiers may not be consistent in their definition of the term "certified operation." (And some parties involved in generating organic products are not listed in the list of NOP certified operations.)

There are also differences in how certifiers classify and report products in their annual list of certified operations. The current template requests that certifiers list in the "products" column "all certified organic products produced by the operation." Different certifiers both maintain and report these products differently. For example, one certifier may list an operator's products as "dairy" and/or "poultry," whereas another may list the products as "milk, cheese" and/or "chickens" or "broilers." This makes searches more difficult for users of the posted data, and, given that the field is free-format, spelling errors may also hinder accurate searches.

To be most useful for the organic trade and for the public, a modernized database of certified operations would need to require consistency in the application of the term "certified operation," and collect and report products in a structured format using a well-defined taxonomy. Given the current diversity across certifiers, moving to this level of consistency in reporting across certifiers represents an important challenge to be considered in a requirements, design, and development effort.

2.3. Annual Posting of Certified Organic Operations List

As introduced above, the current USDA organic regulations require accredited certifiers to submit to the AMS Administrator, "a list, on January 2 of each year, including the name, address, and telephone number of each operation granted certification during the preceding year." NOP Instruction 2024 "Information Submission Requirements for Certifiers" and Instruction 2026 "Submitting Annual Lists of Certified Operations" contains requirements for how this information is to be submitted to the NOP.

The current process for this data collection and posting activity is as follows:

1. NOP sends all certifiers a template Excel sheet by email to populate with their lists of certified operations in the U.S. and in foreign countries. The list is to be current as of the end of the calendar year. The sheet collects the names of the operations certified by the certifiers, scopes of certification, demographic information, and an open column for a listing of products produced or handled.
2. Each certifier submits its completed Excel file to the NOP by email.
3. The NOP reviews each sheet for completeness and data quality (e.g., conformance to template fields and format), and then combines the files from all certifiers into one master Excel file.
4. The NOP provides the combined file to a web team for hosting on the NOP website at the following link: http://apps.ams.usda.gov/nop/

This process is currently completed once a year. NOP sends out the instructions and template file in late November, certifiers return their files with their lists of certified operations to NOP by the January 2 deadline, and NOP posts the consolidated file on the website by early March.

Changing the frequency and process of this certified operations list data collection effort would require a balanced combination of regulatory considerations, internal and external business process changes, and technology development.

2.4. Posting of Adverse Actions: Proposed and Final Suspensions and Revocations

The current USDA organic regulations require accredited certifiers to submit to the AMS Administrator, "….notification of suspension or revocation….simultaneously with its issuance." AMS does have an established procedure for these activities, as follows. Certifiers send these notifications by email to the NOP Appeals Team; the team then adds the information by hand to the NOP Appeals database. This database is then used to generate and post a cumulative monthly update to the list of suspended and revoked operations on the NOP website. This list is available under the "Compliance and Enforcement"

section of the NOP homepage at http://www.ams.usda.gov/nop. If a suspended operation is subsequently reinstated, NOP removes the operation from the list of the suspended operations. There is currently no formal process for reconciling this list with the posted list of certified operations.

In a modernized system, each operation would be listed with its current status: certified (as a result of initial certification or reinstatement), suspended, or revoked. The current status would then be updated by the appropriate user as it changes. As examples:

- When an operation receives initial certification, it should be added to the list by the certifier. (As noted previously, this is not currently required by the USDA organic regulations.)
- If an operation is suspended or revoked by a certifier or the NOP, or as a result of an Appeals decision or settlement, the operation would be reclassified (by the NOP, Appeals, or the certifier) as suspended or revoked in the database.
- If an operation is reinstated by the NOP, the operation should be reclassified, by the NOP or the certifier, as a certified operation.

(Note for future requirement phase: Do we want to have a category for "surrendered," or would these operations be removed from the system? Do operations stay on the list post-surrender for some period to mark that exit, or are they removed?)

2.5. Other USDA Organic Data Efforts

Other USDA agencies are also involved in data collection efforts with certified organic operations. These are noted here to highlight possible future linkages or extensions between NOP's database development efforts and other data collection needs.

