

POLICY GUIDELINES TO IMPROVE DATA GOVERNANCE IN UNIVERSITY
COLLEGE OF AGROSCIENCE MALAYSIA: CASE STUDY

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This research is dedicated to my parents, my family-in-law, my husband and all of my friends. I could not gain this success without your guidance and support.

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ABSTRACT

This research aims to study the current state of data governance and identify the factors influencing it at the University College of Agroscience Malaysia (UCAM). Data governance refers to the overall management of the availability, usability, integrity, and security of the data employed in an organization. An industry best practice and sound data governance program include a governing body, a defined set of procedures, and a plan to execute those procedures. Generally, unless formally addressed, there is an inherent poor data governance in organizations. Particularly at UCAM, apparently there is insufficient allocation of resources to support data governance. There seem to be failures to set up an effective team of ICT Personnel, lack of IT awareness among staff including data security in the workplace and an absence of complete documentation related to Information Security policies. This study will employ mixed method to collect information from users using quantitative method via questionnaires, and qualitative method via interviews. In case any gap is found between the current state and the best industry practice, this work will also propose a guideline to establish the policies needed to address the gap.

ABSTRAK

Kajian ini bertujuan untuk mengenalpasti keadaan semasa tadbir urus data dan faktor-faktor yang mempengaruhinya di Kolej Universiti Agrosience Malaysia (UCAM). Tadbir urus data merujuk kepada pengurusan keseluruhan ketersediaan, kebolegunaan, integriti dan keselamatan data yang digunakan dalam sesebuah organisasi. Amalan terbaik industri dan program tadbir urus data patut termasuk badan induk, satu set prosedur, dan rancangan untuk melaksanakan prosedur. Secara umumnya, melainkan jika ditangani secara rasmi, terdapat tidak baik tadbir urus data wujud dalam organisasi. Terutamanya di UCAM, terdapat sumber peruntukan yang tidak mencukupi untuk menyokong tadbir urus data. Terdapat seolah-olah menjadi kegagalan untuk menubuhkan satu pasukan Personel ICT yang berkesan, kurangnya kesedaran IT di kalangan kakitangan termasuk keselamatan data di tempat kerja dan ketiadaan dokumentasi lengkap yang berkaitan dengan dasar-dasar Keselamatan Maklumat. Kajian ini akan menggunakan kaedah campuran untuk mengumpul maklumat daripada pengguna menggunakan kaedah kuantitatif melalui soal selidik dan kaedah kualitatif melalui temu bual. Sekiranya mana-mana jurang didapati antara amalan industri yang terbaik dan keadaan semasa, kajian ini juga akan mencadangkan satu garis panduan untuk mewujudkan dasar-dasar yang diperlukan untuk menangani jurang.

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LIST OF ABBREVIATIONS

DG	Data Governance
MAMPU	Malaysian Administrative Modernisation and Management Planning Unit
SME	Small and Medium Enterprise
UCAM	University College of Agrosience Malaysia

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CHAPTER 1

INTRODUCTION

1.1 **35** **Overview**

Data governance refers to the overall management of the availability, usability, integrity, and security of the data employed in an organization. An industry best practice and sound data governance program include a governing body, a defined set of procedures, and a plan to execute those procedures. The subject of Data Governance is important as it will help organization to improve the quality of its information. Data Governance activities include monitoring of the data, maintaining the data and managing the data based on rules and policies at every level of the organization. A high quality data ensures that information derived from it can be trusted and useful.

It is unfortunate that many organizations still fail to realize the strategic value of their ICT assets, treating them just like any other asset such as office furniture, for example. As new areas such as “Big Data” and “Business Intelligence” become more prevalent, many companies are also not taking full benefit of the wealth of information that is stored in their systems. It is against such background that the study on governance of data becomes important, and in this project we have chosen to do a case study on the University College of Agrosience Malaysia (UCAM).

Information security can be expressed in terms of threats, risks and vulnerability (Gangwar et al., 2015). Data security which forms one of the fundamental components of information security concerns issues. Such data storage

personnel recruited by the Department of Human Resources, apart from recruitment, there are also other activities including transfer, termination or dismissal of staff. The management staff that uses and manages data must be aware of sensitive information such as salary data, health record, and financial transactions such as staff travel claims recorded by the Finance Department. For the academics, data governance is expected to cover management of confidential information such as exam scores, question papers, students' grades etc. These concerns must be taken seriously to prevent new problems such as data leakage (Olalere et al., 2015).

