

THE DEVELOPMENT OF A HEALTHCARE DATA QUALITY FRAMEWORK AND STRATEGY

(Research-in-Progress)

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Abstract: This research in progress aims to develop a data quality strategy for the Ministry of Health. Data quality requirements are increasing as a wider range of data becomes available and the technology to mine the data shows the value of data that is 'fit for use'. A data quality framework is the initial step towards an organisation wide data quality strategy that aligns with the health sector's existing strategies and policies. The framework development builds on an existing framework developed by the Canadian Institute for Health Information, and takes into account current data quality literature and recognised Total Data Quality Management (TDQM) Principles. Further piloting of the framework through assessment of national health collections will provide the information on which to base an effective data quality strategy for the Ministry of Health. Strategy development takes into account existing policy and strategy within the organisation and current literature to provide a practical strategy that offers clear guidelines for action.

Key Words: Data quality strategy, data quality framework, TDQM, information production processes

BACKGROUND

Bill Gates [9]states;

"The most meaningful way to differentiate your company from your competition, the best way to put distance between you and the crowd, is to do an outstanding job with information. How you gather, manage and use information will determine whether you win or lose".

Organisations are becoming more and more dependent on information (ie meaningful data). Virtually everything the modern organisation does both creates and depends upon enormous quantities of data. A comprehensive data management program is therefore essential to meet the needs of the organisation [14]. Levitin and Redman [12] also draw attention to the importance of data quality in managing information as a resource.

Modern definitions of data quality have a wider frame of reference and many more attributes than the obvious characteristics of accuracy. Strong [19] takes a consumer (people or groups who have experience in using organisational data to make business decisions) focused view that quality data are 'data that are

fit for use', and this view is widely adopted in the literature [20; 1; 6; 19]. Redman [16] comes to the following definition based on Joseph Juran [11];

“Data are of high quality if they are fit for their intended uses in operations, decision-making, and planning. Data are fit for use if they are free of defects and possess desired features”

High-quality data and derived information are also needed to create institutional knowledge (stored information plus reasoning processes that help an organisation extract the maximum benefit from the resources. This approach, which has recently been dubbed knowledge management [4, 3] draws together the tangible and intangible elements of data and shares them amongst all workers.

DATA QUALITY FRAMEWORKS

Seminal works [20, 22, 8] in the area of quality have defined various extensive frameworks to review systems within organisations. The frameworks all seek to assess areas where poor quality processes or inefficiencies may reduce the profitability of an organisation. At its most basic, a data quality framework is a tool for the assessment of data quality within an organisation [20]. The framework can go beyond the individual elements of data quality assessment, becoming integrated within the processes of the organisation. Willshire and Meyen [22] describe data quality frameworks as ‘a vehicle that an organisation can use to define a model of its data environment, identify relevant data quality attributes, analyse data quality attributes in their current or future context, and provide guidance for data quality improvement’. Eppler and Wittig [8] add that a framework should not only evaluate, but also provide a scheme to analyse and solve data quality problems by proactive management.

In healthcare it is notoriously difficult to generate quality data, which can be plagued by inaccuracies, omissions, poor currency etc. Hence, any framework that can systematically improve data quality is of considerable interest. This paper describes the development and underpinning strategy for the Ministry of Health in New Zealand to improve data quality.

The New Zealand Ministry of Health Data Quality framework

From the cited literature a data quality framework for the Ministry of Health can be defined as:

“A point in time assessment and measurement tool, integrated into organisational process, providing a benchmark for the effectiveness of any future data quality improvement initiatives and a standardised template for information on data quality both for internal and external users”.

The aim of the New Zealand Ministry of Health Data Quality Framework (DQF) project is to deliver a tool that allows for the consistent and accurate assessment of data quality in all national health data collections held by the Ministry of Health, enabling improved decision making and policy development in the health sector.

The framework is being developed to provide a common, objective approach to assessing the data quality of all health information databases and registries. The framework enables the identification and measurement of major data quality issues, standardises information on data quality for users, and helps to identify priorities, which in turn lead to continuous improvements.