- The **National Agricultural Statistics Service (NASS)**, in conjunction with USDA's Risk Management Agency (RMA), periodically conducts a Certified Organic Production Survey, which is a census of all USDA-certified organic producers (but not handlers). The NOP's list of certified operations is one resource used to identify organic operations that receive the survey questionnaire; outreach about the survey is done through different national organic associations like the Organic Trade Association, certifiers and targeted media. The survey conducts information such as geographic location of the operation, acreage, organic sales for different categories (crops, livestock) and common commodity groups (fruits, vegetables, eggs, poultry, dairy), and marketing channel (wholesale, retail, direct to consumer).

- The **Economic Research Service (ERS)** also currently conducts a periodic survey of certifiers to calculate the extent of certified organic farmland acreage and livestock in the United States. These data are collected by requesting data from certifiers about their operations. In some cases, researchers visit certifier offices to mine data from printed materials held on paper but not easily electronically available. Once analyzed and integrated, data are presented by commodity (approximately 40 are included) and State. The most recent reports are available

at: www.ers.usda.gov/data/organic.

- The **Farm Service Agency (FSA)** also gathers information from both conventional and organic farms. In the past, FSA had considered adding a code to delineate organic acreage on its data collection form, but did not proceed. It may be possible to add a checkbox for "certified organic" in connection with standard acreage reporting in the future.

- The **Natural Resources Conservation Service (NRCS)** maintains data relating to organic participants in their Environmental Quality Incentives Program (EQIP). Is it possible for NRCS and NOP to exchange shared information in the future? This is an area to be explored for its potential to reduce double entry.

In visioning the future scope of a modernized database of certified operations, it is useful to consider whether existing product and market classification taxonomies used in these other USDA models could be used to drive data model design in a modernized NOP system.

Additionally, if designed modularly, the designed functionality of an NOP database could be ultimately extended to meet other agency's data collection needs. For example, in a future system, an operation's representative might locate its own record in the NOP's list of certified operations, validate its authority to propose changes for that operation, and login to provide additional information to support a NASS and/or ERS census effort. This would reduce data entry effort across surveys, streamline reporting, and provide the public with additional information about the operation that could support supply chain research or market development analysis.

3.0 Product Users, Scope, and Key Functional Requirements

Based on the business process descriptions above, it is clear that the system envisioned here would be a new product that does not yet exist, and that it would require significant business process changes for both the NOP and certifiers. This section, therefore, outlines a high-level overview of the anticipated users of the product; scope options for the product being specified; the environment in which it will be used; and the known constraints, assumptions, and dependencies.

3.1. User Classes and Characteristics

In addition to system and account administrators, three groups that would use and benefit from a modernized certified operations database include:

- Certifiers – Primary User Group
- NOP staff and NOP Appeals staff – Primary User Group
- Organic trade and the general public – Beneficiary User Group

Certifiers would use the system as both data generators and consumers. Their role would be to add and change information about the certified operations that they oversee (without being able to do so for operations that they do not manage) and to conduct searches and/or generate reports as needed to support their certification efforts. Research would be needed to assess how many system users would exist across certifiers. As noted above, some certifiers are quite small, requiring likely only one of two users of a modernized system. Other certifiers manage 1,000+ operations, requiring a larger user base to manage data across operations. The scope of the system will drive how many users would be needed within each certifier organization.

NOP staff and NOP Appeals staff would use the system as both data generators and consumers. Data entry and reporting would support certification, reinstatement, and compliance activities. There would be two classes of sub-users within the NOP Team. "Power users" would be responsible for entering data into the system (e.g., entering changes in certification status or NONCs sent directly to operations as a result of investigations) and would likely include 8-10 people. "Super viewers," which would include all NOP and Appeals staff (30-35 people) would be consumers of all the data in the system (even fields not visible to the public) to support compliance activities, and to conduct research as needed to support internal and external requests about the status of certified operations. (Note: Business rules would need to be established to determine when an NOP/Appeals Team "power user" would be empowered to make a change to a certifier's record instead of the certifier doing so. In many cases, it will be most appropriate for the certifier to change the record; and for NOP to confirm that it has been done).

