PROSIDING

KOLOKIUM

UNIVERSITI TEKNOLOGI MARA PAHANG

2008 - 2009

Defamation Revisited and the Concept and Punishment of Al-Qadzf
Amiruldin Md Sham & Mohd Sabri Yusof

Introduction to New Iterative Method
Mat Salim Selamat

A Review of Trade Dispute Settlement in the Malaysian Manufacturing Sector
Mohd Zahid Laton

Interactive Whiteboard as a Teaching Aid
Nor Zalina Ismail, Mohd Rizal Razak, Azlini Razali & Mahfudzah Othman

Perkembangan Kaedah Analisis Hidrokarbon Aromatik Polisiklik (PAH) dalam Air, Sedimen & Tanah
Siti Norhafizah Khazaai

A Comparative Study between Two Landslide Events at the Sultan Ahmad Shah Mosque, Jengka, Pahang
Rohaya Alias & Mohd Fairuz Bachok

Klasifikasi Hujan Pencetus Tanah Runtuh
Mohd Fairuz Bachok & Rohaya Alias

The Importance of Communication in Our Life
Norlaili Harun

Penghasilan Estolide Berasaskan Asid Risinoleik Ricinus Communis
Nazrizawati Ahmad Tajuddin

Adapting Cooperative Learning (Jigsaw) in Teaching
Mohd Norafizal A.Aziz, Hasnizawati Hashim & Rozieana A.Halid

'Data Rich, Information Poor' Phenomena: Obstacle to Effective Information Management

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ABSTRACT

Information also been known as key corporate asset and it should be developed and managed in a manner consistent with its strategic value. Starting with data collection, then information that needed can be generated. Through storing process, a 'hidden' phenomenon is starting to happen in managing information. the phenomenon called "data rich, information poor" can be describe as situation where there is high volume data stored but few of the data is used or converted into information in assisting decision making or solving problem. The characteristics of D.R.I.P are lack of data extracting, scattered data storage, difficulty to find data, data not use in decision making and bad data characteristics. Factors contribute to the existence are technology development, improper data mining, information management system not integrated and no proper information policy. The solutions for it are managing electronic records, hire a record manager and proper data mining.

Keywords:

Introduction

In our daily routine work, information is so essential in accomplishing our job. Information also been known as key corporate asset and it should be developed and managed in a manner consistent with its strategic value (Mitch Haskett 2000). Most needed is when we are solving our jobs problems. It is solid information that can guide daily activities and important strategic business decisions (John Roulston 2003). Starting with data collection, then information that needed can be generated. After this process, the data that collected is stored in paper or in digital storage (computer or other peripheral). Through storing process, a 'hidden' phenomenon is starting to happen in managing information. After a few years, we realize that the storage space is getting smaller. On solving the problem, we added new space for storage and bought new device that can be use for additional storage. When the same problems occur again, we add new space and new device. What just happen is the amount of raw data stored in corporate database is exploding (Dough Alexander 2007). This is where the "data rich, information poor" started to become the obstacle to effective information management.

'Data Rich, Information Poor' Phenomena

'Data rich, information poor' is widely use by authors in their articles as an old saying in showing of data management problems in their organization or study. Some also put D.R.I.P acronym to show the severe condition in data storing and warehousing.

The phenomenon can be describe as ability to interpret data rationally decrease as the amount of data increases (Paul G. Kaplan & Christopher A. Rautman 1998). Also stated the same situation, Jeffrey L. Jones (2002) defines the phenomenon as under-developed ability to understand and use this data – to convert it to useful information. While Tom Ferraro (2006) defines, "data rich, information poor" as improper capture of information at the time test. It can be define as collecting and processing vast amounts of data but few people make good use of that data (Sandy Stoker 1999).

Based on authors definition above, the phenomenon can be describe as situation where there is high volume data stored but few of the data is used or converted into information in assisting decision making or solving problem.

Characteristics of 'data rich, information poor' phenomena

In identifying the phenomenon, it is necessary to know its characteristics. The characteristic of the phenomenon are:

Lack of Data Extracting

The first characteristic of D.R.I.P is the lack of extracting from data to information. From the vast numbers of data that been collected through many years, only few of data is use in producing information. Data that be stored after few years before, were never been retrieved back and stay in the storage for a longer period. Paul Barber (2003) also expresses that many companies capture data but lack on necessary reporting and analyze it.

Scattered Data Storage

The second characteristic of D.R.I.P is the data stored is scattered in an organization. Most of people do not have formal education on managing information for personal or work purposes. What they do is by managing information with their own way. Tom Ferraro (2006) admits it, as companies stored data scatter in a variety of computers. Data is not managed in a sensible way as it is scattered across different spreadsheets and systems. Looking through a person personal computer, we might found that the file and folder is not properly organized and most of it is placed on the desktop.