1.2 Background of the problem

UCAM is a private higher education institution which was promoted in 2014 to the status of a University College which focuses on agriculture. Currently, it has 250 employees consisting of the management and academic, serving a student population of about 3500. UCAM offers Bachelor's Degree, Diploma and Certificate in Agriculture, Business Studies, Computer Science and Social Sciences. It also provides 'in-house' training programs, as part of its core business. In line with the aspiration of "Malaysia towards a developed nation by 2020", UCAM aims to create a generation of academics who contributes ideas in agricultural technology in order to be recognized globally. A research center has been developed to realize that aim. Agricultural technology is very important to improve the socio-economic of smallholders living in rural areas whose income is below RM2,000/month. They now have the opportunity to boost their income up to RM4,000/month through programs such as commercial agriculture offered by UCAM. To champion such initiatives, the UCAM management needs to improve technological capabilities, especially related to ICT which forms the backbone of UCAM academic activities.

Massive growth in information assets has created a major challenge for most organizations (Nardulli et al., 2015). Such assets, typically available in various formats such as text, files/folders, video, email, reports, slides presentations, voice messages (voice mail), memos, and images. The information assets are also found in various media such as CD, hard disk, USB/thumb drives, and organization's server storage.

In the global information environment, the explosion of ICT technologies should be fully exploited by organization, and to achieve that aim, data governance must be managed efficiently. Views are abounding expressed by IT professionals about the challenges of data governance. Data governance best practices should be supported by good tools, high-quality data and internal expertise.

In organization such as UCAM, data security can be at risk if data governance is not well managed. It is obvious that the data stored in department such as Human Resources, Finance and Academic Faculties are confidential and not to be disclosed to unauthorized parties. The work by Aggeliki recommends that IT personnel needs to accept their job role in a good way and should subscribe to the creation of safe communication while encouraging end-users to adopt a good data governance culture (Aggeliki Tsohou et al., 2012).

There are basic characteristics of organizations with a good data governance culture. Any breach or security incidents will be reported directly to the Head of ICT Department. The ICT department in organization such as the one in UCAM is responsible for maintenance of existing computer assets so that they are in good condition and the data stored in them are firmly secured. Management of UCAM for example may engage external parties to provide advisory or consultancy services in data governance. Appointing external parties will help organization to govern data systematically but in terms of data security it may open up risk either intentional or unintentional (Yan et al., 2013).

Data loss is another common problem in many organizations because the organization has no reference guidelines and information security policies in data governance. Especially in the public sector, information security is a line of work or organizational worries that ought to be identified and settled in the state of affairs of the organization's strategic drivers which involve its aims, targets, and purposes (Suhazimah Dzazali and Ali Hussein Zolait, 2012).

One symptom of a poorly administered data governance is when employees perceive that in general information security problems will be managed by the IT

department or other functional areas and thus their own fact of complying with a wish or command practices are not critical (John D'Arcy and Gwen Greene, 2014).

How must UCAM address governance of the data which are in various format and which are stored on various media and locations, ie heterogeneous data? In the case of UCAM, some examples of problems in data governance which will affect data security include:

- Data storage personnel which include recruitment of new staff, termination or dismissal of staff by the Department of Human Resources,
- Salary data and staff travel claims recorded by the Department of Finance, and
- Examination marks and grades recorded by the lecturers.

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There are a growing number of ethical issues regarding the collection and analyses of educational data (Slade and Prinsloo, 2013). Unintentional neglect can be devastating primary (first-hand source) or secondary (acquired from existing resources) such as data corruption (Benoit et al., 2015), data redundancy (Qtaish and Ahmad, 2015) and duplication of data (Skoogh et al., 2012)

3 1.3 Statement of the problem

Based on the background described in Section 1.2, the problem to be researched in this project is that, generally, the current observations in ICT usage shows lack of availability of data. There is currently insufficient allocation of resources by the management UCAM to procure appropriate tools such as software to support data governance. At the same time management has been calling for good data governance practices to all employees.

Another problem relates to the apparent failure by the management to set up a team of ICT Personnel, which is capable and responsible for advising on the overall development of ICT in the UCAM. These include areas such as resources, policies and maintenance.