The organic trade and the general public, including organic operations, operations with interest in pursuing certification, brokers, buyers, and sellers of organic products, would be – at least in a first evolution of a system – primarily beneficiary users, acting as "data consumers" rather than data generators. As such, their primary role would be to search the database for information of interest, such as the certification status of a particular operator, or to search for a list of operators meeting specific criteria. (For future system evolution, it would be interesting to consider a usage model where certified operations would be able to submit information change requests to certain fields (e.g., email, contact information) and/or to submit data to support organic research projects such as those that NASS and ERS conduct. This is not envisioned for an initial development effort.)

3.2. Scope Options and Proposed Boundaries

There are endless options for the scope of a modernized database of certified organic operations, grounded by two ends of a continuum of functionality.

- Lightweight Certification Reporting Tool
- Full-Scale Certification Management Tool

The following table outlines the possible differences between these two end points. The ultimate design could fall at any point between these two models; they are offered only as points of reference to support planning and trade-off decision-making.

Table 1: Scope Options for a Modernized Database of Certified Operations

Lightweight Certification Reporting Tool	Full-Scale Certification Management Tool
Description: A lightweight system that contains baseline structured information about certified operations, including the same fields as currently collected for the January submittal, as well as images of operation certificates (not part of the current operator listing). The system would be designed to facilitate data acceptance by certifiers on a more regular basis than the current annual collection, and the fields for scope and product would be more structured.	**Description:** A multi-function certification management and reporting tool that serves as a definitive central collection of current and historical information about certified organic operations, including certification records, adverse action notices (including all non-compliances), notices of resolution, export certificates, and other certification information. System would include workflow elements, templates, and document management capabilities.
Advantages: • Would address the most often cited problems with the existing list of certified operation in a very targeted way, concentrating on data structure and quality • Would focus on establishing shared standards and interfaces between the NOP and a diverse set of certifiers, allowing for local freedom and diversity of certification management beyond those interfaces	**Advantages:** • Would provide a definitive repository of information related to certified operations, increasing transparency and research options • Would provide a one-stop reporting tool for certifiers to the NOP • Would provide a certification management tool and resources for certifiers that do not currently have robust electronic management capabilities
Concerns: • Primary challenge with this type of system would be in defining open interfaces that technologically advanced certifiers could connect with for data exchange, while also providing access and a user interface for direct data entry. • Disadvantage is that it replaces existing list of operations with a modernized one, but does not provide full scale historical materials or workflow capabilities	**Concerns:** • Primary challenge of a full-scale certification system, would be onboarding and training certifiers • Interfaces with certifiers, where possible, would be more complex, making connections more difficult for those with preexisting sophisticated systems • More resource intensive in development, as well as in implementation and maintenance. • May be seen as removing a competitive advantage by certifiers that have existing technology solutions, and as an unfair "subsidy" for smaller entities.

Factors Impacting Scope

While several factors will shape future development work on a modernized database, the following are particularly critical.

- **Funding** – The NOP does not currently have the funding to initiate the development of the modernized database of either scope described above. The level of funding, should it become available for this development project, and any timing constraints attached to that funding (e.g., "no year" allocations or allocations that must be committed before a "sunset date") would impact the scope, acquisition strategy, and the development path taken for this effort.

- **USDA and AMS Enterprise Architecture** – USDA and AMS have already made investments in software development toolkits and platforms, including a "demilitarized zone" (DMZ) e-Authentication-enabled infrastructure for non-USDA users (like certifiers), and AMS has deployed the Microsoft Dynamics Customer Relationship Management (CRM) system on other similar types of projects. These previous investments and existing capabilities should be taken into account when selecting an acquisition strategy and development plan.

- **Cultural Context of Certification** – Many people have pointed to other countries and other accreditation/certification programs as models for how an NOP list of certified operations could be constructed, and what data might be included within it. As noted above, regulatory factors will play a role in determining the data collection possible from certifiers. Cultural factors, however, will also play a role. The NOP has less direct control over the business operations of some third party certifiers than some other countries and certification programs. As such, while other models will be useful for benchmarking, they must be considered within the relationship and business context that U.S. organic certification operates. Models that work elsewhere may not work in the U.S., and models may be available for the U.S. system that might not be available in others.

Scope Boundaries

In the initial stages of designing a system, it is as important to determine what will *not* be in scope as what will. This helps define the boundaries of the system, and frames the requirements effort. The following bullets capture functionality that is considered to be *outside* the scope of this development effort and system:

- **Accreditation Management** – This system is *not* envisioned to be a tool for NOP's management, tracking, or reporting of the certifier accreditation process. Right now, accreditation activities are managed using in-house tools such as Access databases and Excel worksheets, which continue to evolve as the NOP team evolves its processes. While new tools to support accreditation workflow and reporting may be useful, the development of that type of system

would be a separate effort from the one described here.

