Information Management Principles, Challenges and Next Steps

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Presentation Content

- Overview of OIE principles and the Canadian experience
- Ongoing information management challenges within traceability

Effective traceability systems must adhere to good information management principles

- **Effectiveness** deals with information being relevant and pertinent to the business process as well as being delivered in a timely, correct, consistent and usable manner.
- **Efficiency** concerns the provision of information through the optimal (most productive and economical) use of resources.
- **Confidentiality** concerns the protection of sensitive information from unauthorized disclosure.
- **Integrity** relates to the accuracy and completeness of information as well as to its validity in accordance with business values and expectations.
- **Availability** relates to information being available when required by the business process now and in the future. It also concerns the safeguarding of necessary resources and associated capabilities.
- **Compliance** deals with complying with the laws, regulations and contractual arrangements to which the business process is subject, i.e., externally imposed business criteria as well as internal policies.
- **Reliability** relates to the provision of appropriate information for management to operate the entity and exercise its fiduciary and governance responsibilities.

Further, effective traceability systems must adhere to OIE information management principles

- **Information Systems (Article 4.2.3., section 5f)**
  - An information system should be designed according to the scope, performance criteria and desired outcomes. This may be paper based or electronic. The system should provide for the collection, compilation, storage and retrieval of information on matters relevant to registration. The following considerations are important:
    - have the potential for linkage to traceability in other parts of the food chain;
    - minimize duplication;
    - relevant components, including databases, should be compatible;
    - confidentiality of data;
    - appropriate safeguards to prevent the loss of data, including a system for backing up the data.
  - The Veterinary Authority should have access to this information system as appropriate to meet the scope, performance criteria and desired outcomes.

OIE: An information system should be designed according to the **scope**, performance criteria and desired outcomes. This may be paper based or electronic.

- Further, the scope of *animal identifications systems* is often based on the definition of a species and sector, to take account of particular characteristics of the farming systems.

- Canada: National Agriculture and Food Traceability System (NAFTS), beginning with livestock and poultry
  - includes all farmed livestock species beginning with cattle, poultry, hogs and sheep
  - includes animal identification (individual or lot), all premises where livestock are raised, kept and processed
  - includes movement recording and reporting
  - electronic reporting, with recording at enterprise level electronic or paper

OIE: An information system should be designed according to the scope, **performance criteria** and desired outcomes.

- Further, performance criteria depends on the desired outcomes and scope of the program and are usually described in quantitative terms according to the epidemiology of the disease.

- **Canada: performance criteria set by highest standards required to manage any animal health issue**
  - Access to information is to be available 24 hours per day, 7 days per week.
  - Premises of interest to be located within 48 hours.
  - Can only be accomplished through electronic records.

OIE: An information system should be designed according to the scope, performance criteria and **desired outcomes**.

- Further, desired outcomes should be defined through consultation between the *Veterinary Authority* and other parties. Desired outcomes may be defined in terms of any or all of the following:
    - animal health; public health; management of emergencies; trade; and, aspects of animal husbandry.
- **Canada**: Vision is … secure data, networked into a value driven and sustainable traceability information system that meets Canada's private and public sector needs in our diverse agriculture and food industry to:
    - Prepare for and respond to emergencies including outbreaks of animal disease and food safety recalls.
    - Enhance industry competitiveness, retain or capture market opportunities.

Although system characteristics are designed first and foremost for effective emergency management, the system is effective for other uses.

OIE: System should have the potential for linkage to traceability in other parts of the food chain; relevant components, including databases, should be compatible

Ability to utilize data from a number of sources, both public and private, increases amount of information available.

- However, complexities of linkages and compatibility increase with number of data sources.
- Dedicated traceability databases exist, and others will be developed.
- Additional valuable information exists from other-purpose sources.
- Government in Canada is taking the lead in developing data mapping exercises, a data dictionary and a data interoperability document that will allow the compatibility of information and for electronic communication between various parts of the food chain.
- Government in Canada is developing an electronic tool that will be able to extract information from distributed data bases.

OIE: System should minimize duplication

- Duplication can create confusion and additional costs
- Unique identifiers are used for all transactions, including the three pillars of traceability (premises ID, animal ID and movement).
- Information collected in one location is recognized by systems in another location (cross reference). Agreements between service providers will help facilitate this process.
- Canadian governments have agreed that to build on traceability-specific and other existing systems (reduce duplication of infrastructure).