Current State Analysis

The development was initiated by a preliminary survey of managers and users form across the Ministry. The survey consisted of a qualitative survey requiring free text answers to the following questions:

- Name of Collection and Collection Manager
- Contact person and details
- Historical or contextual information about the collection
- Data collection process
- Changes made to data from within the Ministry
- What the data are used for and where they end up
- The nature and perceived effectiveness of existing data quality initiatives

The gathering of this information proved difficult, the survey results showing that there are currently no compiled and complete records of data quality for any of the national data collections administered or managed by the Ministry of Health. The information is spread between a range of organisations, people and documents so that the Ministry cannot easily assess the scope or effectiveness of its data quality measures. This situation, and extensive discussions with data users involved in the development of the Ministry of Health Information Systems Strategic Plan, demonstrates the pressing need for the Data Quality framework.

Research Methodology for the Development of the New Zealand Framework

The Canadian Institute for Health Information (CIHI) has undertaken pioneer work on healthcare data quality. The CIHI Data Quality Framework is based on Statistics Canada guidelines and methods, information quality literature and the principle of Continuous Quality Improvement. The CIHI is similar in function to the New Zealand Health Information Service (NZHIS) and the healthcare systems of the two countries are also similar in many respects. The development of the New Zealand Framework therefore proceeded by assessing the suitability of the CIHI Framework for the New Zealand environment and modifying it to ensure its local applicability.

The CIHI Framework was assessed for completeness and relevance against current Ministry IT & IM strategy documents. These include regional information strategy plans and the WAVE Report (Working to Add Value through E-information), which is the national Information Management Strategy for health. Compliance with New Zealand legislation was also considered.

The research utilised several qualitative methodologies - semi-structured interviews, focus groups and a questionnaire to develop and formally assess a modified and localised framework that included features such as:

- The applicability of the dimensions, characteristics and criteria for the assessed collection
- The language used in the framework
- The language and examples provided in the user manual
- The length of time required to complete the assessment using the framework
- The value to users of the information provided from using the framework
- The table of contents for the Data Quality Documentation Folder

The proposed framework was then discussed at two focus groups of internal Ministry staff. Focus groups were used in an effort to bring together business units who appeared to have similar issues with data

quality, but no formal infrastructure to coordinate quality initiatives. These focus groups were derived from a 'Ministry Data Quality Team' (MDQT) formed specifically to look at ways of improving quality in a consistent way across the organisation. Membership of the MDQT was selected from across the Ministry and its separate business units. Members were mostly 'information users' such as Information Analysts and Business Intelligence staff, but some were also members of the already existing operational Data Analyst Team.

The proposed framework was sent to all group participants. A presentation to the MDQT was made prior to their discussions to ensure all participants had a common understanding of the purpose of the framework and the desired outcome goals. The group participated in two focus groups of two hours each. A member of the strategic Health Information group (the researcher) led the focus groups and an administrator was present to make audio recordings and to later transcribe the recordings, noting also the interaction between group members on discussion points.

A template (Appendix 1) was developed to assist data managers and users to assess the effectiveness of the framework, its user manual and the proposed 'Data Quality Documentation Folder' for each collection and to document their findings. The proposed documentation folder will house all information pertaining to the data quality of each data collection and will make it available in both paper and online format for access by all staff at the Ministry of Health.

The framework then went through a pilot evaluation process using three very different health data collections. Initial assessment was made on a collection considered to have good data quality in relation to other collections, the Mortality Data Collection. The Mortality Collection has been established to provide data for public health research, policy formulation, development and monitoring, and cancer survival studies. A complete data set of each year's mortality data is sent to the World Health Organization to be used in international comparisons of mortality statistics.

A new collection, not yet implemented the Mental Health Workforce Information System (MHWIS), was also included in the pilot evaluation. The MHWIS is one component of the Mental Health Workforce Development initiative intended for the collection, storage, and analysis of workforce data.

The third and final data collection consisted of clinical data held in a hospital setting. These data are used to determine best health outcomes for clinical care pathways and they are consequently stored at a more granular level than the national health data.

