Department of Accounting & Information Systems

ID No: …………………... .....**Surname/Family Name:** ....

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*STANDARD COVER SHEET FOR **INDIVIDUAL***

ASSIGNMENT/CASE STUDY/PROJECT/ESSAY

COURSE CODE: ACCT/INFO ……………… DUE DATE: …………………….

Tutorial Group: ………………….…………...

Title: …………………………………………………………………..…………………..

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Honesty Declaration

- I declare that this is an original assignment and is entirely my own work.

- Where I have made use of the ideas, words or work of others, I have acknowledged the source in every instance.

- Where I have used any diagrams (including modifications) prepared by others, I have acknowledged the source in every instance.

- I have read and understood the Dishonest or Improper Practices Statement overleaf.

- I am aware of what constitutes cheating, and the penalties for plagiarism and cheating as described in University publications.

- I am aware that the content of this written work may be checked against an electronic database.

- I have supplied the correct word count and have taken no steps to cause disclosure of an incorrect word count for the assessment

Student's Signature: _____ Date: _____

Under the University Regulations, evidence of any of these or other forms of dishonest practice by any student(s) represents grounds for disciplinary action and may result in penalties ranging from denial of credit for the item or work in question, to exclusion from the University.

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It is recognised that students will discuss course work and assignments with others, and such discussion is an important part of the learning process. However, any work presented by a student for credit in a course must be that student's own original work. If students are directed to complete work submitted for credit in groups, the work submitted must be the original work of the group. Work submitted in breach of these requirements or which fails to comply with other instructions contravenes the University's Dishonest Practice and Breach of Instruction Regulations. Such work will either not be marked, and all credit for the work in question forfeited, or the matter will be referred to the University's proctor for investigation and possible referral to the University's Disciplinary Committee.

Penalties which may be imposed in the event of a finding of dishonest or improper practice include loss of credit for a course or an item of assessment and, in serious cases, suspension or expulsion from the University. A record is kept of all instances of dishonest conduct.

Instances of dishonest or improper practice in coursework and assignments include but are not limited to:
- ❖ Plagiarism. Plagiarism means the dishonest presentation of work that has been produced by someone else as if it is one's own. Please note that the presentation of someone else's work as one's own, even without dishonest intent, may still constitute poor academic practice, and this may be reflected in the mark awarded. There are academic conventions governing appropriate ways to acknowledge the work or part of the work of another person, including the APA and Harvard citation styles. For further information see the UC Library website, under "Citations and Referencing".
- ❖ Submitting for credit in a course without the prior consent of the Course Coordinator for an essay, research paper or any other written work which, although it is the student's own work, is substantially the same as work which has already been (or will be) submitted for credit in another course, whether in the Department of Accounting and Information Systems (ACIS Department) or some other department or academic institution.
- ❖ Copying the work of another student. This includes copying the work submitted by another student for credit for a course in the ACIS Department or some other department or academic institution.
- ❖ Knowingly allowing another student to copy work which that other student then submits for credit for a course in the ACIS Department.
- ❖ Arranging for another person to complete work which is then submitted for credit for a course in the ACIS Department. An example falling in this category is work submitted for credit which has been obtained from a commercial assignment completion service. Care must be taken when using editing services as it is **only** assistance with grammar, punctuation and expression that is permissible and does **not** include the addition or amendment of content.
- ❖ Completing work for another student which is then submitted by that other student for credit for a course in the ACIS Department.
- ❖ Including made up or fabricated material in work submitted for credit for a course in the ACIS Department.
- ❖ Collaborating in the preparation of answers for take home or online tests unless advised otherwise in the take home test instructions.

If you are in doubt about any of the above with respect to a particular course, you should discuss the matter with the lecturer or course co-ordinator concerned.

See also the University Discipline Regulations, Dishonest Practice and Breach of Instructions Regulation, and Academic Integrity Policy – refer to UC Calendar and UC web.

Abstract

Data governance is an important aspect of any company. Data quality and management are one of the branches which serve as key aspects of data governance. Compromised data quality and a lack of proper data management procedures can affect the overall performance of the company. As most companies use the same data between various departments, the importance of data quality is vital. constant modifications to the data can corrupt the data resulting in flawed and bad data quality [Mosley (ed), 2010]. Therefore, it is important to understand the importance of data quality early in the process. It is important to note that although the quality of data is related to the accuracy and sanity of the data at the beginning of the data registering processes, it is important to realize that the process of data quality is not one of an instant occurrence but rather a process which is attained throughout the life-time of the project. It is also important to note that the concept of MDM and Reference data is a process of data quality improvement rather than individual processes [Mosley (ed), 2010]. The document defines the key aspects of the master data management (MDM), reference data, with definitions, data modelling and data quality. The document creates a link between the processes listed above in context to SCIRT. The document is a report meant for the technical department of SCIRT. The document will define Master data management its sub-types, reference data, data quality and data modelling along with integration and multiple sanity check systems in improving the quality of data in context to SCIRT.