OIE: Should ensure confidentiality of data

- Assurances of confidentiality would increase the comfort of those providing information.
- Canada has various legislative authorities requiring respect of individuals' personal information.
- This legislation applies to both government and non-government entities collecting information.
- In addition, information collected by governments for one purpose generally cannot be used for other government purposes (e.g. traceability information collected under regulation cannot be used for tax monitoring activities).
- Currently conducting a Privacy Impact Assessment (PIA) to determine potential weaknesses in the system, and define remedial action.
- Challenge is ensuring access to those that have a legitimate reason - legislation implemented to protect privacy makes it difficult in some circumstances to share information.

OIE: Should ensure appropriate safeguards of prevent the loss of data including a system for backing up data

- With hundreds of thousands of transactions per day, data needs to be backed up in regular intervals to ensure no information is lost.
- Mechanism used is a disaster recovery plan, including a business resumption plan to address all potential threats identified in a risk assessment.
- Specific standards for data storage, availability, security, recovery, etc. are being developed.
- Backup systems in place but protocols constantly reviewed to ensure best practices are being adhered to.
- Industry/government identifying and defining best practices that all holders of traceability information should adhere to.

OIE: Data integrity including checking and verification, auditing and review (Article 4.2.3., section 7 b, c, d)

- **Checking and verification** - Checking activities should start at the beginning of the implementation to detect, prevent and correct errors and to provide feedback on program design. Verification should begin after a preliminary period as determined by the *Veterinary Authority* in order to determine compliance with the legal framework and operational requirements.
- **Auditing** - Auditing should be carried out under the authority of the *Veterinary Authority* to detect any problems with the *animal identification system* and *animal traceability* and to identify possible improvements.
- **Review** - The program should be subject to periodic review, taking into account the results of checking, verification and auditing activities.
- Protocols in place to address checking and verification, but improvements in Auditing and Review are required.
- An industry/government Compliance and Audit working group developing a C&A Framework to determine best practices and standards.

In implementing OIE and good information management standards, there are some challenges

- Ability to accommodate the size and complexity of the livestock industry and geographical distribution of the animals and products.
- Need to minimize costs to facilitate information collection and maintenance.
- Need to ensure information collected at all levels is accurate.

Traceability challenges: size, complexity and geographical distribution of industry

- Canadian Cattle Identification Agency, 2007/2008 …over 130,000 events per day, more than four million transactions per month and over 65 million unique identification numbers now allocated or sold to tag manufacturers across Canada.
- Agri-Tracabilité Québec has distributed nearly 40,000 premises identification numbers (for premises with species that have regulations), have tagged over 7,000,000 animals in the province of Québec, and have recorded over 26,000,000 movements since 2002.
- This includes only cattle, sheep and bison, and covers only a portion of movement.
- When adding additional species, and more robust information, amount of recorded traceability information just on the livestock sector will increase exponentially.
- Rural areas, in particular, do not have access to Internet.
- **Credibility of traceability information cannot be compromised, but how can standards be reached with such a growth in information? What is the balance between amount of information and quality?**

Traceability challenge: need to minimize costs

- Government has set standards for amount of information collected, timing and availability, and security and privacy but costs of traceability in Canada are largely borne by producers.
- Information now needed for additional species, and movement information would be provided by other parts of the supply chain, with their costs potentially borne through a reduced market return to producers.
- Cost minimization is dependent on ease of data recording and reporting.
- Governments could contribute more to the costs, but government resources are always limited.
- Costs could be balanced by recognition of benefits accruing along the value-chain.

- **Has the level of technology matured with the needs of livestock traceability? Can costs be lowered? Can benefits be recognized or captured to balance the costs?**

Traceability challenge: Need to ensure information collected at all levels is accurate

- The credibility of the traceability system is dependent on accurate data reporting, recording and management.
- Such credibility can only be retained if it can be proven that the data is accurate.
- Electronic collection and transfer of information has the potential to reduce transcription error.
- Accuracy of data can be verified using both electronic verification (fast but limited), manual verification (more complete but costly) and audits can demonstrate integrity of original information.
- Key, however, is to focus on the accuracy of the initial data at the collection point, starting with the producer.

- **Do we have the standards and protocols for accuracy and verification? Do we have the tools for producers and others to use to satisfy data integrity standards**?

Information management – next steps

- Sharing of best practices on the establishment and functioning of traceability systems;
- Encourage/facilitate the development of technology and tools to record and report data;
- Development of standards and protocols for information recording; and
- Work among governments and with industry to reduce costs/increase benefits.