Following the focus group sessions, a second review of the framework was then made using meta criteria defined by Eppler and Wittig [8] to ensure that it remained robust according to the data quality literature following localised changes.

Further work will improve objective metrics used within the framework. Currently many of the metrics associated with each criterion are subjective assessments made by those who manage the collections. While this is a valid form of measurement, the robustness of the framework will be improved through the addition of relevant objective metrics. The metrics will be based on current literature, trend analysis of historical data within the national health collections, current key performance indicators for data suppliers as outlined in their contracts with the Ministry of Health, and on legislative requirements for the provision of data by healthcare providers and the Ministry of Health to international bodies such as the World Health Organisation.

RESEARCH FINDINGS

Although changes were made to the content of the CIHI framework these in effect were minimal. The most significant change to the content was to add two further dimensions – Privacy and Security. The CIHI state that Privacy and Security are implicit requirements that are embedded in all their data management processes. Whilst this could also be said of the Ministry of Health, the pervading culture in New Zealand requires that Privacy and Security of information, and in particular of health information is paramount. Therefore, the Data Quality Team felt there was a requirement for explicit and transparent consideration of these quality dimensions. The characteristics for these dimensions were developed by the Senior Advisors in strategic roles in Health Sector Privacy and Security to ensure alignment with new Privacy and Security Policies.

Findings from the two Ministry data collection assessments show that the Information Analyst group requires the most detailed information on how the assessment was made for each criterion, whereas management required summary information. Some further changes were made to language, ensuring better local ‘ownership’ of the framework. The time taken to undertake assessment would be a minimum of four hours if all documentation about a collection were available. In reality, the assessments took far longer as the available documentation was held in disparate locations by different staff. Subsequent assessments of the same collections are likely to be completed much more efficiently, as much of the information could remain the same or merely need updating. Concern was expressed, however, around the time taken to complete the framework by already busy staff. Overall, the framework was found to provide useful data quality information by collection users and managers and to provide sufficient information to make at least preliminary prioritised lists of essential data quality improvement projects. Further work has been required to ensure assessors use the framework consistently and that it is a practical and easy tool to use.

Particular attention to the language used in the accompanying User Manual is required as the CIHI wording was found to be too simplistic for the intended audience. Those using the framework are likely to be systems administrators, data quality advisors, and members of the business intelligence team but the language implied the need for little underlying understanding of data and systems. The manual can also be shortened with less background information on data quality (this may be produced separately to show the underlying theory used to develop the Data Quality Strategy for those taking part in education programmes). Therefore, extensive changes to the CIHI User Manual are required to make it useful to the New Zealand health environment.

Assessment of the framework using the hospital clinical data collection shows that a data quality framework is an invaluable tool that helps to guide developers to produce robust and valid clinical databases. Also, the majority of the Ministry of Health DQF criteria could be applied to external clinical databases, as shown in Table 1 below. This table outlines 52 criteria, out of a possible 69 in the framework, that conform to the data quality requirements of the clinical database held at the hospital level.

MOH Framework Criteria	Hospital collection compliance
Conformed	52 items
Not applicable	8 items
Did not Confirm	8 items

Table 1. Applicability of the Ministry of Health DQF with a Hospital Clinical Data Collection

The framework assessment process also proved valuable to the hospital submitting the clinical data set. It was suggested by the Data Analyst that some formal, sector-wide criteria based on the framework, together with a certification process, would help to ensure that clinical databases are valid and reliable.

The findings and consequent recommendations of the assessment of the Data Quality Framework using Eppler and Wittig's (1996) [8] criteria are outlined below in Table 2.