Introduction

The document provides information on the practical introduction with definitions about the role of MDM, reference data, data modelling and data quality in SCIRT. The document explains towards the implementation and maintenance of the SCIRT project. SCIRT is an organization formed as a conglomerate between private sector companies and the government. The responsibility of the project is to provide relief to the people of Christchurch at the earliest. Adhering to the role of MDM, reference data, data modelling and data quality in context to SCIRT, the document gives suggestions, decisions, and pays attention to the approach to create an efficient report to benefit the community, the companies involved, and the project in whole. The business driver of SCIRT is to rebuild, replace and repair the infrastructure of Christchurch which was damaged by the earthquake. It is important to recognize the impact this has on the government, the business, the people, the economics and nature. A systematic approach towards the business driver would enable for a productive outcome. Since, the magnitude of the calamity is still not clear, the scale, scope, urgency and controlled finance are relative. The requirement of data to understand the magnitude of the damage and its management is pivotal. The business drivers are the main factors which provide an optimum functionality of an establishment. Data collected from various sources needs to be of high quality to ensure smooth sharing ability between departments and different working groups. the role of data management is pivotal in describing this system. In SCIRT the data is transferred between the stakeholders, the contractors, the onsite workers, the suppliers, the professionals and the private companies.

Data modelling

Data modelling is the skeleton determining the logical structure, and the primary step towards which the data entities and structures are linked to each other forming a network. An efficient data model can make data management hassle free.

SCIRTS Master Data Management

The master data is the main hub that contains all the collected data of the investors, the parties involved, the funders, asset owners and data of acquired from different management and assessment teams. Master data covers the sub-types of data, such as financial data, party data, product data and location

data. Each of the sub-types of master data have unique functions in a corporate, for example, the finance data looks at the budgets, profits, schedules, deadlines etc., the party data is more focused on the engagement of external parties, contractors, organizations, the product data focuses on the equipment's, supplies and services of the industry in totality and the location data, holds information about the address, postcodes, latitudes and longitudes etc.

Master data management is defined as the effort to create a master reference database which is critical to business data. one of the goals of master data management is to improve the overall performance of the business by reducing errors ["What is Master Data Management: Definition | Informatica US", 2018]. This means that the data collected is cleaned, refined and formatted for use across the project. It is the coercion between business and IT.

SCIRTS Party Data

The stakeholders, funders, government organizations and the private companies along with the set number of teams are key players in the rebuild program. Hiring external contractors to carry out data analysis and collection also requires security and regulatory undertakings with financial implications. Data circulated within the groups needs to be transferred efficiently providing a transparent reporting platform. To ensure quality of the data collected, policies, standards and regulations are instated. Governing bodies such as the Christchurch City Council(CCC), the New Zealand Transport Agency(NZTA) and Canterbury Earthquake recovery Authority(CERA), Client Governance Group (CGG) are responsible for ensuring delivery of equipment, data (subject to the requirements of the companies working at the sites) and issuing the standards and operations. The framework of the relationship between the government parties and the companies undertaking the repair work is supported by a complex system of efficient management. Recognizing the impact of the earthquake on the citizens and the environment and determining key approaches to mitigate the impact is of utmost importance. Since almost 700 projects are underway, contractors are brought onboard to carry out analysis and help with the project, a relevant system such as a human resource management system is relevant to handle the inflow of contractors. Teams conduct an extensive survey of the damage and its effect on citizens, e.g., an individual blocked by debris, unable to gain access to hospitals or stores. The individual is a high priority individual due to the quality of life being downgraded. In such a situation a team of surveyors are dispatched to assess the damage and confirm the validity of the individual and the damage. Phone call records along with citizen details, such as address, complaint type is noted. The surveyors along with geo-mapping can confirm the validity of the individual and the complaint and whether it needs evasive intervention or not. As a result, a management system such as a client management system is essential.

SCIRTS Financial Master data

It is important to realize the resources that are released by the governing councils and the companies to contractors. The lack of a proper financial management system can adversely impact SCIRTS financial objectives. The price of the tools for example, or the salaries of the employees contribute towards a significant portion of the budget. Allocation of funds based on the damage type, location, infrastructure, need moderation. Carrying out a pre-proposal workout of the costs of tools and the man hours required should be carried out as a reference point. Understanding the financial impact of delayed projects deadlines is also noteworthy. For example, if a road is blocked due to a sink hole and the scheduled completion time is a week for a stretch of the road, any sort of delay could increase the spending. An incorrect or repeated value of budget allocation can hinder the entire budget of the robust system which tracks the progression of the project such as a Gantt chart is a great tool to utilize. It is free and cost effective. Financial data generated from contractors in terms of the costing of the tools, salaries of employees, manhours spent, can be analyzed and negotiated to update the contractor stating the non-negotiable budget.

Management: Avoid duplicate and incorrect values of budgets, projects.