Difficulty to Find Data

The third characteristic is the difficulty to find proper data. Without a proper management, longer time is required to found out the data that we need. We have difficulty to find or access when it is needed, and requires too much time and effort. Paul Barber (2003) expressed "manufacturers, service companies, governments are drowning in data yet starving for knowledge".

Data Not Used in Decision Making

The fourth characteristic is data is not used as information in decision making. It is described by Greg Mancuso & Al Moreno (2004) ... having terabytes of data doesn't

further corporate goals of converting data to information, if the data cannot be organized and made useful to facilitate appropriate decision making. Data is used to make information and that information is used to make decision, so it is useless to store data that cannot use in generating information. Many enterprises have numerous operational systems that fail to share common key identifying elements which allow their data to convert to tactically and strategically usable information (Greg Mancuso & Al Moreno 2004).

Bad Data Characteristics

The fifth characteristic is bad data characteristics. This includes characteristics of data format, data trustable, error, redundant data, missing data, not updated data or data accuracy. Tom Ferraro (2006) explains that the most notorious roadblock is companies to store data in inconsistent formats. Mike Brodie & Larrisa Moss (2002) explain producing redundancy data and information means the redundancy must be maintained, thereby adding more time, money and resources in which increases expenses. Mason (2002) justifies it on a study as teachers do not trust data as they have some qualms about data accuracy, data sources and the quality. Huge quantities of data do not show the qualities of the data collected if most of it is obsolete, duplicated and wrong. William Sinn (2003) explains that a report from National Underwriter assumed that only .001% of a company's data is bad and that companies would attempt to fix only the 10% of errors that are critical to the business.

Factors Contributing to 'Data Rich, Information Poor' Phenomenon

The "data rich, information poor" phenomenon has its unique characteristics. By identifying the factors, the proper solution and remedies can be determined to solve the phenomenon.

Technology Development

The first factor that contributes to "data rich, information poor" phenomenon is technology development. Judy Evans (2004) explains that new technology has made people easy to capture and store any data or information that they want but fail to interpret it. Jeffrey L. Jones (2002) also explains the factor by giving a statement that massive increase in data is direct result of our technological revolution.

Improper Data Mining

The second factor is improper data mining. Sometimes people have no knowledge on technique to store and search proper data. If the right data is not collected, it will not have any relevance for business (Eric A. King 2005). Most of us stored the data that we collect in the storage without knowing what to do with it. Many organizations do not use the data; they still process and store it. Randy L. Thomas (2006) explains leveraging vast store of data to support improvement is not solved by dumping all data in a giant data warehouse.

Information Management System Not Integrated

The third factor is information system is not integrated. Jeffrey C. Wayman and Sam Stringfield (2004) explain that school districts and state education agencies have collected and stored vast amounts of student data for years and unfortunately, this data is often stored in ways that are inaccessible to most practitioners. It is because data stored in disconnected systems including databases, web sites and file systems. Eric A. King (2005) explains that with data from multiple sources, but lacking tools to organize and intelligently analyze it, companies will become "data rich but information poor". Adriaan Vorster (2004) explains as each site has customized systems, which are resistant to change; this requires a significant amount of manual intervention, while many repetitive tasks that should be automated are still being done manually. Greg Mancuso and Al Moreno (2004) explain that many enterprises have numerous operational systems that fail to share common key identifying elements which would allow data to convert to tactically and strategically usable information.

No Proper Information Policy

The fourth factor that contributes to "data rich, information poor" is no proper information policy. Mike Brodie and Larissa Moss (2002) explain few organization mandate a proper information policy for their organization. John Teresko (1999) explains data and information can be determined whether is used properly or not by looking at the policy applied by the organization.

Solutions or Remedies

Some solutions and remedies are given by some authors. The remedies or solution that can be use to solve the phenomena are:

Managing Electronic Records

Particular concerns exist about the ability to retain and still be able to access and read digital records over time. Digital records require a particular combination of software version and operating system to be accessed and are at risk because of the rate at which technological changes occur.

> "We have the advances in technology coming along thick and fast. We have a multitude of systems – financial systems, statistical systems, and HR systems (Stewart Brown 2001)".

Unlike physical records, digital records cannot be read without a computer or other machine. Functional requirements for computer systems that can be used to manage electronic records have been produced by Malaysia are the National Archive Act 2003, Records Management ISO 15489, ICA Code of Ethics and Article 2 and ISAD (G).