Eppler and Wittig [8] Meta Criteria	NZDQF Response	Findings	Recommendations
1.1 Definitions	Definitions of the dimensions and the characteristics exist and are provided.	References / index are not provided making it difficult to locate information quickly. Some definitions are unclear and simplistic and do not relate to the NZ health sector. For example, the use of nursing homes.	An index should be added to the manual. Content should be trimmed down and made more relevant to the audience (systems staff).
1.2 Positioning	Yes	The context of the framework is clear. The limits of the framework are not explicitly documented.	The limits of the framework should be explicitly documented
1.3 Consistency	Some confusion was experienced in understanding the differences in some framework criteria	If the assessors have not had training in the use of the framework and are not familiar with the collection, this will have some impact. The criteria in some respects are still subjective and so comparing across data collections may be problematic.	Assessors need training on the use of the framework. Data should be assessed by staff that are familiar with the collection.
2.1 Conciseness Is the framework concise in the sense that it can be easily remembered?	The framework is not overly large. It took over four hours to answer all criteria for the collection that we were not familiar with.	Once the assessor is familiar with the framework it should be easily remembered.	Training should be provided, and/or a trained assessor should assist the assessor. A pre-assessment checklist should be developed to assist assessors and to ensure conditions for an assessment and all required information are available.
2.2 Examples	The examples are not specific to NZ environment and did not seem relevant in some cases. For example: the use of nursing home, the use of Corporation instead of District Health Board	Providing NZ specific examples helps to guide users with contextual information	Develop NZ specific and illustrative examples to help explain the various criteria.
2.3 Tools	Yes – a tool template and a guide exists.	The audience is not clear. The manual appears to target novices with little or some knowledge about data quality or data, but the instrument itself assumes a high	The audience needs to be defined (ie. likely to be systems people who already know about the collection). The manual needs to be culled of novice content. The

		level of knowledge of data collections and terminology. The guide is simplistic and does not explain succinctly what the criteria mean.	manual needs to be extended to provide succinct definitions for criteria. The tool template could be further automated to make data entry easier.
Other	Use of colour coding in the manual is meaningless when printed.	Unless the manual is printed in colour and distributed or read online – colour coding is of no value.	The manual needs to be coded in a way that does not depend on colour or only distributed electronically.

Table 2: Assessment of the New Zealand Data Quality Framework Using Meta Criteria Defined by Eppler and Wittig (1996) [8].

The summary information gained from assessments of all collections will be collated to form a prioritised list of data quality improvement initiatives across the Ministry. Ongoing assessment using the framework will provide information on the success of data quality improvement initiatives.

AN ORGANISATION WIDE DATA QUALITY STRATEGY

Whilst a data quality framework models the data environment and identifies the quality characteristics, it must be underpinned by a data quality strategy that is broader in scope. The strategy establishes the business purpose and context and applies the framework to define key functions such as data acquisition and conversion, and future data collection, design, creation, and maintenance.

These factors illustrate why a data quality strategy is of great importance to the New Zealand Ministry of Health and to the NZHIS in particular. Healthcare planning and delivery rely heavily on data and information from management, administrative and clinical sources. Quality data lead to quality and cost-effective care improving patient outcomes and customer satisfaction.

Although there is no single definition of strategy [17, 13] *strategic development*, is generally held to comprise sequential steps of strategic thinking (or design), planning and execution. *Strategic thinking* takes its context from an organisation’s mission statement of high-level intent. The design identifies core concepts, and goals, and the competencies needed to achieve them. This initial stage is critical to overall success and may take several iterations. Thinking then proceeds to *strategic planning*, which endeavours to be a bounded rational process [18] that takes into account the current situation, available resources (present and future), choices, and the prevailing environment [21]. Long-term planning assumes a stable environment, which is nowadays rarely the case, so that strategic planning (and even thinking) must be iterative and flexible to allow for change [17]. Finally, planning leads to *strategic management*, which implements the strategic plan on a suitable timescale.

Strategic development has been likened [15] more to biochemical fermentation than industrial assembly. Various techniques have been used to assist strategic development including critical success factors [21] core competencies [10] and, more recently, the triple bottom line [7].

The three stages of strategy development need to be followed systematically when creating a data quality strategy since the personnel we are working with are more familiar with operational details and they have limited experience in establishing generic principles and applying them to strategy generation.