The next problem in this study is an apparent lack of IT awareness among staff, including data security in the workplace. Backup data is done by the ICT department as well as by outsiders / vendor appointed. Data may be lost due to lack of IT awareness among staff. There exists an absence/lack of importance of IT awareness within an organization to avoid data loss or destruction of data.

The final issue that has been observed prior to this study is the absence of a complete documentation related to Information Security policies. For example, the use of IT resources or how to use a personal computer securely using such as passwords to access the computer or emails, what must a user do upon a virus attack on his computer, unstable internet speed and internet downtime for lecturers to update data on student scores and how to enter sensitive information such as salary data of employees every month.

1.4 Research Questions

The research questions are listed down below:

- i. What is the current state of data governance in UCAM?
- ii. What are the factors which have contributed to the current state of data governance in UCAM?
- iii. What are the efforts which can be done to address the shortcomings which will improve data governance among staff in UCAM?
- iv. What are the relevant Information Security policies to be proposed for better data governance in UCAM?

1.5 Objectives of Study

This study has four major objectives:

- i. ⁵¹ To identify current state of data governance in UCAM.
- ii. To identify the factors which contribute to the current state of data governance in UCAM.
- iii. To identify shortcomings within the current state of data governance in UCAM.
- iv. To propose a guideline to develop appropriate policies this will address the current shortcomings to improve data governance in UCAM.

1.6 Scope of Study³

The scope of this study covers the following:

- i. Location: We plan to cover only the University College of Malaysia Agrosience. However, within the UCAM itself, the study will include data governance in all departments addressing a total of 250 employees from:
 - a. The Department of Human Resource Management
 - b. The Department of Finance
 - c. The Academic Faculties, namely :
 - i. Faculty of Agro Science,
 - ii. Faculty of Business Management,
 - iii. Faculty of Computer Science and
 - iv. Faculty of Social Science.
- ii. Subject area: Our work will cover issues and factors relating to data governance only in the UCAM.
- iii. Proposal for improvement: Our proposal will only focus on guidelines for policy development, although there are other areas as well to be covered in such a proposal.

1.7 Significance of Study

The study will be significant because it will provide information and awareness about the current state of data governance and its weaknesses so that proper measures can be taken. More significantly, the study will also give direct benefits to the primary stake-holders of UCAM which consist of the highest management, its staff, its students and the public at large which engages and interact with UCAM.

To the highest management of UCAM, the finding from this study is particularly important to provide a benchmark on the state of its data governance. The findings should expose what are the problematic areas, and what are the factors that contribute to the problems. Consequently, the highest management will then be able to aggressively follow-up on the findings and recommendations to improve the situation. The information obtained as a result of this study can assist management in preparing UCAM, particularly its policy documents related to data governance.

To the staff of UCAM which consists of the non-academic as well academic, the findings will expose the activities, set of behavior and attitudes which contribute to the current state of data governance. The staff must realize and eventually be aware that in discharging their responsibilities which nowadays inevitably uses ICT, issues such as data integrity, confidentiality and availability must be treated seriously. They must be exposed to the causes of vulnerability in data governance among staff of all departments so that proper steps can be taken. After all, the staffs constitute the most important group that uses and continuously process all kinds of classified data in UCAM.

The student community forms the biggest group of ICT users in UCAM. Although they may not be the ones administering data governance, as the biggest user group their actions will easily impact data governance culture in UCAM. Rogue users, unethical hackers and script kiddies may easily be found among the students who may want to test their skills, a few perhaps in the unguided way. As such, there must be activities which can be planned but targeted specifically to the student community, as a result of the findings of this study. It is also important to expose

them early to the issues of data governance before they join the industry or the work force.

Finally, to the public at large, the study is significant as it gives an indication of how they would be expected to engage and interact with UCAM. External parties, consultants, contract workers and even visitors to UCAM would value the importance of how information is managed in UCAM. Consequently, this will add values in terms of the quality and reliability of information which are derived from data which are well managed and governed in UCAM. Above all, the well managed data governance will lend credence and improve the reputation of UCAM to the public.

1.8 Chapter Summary

In summary, we first presented an overview of the issue of data governance and led on to select UCAM as the organization to do this case study. Next, the background of the problem in data governance in UCAM is discussed. We then gave formal ³ statement of the problem to be solved in this research, followed by the research questions, objectives and scope of ³ this work. The chapter closes with a discussion on the expected significance of this ³ work.

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