- **Complaint Management –** This system is also *not* envisioned to be a complaints management system. Right now, complaints management is done using an Access database. While it may be attractive to have information about complaints concerning certified operations in a central database, the current reality is that almost half of complaints that come to the NOP are about *uncertified* operations; and complaints about certified operations are not always valid. As such, while a modernized database would be a vital research and reference tool for the Compliance and Enforcement team, complaint management itself is outside the anticipated scope of this system.

3.3. Key Product Functions, Business Requirements, and Business Rules

The following bullets summarize the major functions/requirements and rules that a modernized database of certified operations is to perform and follow:

- **Primary Scope.** System will hold data related to certified organic operations, including operation name, location, contact information, scopes of certification, certifier, current certification status, and image(s) of organic certificates. (A detailed list of required fields and characteristics will be determined during the Requirements Phase. Also, it is to be determined whether more extensive data, such as NONCs and documentation for other adverse actions will be included in the system, and whether the changing status of an operation over time will be captured.) The system will be initially populated with data housed in Excel spreadsheets that reflect the NOP's current list of certified organic operations. Some variables choices may change over time (e.g., scopes may be added to the list of scopes; certifiers will be added and removed).

- **System Access.** System shall be available to the public and primary users (certifiers, NOP and Appeals Team) from anywhere via the Internet using any standard web browser. Many primary users of the system (certifier "data generators") will be non-USDA employees.

- **Data Entry/Update.** System shall allow authorized users to input and update information about operations using any of the following options:
    - Manual browser-based data entry and updates
    - Scheduled batch/bulk upload or data exchange
    - Real time mirroring between systems

- **User Accounts.** Anyone modifying contents of the system shall have a person-specific user account:
    - Certifier personnel will have person-specific logins and passwords.
    - Each certifier login must be linked to a particular certifier to manage operator access permissions appropriately.

- NOP and Appeals team user credentials shall be linked to the existing USDA e-Authentication system or the existing AMS network credential system.

- **Permissions.** System shall have three user groups: NOP/Appeals teams, certifiers, and public viewers. System shall allow permission setting such that:
  - Each certifier has permission to add and modify its own operator records
  - Certifiers do not have permission to alter another certifier's records
  - NOP/Appeals team users have permissions that certifiers have, across all operations. "Power users" will have read/write permissions across all operations; "super viewers" will be able to see all data, but not modify it.
  - Public viewers shall have read-only access to fields identified as public fields.
  - The system shall allow for a transfer of an operator from one certifier to another to reduce duplicate entry if an operation changes hands. (Would need to determine permissions and workflow for doing this.)

- **Field Protection.** The system shall allow different viewing rights for specific fields:
  - Some fields (operator name, basic demographics, certification status) are to be available for public view and search
  - Some protected fields are to be available only for NOP/Appeals and certifier view (when these users are logged in)
  - There may also be a subset of protected fields for which certifiers may only view *their own* operations' data, instead of viewing across all operations.

- **Public Search Capability.** Public users must be able to view data and conduct searches without the system requiring any credentials (no account or login-password needed to view publically exposed data). System shall allow users to search on information for a specific operation, or across all operations to determine those that meet into a set of publically searchable criteria (e.g., operations holding a crops certificate in the state of Alabama; all currently suspended operations). Searcher shall be able to view returned search results in the browser page and be able to export the search results into an Excel spreadsheet for further manipulation.

- **Geocoding.** System shall integrate a location identification/mapping function that allows the visualization of certified operation information in geographic-based views (e.g., see information about different operations on a Google map).

- **Audit Trail.** System shall integrate an audit trail so that certifier and NOP/Appeals users can see who made the most recent change to a record. (Note for Requirements: This suggests that a complete audit trail and historical record is not required – need to validate this assertion.)