Development of a Data Quality Strategy

Thus far, little has been published on what constitutes a data quality strategy let alone an evaluation of a structured and tested scheme. Recently however, this type of strategy has become increasingly important as a core requirement for many businesses and it is likely that some large organisations do have such strategies, or components of them, but these are not currently documented and available in the Total Data Quality Management (TDQM) literature. Davis [5], publishing on the FirstLogic website, wrote several articles on his vision of a data quality strategy. According to Davis [5], a data quality strategy should include the following:

- A statement of the goals. What is driving the project
- A description of the primary organisational processes impacted by the goals
- A high-level list of the major data groups and types that support the operations
- A description of the data systems where the data groups are stored
- A statement of the type of data and how they are used
- Discussion of cleansing solutions matching them to the types of data
- Inventory of the existing data touch points
- A plan for how, where, and when the data can be accessed for cleansing
- A plan for how often the cleansing activity will occur and on what systems
- A detailed list of the individual data elements

Whilst Davis' list is a useful starting point, it is based on a providers' perspective. Other components should be added to incorporate the needs of consumers and define and document these. A first step would be the identification of the organisation's customers, or important consumer groups where there are too many individual customers for initial improvement programmes. This is still not easy to do given that customers often do not know what their needs are [16].

Current information processes must be carefully documented to make the meaning of data transparent to all users. For example, data sources should always be identified to provide the data user with context around the data collection process. Where these processes are complex it may be necessary to simplify the documentation to ensure that it is properly maintained. This is particularly true of large organisations that often have separate business units.

Maintaining consistency across business units with data definitions, business rules and even systems architecture can increase the utilisation of valuable data across business units and assist in data quality improvement. The health sector is currently uncoordinated across healthcare providers and departments. Standardisation and consistency allow for the integration of data, further increasing its usability. Large organisations that outsource system development to contractors may also find documentation is lacking.

It is particularly important to note that a data quality improvement strategy is not an 'Information Technology Strategy', nor an 'Information Systems Strategy'. Although such strategies may provide insight and tools to assist in a data quality improvement strategy, data quality improvements cannot be attained merely through information technology; the problem is one of processes and people. As noted in Ward and Peppard [21];

"...Clearly, technology on its own, no matter how leading edge is not enough".

Data quality improvements require the improvement of all processes applied to data from its collection, in whatever format, right through to the information product derived from the data items. Technology can support the strategy of an organisation directed to the business goals but at an operational level it mainly enables information management.

Practical Application at the Ministry of Health

A practical data quality strategy for the Ministry of Health has to consider the complexity of the health sector. The data, their structure and use, and the products produced, are potentially much more varied than are found in financial or manufacturing organisations. Strategy development will therefore be informed, at least in part, by the framework assessment of existing data collections, highlighting areas of need. The strategy will then follow guidelines found in the Ministry of Health Information Systems Strategic Plan, which includes tasking data quality to those at strategic levels in the organisation. The goal is to use the strategy and the framework to set data quality standards for designing, developing, and maintaining data collections throughout the entire health sector.

Ongoing communication with sector groups, including the Ministry of Health Senior Management Team and staff is essential to ensure sector buy-in and maintain input and interest in strategy development and framework implementation. Full consultation with a wide range of data suppliers and users is also necessary. Finally, discussions and surveys with organisations outside of health, within New Zealand and overseas, on how data quality is managed and strategies are implemented will inform the ongoing and iterative development of the Ministry's strategy.

Below is an outline of a draft data quality strategy for the Ministry of Health, still in its early stages of development. The draft has not yet been through a consultation process. The strategy development is an iterative process; priorities are likely to change once further information about the quality of data within the Ministry of Health is available and consultation has been sought with stakeholders.

The proposed *mission statement* for the Ministry of Health Data Quality Strategy is:

The Ministry of Health will provide high quality information to all customers. Our information customers define good data quality.

The proposed *vision* of the Data Quality Strategy is:

Ministry of Health customers will be provided with high quality information through the application of total quality data management principles across all business units. Data quality will be consistently assessed, with continual improvements made in accordance with the assessment results.