SCIRTS Product master data

The tools and materials purchased come with a range of operational manuals, costings, models, makes, date of purchase. A database to track the operational effectiveness of the tools, keep a track record of maintenance schedules, part replacement, guarantees etc. is required. for example, if a CCTV camera is destroyed or needs replacement, it can be tracked in the system and the contractor responsible for the stretch of that area will be updated and relative actions will be undertaken. Versions of CCTV camera images which are generated can be upgraded. A product management system would aid in the process, giving engineers, designers and infield teams easier access to operational data about the tool and designs.

Management: Avoid incorrect costings, attention to correct product description.

SCIRTS Location master data

Coordinates generated by CCTVs, geo-technical mapping devices and GPS networks outline the road-networks. These will be provided by the NZTA as they are responsible for handling the horizontal infrastructure. The information generated provides descriptions of the citizens addresses, locality. Information generated from CCTVs, P-DAT, pole cams about damaged, displaced pipelines, and sophisticated devices such as the light detection and ranging surveys (LiDRS) give information on the ground settlement serve as a reference point for warnings and identifying areas of high risk.

Management: correct location coordinates, appropriate abbreviations of cities if used.

SCIRTS Reference Data

The data is given a description, to determine infrastructure that needs urgent attention. For example, road damage classified as having "No damage", "low damage", "Moderate damage "and "extensive damage". The rating "no damage" signifies low priority, and "extensive damage" signifies high priority. The responsible party is given a heads up in determining where more work is needed along with the funds that will be needed. This creates a clear picture in delivery to undertake steps This type of categorization is often referred to as reference data where data is classified or given a description [Mosley (ed), 2010]. The data status is updated in a timely fashion. In the case of products data, the reference data serves as a description of the product in terms of the specifications of the tool. In location data the reference data serves as a precursor between the location of the damage along with the type of damage and the gravity of the damage.

The integration of the master data, data modelling and data quality

Data generated from product reference data which is for example, the description of the total storage capacity of a CCTV is generally contained in an unstructured format. Invoices, costs, delivery types are of transactional type. These types of data form the backbone in terms of providing information to the management. SCIRT, saves the data in a master database called the (Governance file) G-file where the data collected by contractors is collected, analyzed, edited and saved by SCIRT. The file contains tables and formats of different data types, such as spatial surveys containing location data which are linked to an attribute storage system known as the "INFONET" containing survey information of infrastructure. Data is analyzed and validated then re-validated and analyzed using the CCTV values which serves as a second-tier cross-check and then into the GIS system containing asset information and the findings of surveys along with the financial aspects. The finalized value file is saved and sent to the governing entity for example CGG. Which is responsible for the operations maintenance etc. of the project. A review file along with the

completed file is submitted to provide a clear outlook on the review work and the final document. The files are backed up and once the analysis is complete the project can be confirmed, and work can begin. The system serves as multiple stage data validation attribute aiding data quality.

Limitations

The cost impact of implementing a resilient and reliable master data management technique is high. The inclusion of various stakeholders can cause budget overruns, missed deadlines. There is no clear-cut procedure which can suggest a 100% accurate master data management hub ["The Pros and Cons of Master Data (Management)", 2018]. The number of organizations involved in SCIRT, such as the CCC, NZTA, CCG, CERA etc. can have disagreements impacting the project schedule and costings.

Discussion and conclusion

Data accumulated from the sub-types of master data such as, party, finance and location need a delicate system where all the types of data collected can be linked to create a master table where information is automatically updated, cleaned and given access to during the project.

The guidelines serve as a platform, in informing, e.g., the construction companies on what route to take in the assessment of the damage, the design, and construction of the infrastructure. The identification of the data requirement is the responsibility of government organizations since the owner of public properties is the local council (Government entity). For example, the NZTA is responsible for determining the road asset condition data, handling flood complaints, the CCC responsible for the design, operation etc. The data obtained from NZTA and CCG is different. NZTA requires location services along with a list of products to ensure efficient deliverables. GPS, street number/names are one of the dimensions that are important. The CCG on the other hand looks at the operational side of the project, hence stating the functional aspects such as schedules, budgets, resource allocation and project progression. The tools required differ, the financial requirements also differ. The road data for example is sent to a team of engineers, work crews, etc. tasked at undertaking road works which is physical. The data on the condition of pipelines using professional tools such as pipeline damage assessment tools(P-DAT), CCTV images and light detection and ranging surveys(LiDAR) have certain formats, e.g., CCTV footage is more image based rather than numerical hence it needs integration as an image in the database. The design layout of the buildings is sent to designers, architects etc. The format of the data differs, architects are more interested in the outer visuals of a structure rather than the calculations, an engineer needs to carry out calculations and work crews need machinery. SCIRT utilizes an efficient asset management system stored in the GIS viewer which is loaded up in the Governance file. The info net contains the entire data. SCIRT utilizes a comprehensive data management technique with various management structures such as the asset management structure, design management system, financial management system and so on to deliver an efficient network of data structures and data storage. All in all, the component combines into a primary master data file and are accessed by engineers, designers, stakeholders etc. the master was broken into segments to provide a clearer picture of what goes on in side the database. Linking the G-file and its file formats was used to highlight the structure and model of the G-system.

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