Hire a Record Manager

A Records Manager's role is to ensure effective content records management, practice, procedure and compliance with the National Archive Act 2003, Records Management ISO 15489, ICA Code of Ethics and Article 2 and ISAD (G) in Malaysia.

Thomas Jefferson (2006) also lists responsibilities of Record Manager which are:

i. Records management responsibilities must be clearly defined and assigned and make known throughout the organization.
ii. The records management program has to be staffed by skilled people and access to skilled people is critical to the success of records management.
iii. Organizations should be able to access records management skills internally through recruitment, training and development or, alternatively, externally through appropriately qualified consultants. In a medium to large organization, this will require skilled records management position/s, in a smaller organization; this may be a role with other responsibilities. The role should have a clear connection with related activities and obligations in respect of freedom of in formation and data protection compliance.
iv. Priorities for the Record Manager will be to assess the need for records management support staff and to establish a competency framework to identify the skills and knowledge required by records management staff.
v. Where the need for additional resources has been identified, measures should be implemented to ensure that the required records management support staff are in place. The responsibilities of each person undertaking records management roles should be set out in a performance agreement, role description or similar document, within one month of appointment.
vi. In a large organization where responsibilities or devolved or distributed, the organization may require each business unit to manage its own record from within its own resources. In this environment there will still be a need to coordinate best practice across the organization and the senior record manager charged with that responsibility will need to be empowered to set minimum standards and resource requirements which will be mandated across the organization.
vii. The identification of professional skills and knowledge will enable departments to recruit and train staff at a level which will ensure that the records management functions acquires the appropriate professional standing.
viii. Records manager are expected to input data using computers and other technologies in an orderly manner, but handle other essential tasks.

Proper Data Mining

King (2005) suggests proper data mining can be use in overcomes the phenomenon. This technique that is used to perform is called modeling. Modeling is simply the act of building a model (a set of examples or a mathematical relationship) based on data from situations where the answer is known and then applying the model to other situations where the answers are not known.

Richard Marsh (2005) suggested data required the following key attributes:

Accuracy	: is the information correct, objective and can it be validated?
Integrity	: does it have a coherent, logical structure?
Consistency	: is the data consistent and easily understood?

Completeness	: does it provide all the information required?
Validity	: is it within the acceptable parameters needed by the business?
Timeliness	: is it available whenever required?
Accessibility	: can the data be easily accessed and exported to other application?
Compliance	: does it comply with regulatory and industry standards?

Love (2001) explains five (5) elements for effective use of data are:

i. Build a professional culture. Effective use of data happens in the context of robust professional learning community, where teachers and administrators are clear about their vision and commitments, focused on results for students, collaborative and reflective about their practice.
ii. Create collaborative structure. If teachers are going to analyze data, generate strategies to improve students learning and monitor the results, they need time to meet regularly in department meetings, grade-level teams, groups etc.
iii. Engage in data-driven dialogue and collaborative inquiry. Data-driven dialogue requires groups to come to deeper and shared understandings of data. Participants need to practice collaboration and gain skills in data analysis. This involves considering all types of data, such as surveys of classroom practice, curriculum maps, enrolment data, classroom observations, evidence of student work or student interviews. This collaborative inquiry lays the groundwork for the decision making and action planning that follow. Avoiding polarization or false consensus, staff truly commit to a specific improvement goal, take collective action and monitor results.
iv. Learn what you can from standardized tests. Summary test results provide little guidance to teachers about what to do to improve instruction. Provide disaggregated data that uncover gaps in performance between girls and boys, indigenous students etc. Consider item-level data, which can uncover what particular content strands students are struggling with and what items in particular are troublesome.
v. Use multiple measures, including common grade-level, subject-level, subject area or course specific assessment. Teachers can choose assessments right from their units to administrator collectively, following the same process. Adding common grade level or course assessments to your assessment system provides a clear focus for collaborative inquiry into improving students learning and is motivates teachers.

Conclusion

'Data rich, information poor' phenomena can cause a lot of problems from many aspects. An organization should take an action and plan properly in managing its data and information. As a content and information provider, each data and information is critical in planning, organizing, leading and controlling every activities and decision-making. As the problems have been recognized, we should list the alternatives that it has, evaluate the alternatives and make a decision, which should be the guide in improving the information management. Top management should embrace a strong stand on the issue and show its commitment. Meanwhile, all levels of management should support and practice all the implementations on it. The consciousness of the impor-

tance of information management and development will help the organization to be the first knowledge center that runs along the development of the information age. It will also help the organization overcome the problems that it faces.

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