The proposed *goals* of our Data Quality Strategy are to:

- Reduce the cost of fixing problems due to poor quality data within systems
- Ensure the flow of information through the organisation does not change the information meaning
- Prevent poor quality data entering the system through appropriate business rules, validation checks, entity checks etc
- Educate and assist data suppliers to send in only good quality data
- Educate Ministry of Health staff on TDQM principles

Strategy development will consider a wide range of areas, reflecting the impact of data quality across the entire organisation. Areas of consideration include:

- Cost/benefit and return on investment implications
- Risks of omission and commission (the risk of doing nothing and the risk involved in strategic options)
- Feasibility of the strategy in the New Zealand healthcare environment

- Long-term goals for data quality in the New Zealand healthcare environment
- The outcome of the pilot study of the framework – providing a gap analysis where consistent, high-level problems appear across many data collections to identify priorities for improvement initiatives;
- The data governance model developed for the health and disability sector;
- The Information Systems Strategic Plans for the Ministry of Health and the sector (The Health Information Strategy);
- Current ‘good data quality practices’ utilised at the Ministry of Health and by the sector.

High-level Components of the Strategy

The significant components of the strategy include:

- Prevention of data quality problems
- Fixing errors
- Education of Ministry of Health and sector data collectors and users

These will be met through the specific business objectives at the Ministry, including:

- Consistent processes in place across the Ministry of Health business units to manage data quality
- Continual assessment made of the level of quality of the data held in the National health collections managed by the Ministry of Health
- Priorities identified for data quality improvement initiatives
- A continual cycle of data quality improvement and assessment in place including regular trend analysis and Statistical Process Control measures
- Education within the Ministry and then out into the health sector

The scope of the strategy is organisation-wide, but specifically aimed at strategic processes. For those working with data in operational areas, further sub-strategies will need to be developed to operationalise the high-level polices included in the strategy. Operational managers will be assisted to develop new local strategies or to adjust current strategies to ensure alignment with the high-level strategy.

Beginning Initiatives

TDQM looks at the processes that data flow through before ending in an information product. Whilst human, random error may lead to the entry of incorrect data, it is paramount that none of the processes themselves should change the initial meaning of the data leading to systematic errors and repeated data quality problems. Systematic process errors can be prevented by several means some of which will depend upon the nature of the business unit and its data. However, we can identify generic prevention mechanisms across business units to include:

- The systematic and ongoing education of data suppliers
- Education within the Ministry of Health
- Regular business as usual processes that review recurrent data quality problems from suppliers and feedback information on issues to suppliers with support provided for improvement
- Internally developed data quality applications to reduce time spent on assessment of data quality problems (limited in use for complex health data)
- A continuous cycle of assessment, planning and implementation using the framework to inform the assessment process as outlined in figure 1 below:

- *planning*: includes the steps necessary to prepare and prioritise the processes required for a database/registry as well as designing any changes that are needed;
- *implementing*: includes developing the processes needed and applying them to the database/registry, such as collecting data, on-going monitoring of incoming records, releasing written reports, etc;
- *assessing*: involves evaluating the quality of the database/registry and determining if any changes to the processes are needed. If changes are needed these are incorporated in the planning stage. Thus, the cycle is iterative and continuous.

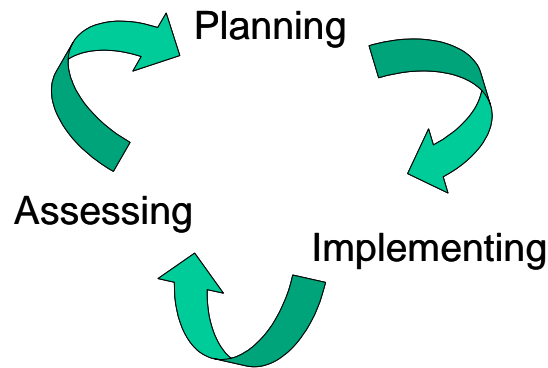


Figure 1: The Continuous TDQM cycle

Even prior to the development of the strategy, immediate steps are being taken to assess our current data quality levels and processes around data management. The first initiative is to complete and implement the Data Quality Evaluation Framework. Further, a priority scale is being developed to assist in decision making on what problems should be improved first. This first programme of work is outlined in Table 3.