- **Historical Records Management.** System shall have a "snapshot in time" capability with specific snapshots at the end of fiscal year and end of the calendar year, so that future time-specific

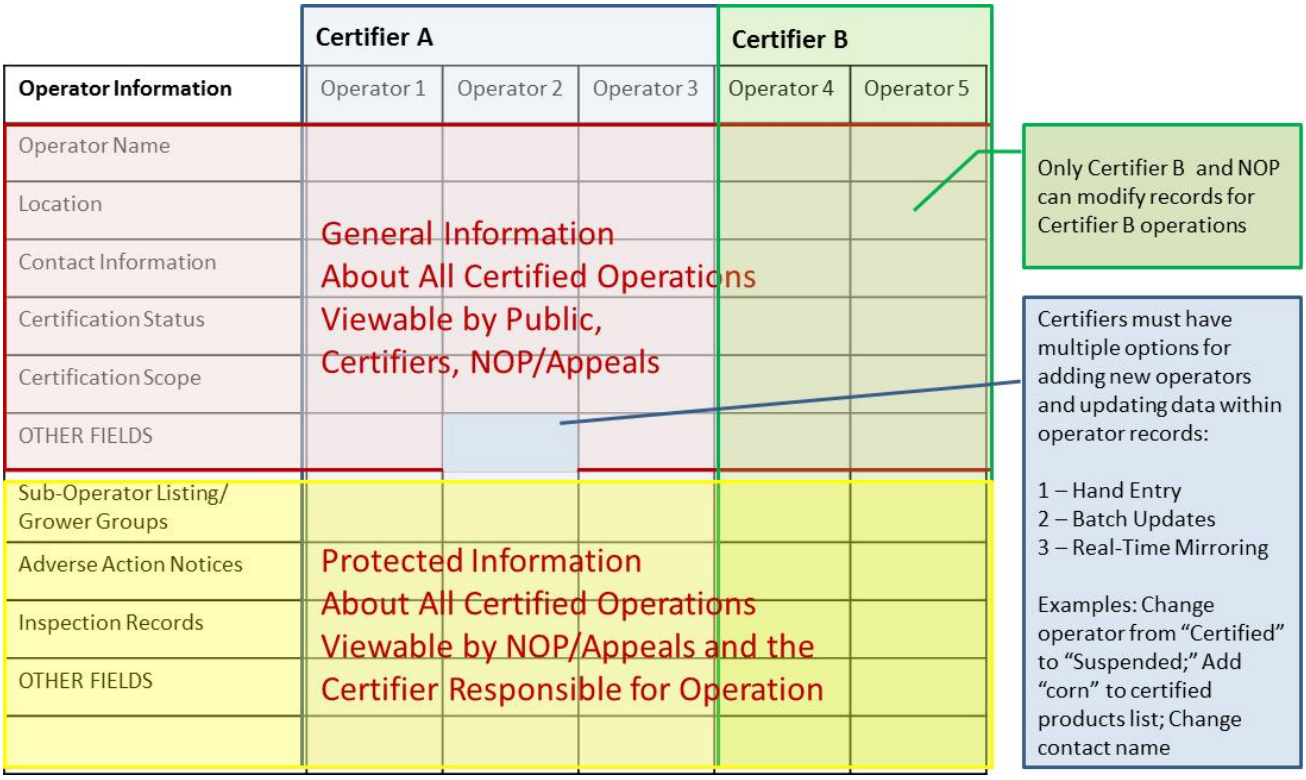
searches can be conducted and analyzed (e.g., we need to be able to compare snapshot of data at end of FY 2013 versus the end of FY 2014). (Note for Requirements: This function needs to be better defined, along with the consideration of whether the system is to serve as a full-scale historical repository, or a lighter-weight "current state" reporting tool.)

- **Compatibility with Federal Requirements.** The system itself and development processes must be compliant with all Federal requirements for IT development.
    - System architecture and design must be compliant and compatible with the AMS Enterprise Architecture and development environment. AMS is primarily a Microsoft development shop, with a Microsoft-compatible technology stack.
    - All security requirements shall be incorporated into system design
    - System shall be Section 508 compliant to support access for those with disabilities
    - The code comprising the system is to be fully owned by the government; all Application Programming Interfaces (API), are to be open to support interface development by and with certifiers

- **Other Capabilities.** If a system with a broader scope is selected (e.g., full-scale certification management tool), the system shall include: the ability to upload documents associated with a specific operation; email triggers that notify a specific person or group of an upload, approval needed, or other trigger in the workflow; workflow, template management, and document management capabilities.