1. Automate the DQF tool template to make it quicker and easier to use
2. Pre-assessment checklist that encompasses the following: <ul style="list-style-type: none"> a. The checklist is used to ensure that prior to the assessment, all of the required information is available b. Names a responsible 'data quality manager' and organisation/section (owner) for the data collection that is responsible for applying the DQF c. Identifies the purpose of the collection and the uses of the data d. Categorises the data collection against a priority scale that applies to all national data collections
3. Post-assessment documentation that encompasses the provision of the results and proposed and actual actions of an assessment after using the DQF
4. Develop a priority scale that all national data collections can be categorised against and automate
5. Further refinement of DQ Metrics
6. Evaluation of all collections using the framework, education of data collection managers, prioritisation of Data Quality improvement initiatives
7. Initiation of full-time Educator for internal and external data collectors and users

Table 3: First-stage Work on the Data Quality Strategy

The second programme of work (Table 4) is around the identification of our customers, aligning with the premise that the ‘customer defines if data are fit for use’. This will become a part of a suite of regular data quality initiatives, to be undertaken on a yearly basis.

8. A ‘priority list’ of customers
9. Assist priority customers to ascertain their data quality requirements where necessary
10. Develop a standardised assessment tool for customer satisfaction to be used regularly as ‘business as usual’ to ensure improved customer delivery

Table 4: First-stage Work on the Data Quality Strategy

The Ministry is also able to develop regular minimum standard operational data quality initiatives to apply to all national collections, regardless of which business unit they are managed by. Further, each business unit will develop, additional to current practice, regular data quality procedures for specific collections where required. These operational measures are outlined in Table 5.

11. Minimum industry standard documentation requirements for each collection – Metadata template
12. Minimum requirements for new collections – documentation and methods outlined in the Data Quality Framework to prevent data quality issues before implementation of the new collection
13. Undertake Data Production Mapping for all major Information products
14. Develop appropriate Statistical Process Control measures for each collection with implementation and training for data base managers

Table 5: Operational Measures for Ministry Business Units

CONCLUSION

The Ministry’s purpose is to realise the full value and potential of data that it collects, stores and manages. Building ‘trust’ in the data throughout the health sector will ensure that data are used frequently and to their greatest possible benefit. With the right strategy and framework, data that are highly utilised for a range of reasons will incrementally improve in quality. Extensive data mining, combining currently disparate collections, will also provide far more granular information and knowledge to improve data collections and raise the state of New Zealand’s health. A data quality strategy will provide coherent direction towards Total Data Quality Management. The Ministry’s improved data quality will then ensure that the health sector is more able to make informed and accurate decisions on healthcare policy and strategy.

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APPENDIX 1

ASSESSMENT OF THE NEW ZEALAND DATA QUALITY FRAMEWORK VERSION 1.0

PILOT STUDY DOCUMENTATION

Name of Collection:.....

Name of assessor(s)
.....

Date of completion

Time required (approx) to complete framework

Time required (approx) to complete data quality documentation folder requirements
.....

Please systematically assess all aspects of the framework. Overall assessment should consider the readability and clarity of the framework and the ambiguity of the questions asked.

Please consider, on a scale of one to five, **with one being Excellent and five being Poor**:

- The language (words) used

1	2	3	4	5	
Excellent					Poor

- The clarity of the presentation layout

1	2	3	4	5	
Excellent					Poor

- The time required to complete the framework compared to the usefulness of the information gleaned

- Does the user manual provide sufficient information?

Excellent 1 2 3 4 5 Poor

- Does the user manual provide too much information?

Excellent 1 2 3 4 5 Poor

- Does the user manual guide you through the framework with sufficient detail to make a consistent assessment?

Excellent 1 2 3 4 5 Poor

- Are the examples used in the user manual useful?

Excellent 1 2 3 4 5 Poor

Data Quality Documentation Folder

- Does the Data Quality Documentation Folder provide useful information to the collection users?

Excellent 1 2 3 4 5 Poor

- Is there any information that should be included/excluded?