The following graphic captures how different user groups are to be able to view and/or modify the records in the system.

Figure 2: User Groups and Permissions Map



4.0 Action Plan

4.1. Acquisition Strategy and Development Plan

The first step for a future modernized database development effort would be to initiate an investment planning effort, guided by Capital Planning and Investment Control (CPIC) requirements, in collaboration with the AMS Information Technology Service. Action plan activities include:

1. Completion of a Technology Investment Plan (TIP) based on ITS guidance, followed by investment review and approval by the AMS eBoard (Spring 2013).
2. Refinement of the intended scope of the system and identification of funding (Spring – Fall 2013).
3. Development of an overarching Acquisition Plan, including completion and approval of required planning documents to support acquisition needs, such as a Security Plan, Contingency Plan, Privacy Act Assessment, Accreditation Plan, and any other documents required by the Department.
4. Development of a master Project Management Plan, which would consider Staffing, Resources, Timeline, Risk Management, and Communications Planning. Selection of a Software Development Life Cycle (SDLC) model (e.g., Agile, Spiral, Other) and an Acquisition Strategy, with

consideration of both development phase needs, and maintenance phase resource requirements (e.g., internal versus external development, hosting, and maintenance)

5. Development of a Regulatory Requirements Analysis to address links and any gaps between the USDA organic regulations and system plans, and to identify Administrator Decisions and or Instructions that will be updated or superseded once a system is developed.
6. Design and Development Phases (further defined by the selected SDLC):
    - Requirements – Functional, Technology, User Interface, End User Services, Performance, Security (Data/System)
    - Data Architecture/Quality - Data Validation, Error Correction, Data Integrity, Revalidation
    - System and Data Architecture and Design – Consistent with USDA/AMS Enterprise Architecture, Technology Stack, Hosting/Web Services
    - Development and Test

As noted previously, AMS does not currently have funding for this system; as such, while the first two steps above (TIP development and refinement of scope) could be done using existing staffing and resources, additional steps in the Action Plan would require additional funding to proceed.

4.2. Planning for Operations and Maintenance

Once a system is established, ongoing operations and maintenance will be required to support users and ensure effective use. These activities will require long-term investment and resources that may not be included in an initial funding action. As such, elements of operations and maintenance to be considered in the design and development of a technology solution to ensure long-term sustainability must include:

- **Account Governance** – This includes the people, processes, and tools that will be used to assign and approve new accounts, remove users that change roles, and manage permission levels of different levels in the system as needed.

- **End User Support and Training** – This includes the people, processes, and tools to be used to introduce new users to the system over time, including initial training, end user support for questions or problems or to correct errors, and any ongoing training required if the system is later expanded and modified.

- **Ongoing Support (e.g., Database Maintenance and Backups)** – Regardless of scope, the system would require regular maintenance activities, back-ups, and other technical administrative activities. The people and processes required for these roles must be considered in the design of the system, to be able to appropriately plan for future resource requirements after the system is fielded.

- **Future Application Changes and Configuration Management** – As any new system is used and as underlying business processes change, user-oriented content and configuration changes to

the system (such as data entry field changes and/or reporting changes) are likely to be required. These changes go beyond baseline technical maintenance activities, and must be planned for.

- **Licensing** – There are three types of users in the system: (1) full access (read-write) users in NOP and the Appeals Team; (2) certifier users that operate outside the AMS infrastructure and which must have partitioned access to modify data in the system for their certified operations; (3) public consumers of publically posted data (ability to search data without a login and without tracking use. There will also be a group of technical administrators and/or power users to administer and configure the system. The licensing model associated with any software solution must be considered in planning the system.

5.0 Acronyms

AMS - Agricultural Marketing Service
COOL - Country of Origin Labeling
CPIC – Capital Planning and Investment Control
CRM – Customer Relationship Management
ERS – Economic Research Service
FSA – Farm Service Agency
ITS – Information Technology Services
NASS – National Agriculture Statistics Service
NONC – Notice of Noncompliance
NOP – National Organic Program
OFPA - Organic Foods Production Act
OMB - Office of Management and Budget
PRA - Paperwork Reduction Act
SDLC - Software Development Life Cycle

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