**Unit 14 – Business Intelligence**

**B.I - Data Structures & Supply Chain Management**

**Differences between unstructured and semi-structured data within an organisation**

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# Introduction

This report will analyse and differentiate between unstructured and semi-structured data within an organisation. It also compares the tools and techniques associated with business intelligence functionally. This report will also discuss about the data structures and supply chain management in an organisation.

**Types of Data Structures and how it’ll affect WFP -**

**What is structured Data ?**

Structured data is information whose components can be used for an accurate evaluation. It has been compiled into a structured server, which is usually a file. This affects all information that can be processed in the SQL database in a row and column table. We have dynamic keys and can be conveniently mapped to pre-designed fields. Currently, these data are mostly processed in the most advanced and simple way to manage information. Example: Relative data.

**How will this benefit the data structure for WFP -**

**1. Easily used by machine learning algorithms:**

The greatest benefit of structured data is how quickly machine learning can be used. The precise and ordered design of the structured data makes it easy to access and search for information. This will greatly benefit the WFP and will save valuable time and charitable funds in the future of the company.

**2. Easily used by business users in this case by the WFP**:

A further strength of structured data is that it can be used by an average business client with an understanding of the subject to which the data refers. There is no need for an in-depth understanding of the various types of data or the interaction of the data. Opens the exposure to self-service information to the WFP.

**3.Increased access to more tools:**

WFP’s information also has the benefit that it has been in use for a long time, as it has traditionally been the only alternative. It indicates that there are more methods that have been tried and tested in the use and study of structured data. Information administrators have more selection of items when using structured data.

**How will this limit the data structure for WFP -**

**1. A predefined purpose limits use:**

While on-write-schema software description is of great benefit for structured data, it is also true that ata with a predefined form can only be used for its intended purpose.

**2. Limited storage options:**

Existing information is typically housed in data stores. Information stores are data storage structures with static schemas. Any shift in specifications involves upgrading all of the structured data to meet new needs; it results in a huge investment of resources and time. Some of the drawbacks can be mitigated by using a cloud-based data warehouse, as this allows for better scalability and reduces the maintenance costs of on-site hardware.

**What is Semi - structured Data ?**

Semi-structured data is material that does not exist in a relational database but has some institutional properties that make it easy to evaluate. With some method, you should store it in the partnership server (it could be quite hard for some kind of semi-structured data), but Semi-structured is available to make it simpler. Example: data from XML.

**How will this benefit the data structure for WFP -**

* This helps to build a positive relationship between the interviewer and the interviewee. ̈
* A very easy, effective and realistic way of obtaining information regarding items that can not be readily seen.
* ̈The reliability of the evidence is strong as it is obtained directly from the source; in turn, people are able to discuss the subject or problem in context and in depth.
* ̈It can help to clarify and analyse complex issues and concerns.
* Researchers should pose questions in advance so that only the relevant issues are discussed during the interview. This will save money for the WFP.

**How will this limit the data structure for WFP -**

* This technique depends on the ability and skills of the interviewer, i.e. the ability to think about questions during the interview.
* The better the questions the better the data will be collected.Interviewer might give out unconscious cues or signals that guide the respondent to give answers expected by the interviewer.
* This approach is time consuming and expensive as you have to go through each person on your own. The data collected may not be accurate, as it is impossible to replicate exactly the same type of question.
* The complexity of qualitative data may be difficult to analyse, as you may not realise what is important and what is not.
* The investigator has no real way of knowing whether the respondent is lying or telling the truth. In fact, the interviewer may not cheat, but may not be able to recall some particular thing.

**What is Unstructured Data ?**

Unstructured data is data that is not organised in a pre-defined manner or does not have a predefined data model, is therefore not a good fit for a mainstream relational database. As a result, there are alternative platforms for storing and managing unstructured data, which are increasingly prevalent in IT systems and are used by organisations in a variety of business intelligence and analytical applications. *Example*: Word, PDF, Text, Media logs.

**How will this benefit the data structure for WFP -**

**1. Freedom of the native format:**

Because unstructured data is stored in its native format, it is not defined until it is needed. This leads to a larger pool of cases of use, because the purpose of the data is adaptable. This helps data scientists to plan and interpret only the data they need in the WFP.

The native format often provides for a wider variety of file formats in the server, as the information that can be processed is not confined to a specific format. It means that the company has more information to choose on.

**2. Faster accumulation rates:**

Another advantage for unstructured data in the WFP is the level of data accumulation. There is no need to predefine the information, which ensures that it can be obtained quickly and easily.

**3. Data lake storage:**

Unstructured information is often housed in cloud data lakes which make for huge processing. Cloud data lakes often make it possible to pay-as-you-use space rates, which help to reduce savings and promote scalability. This will greatly benefit the WFP and will save valuable time and charitable funds in the future of the company.

**How will this limit the data structure for WFP -**

**1. Requires data science expertise:**

The biggest drawback of unstructured information is the need for data science skills to process and analyse data. Due to its undefined / unformatted nature, the WFP can not use unstructured data as it is. Use unstructured data needs an understanding of the subject or field of the data, but also an awareness of how the data can be related to make it useful.

**2. Specialized tools:**

In addition to the expertise required, unstructured information requires specialised techniques to be exploited. Standard data solutions are designed for use with structured data, leaving an information administrator with limited choices of unstructured data items, some of which are still in their infancy, this will bring down the funds for the WFP and lead to debts and losses.

**Differences between Structured, Semi-structured and Unstructured data for the WFP:**

|  |  |  |  |
| --- | --- | --- | --- |
| **PROPERTIES** | **STRUCTURED DATA** | **SEMI-STRUCTURED DATA** | **UNSTRUCTURED DATA** |
| Technology | It is based on Relational database table | It is based on XML/RDF | It is based on character and binary data |
| Transaction management | Matured transaction and various concurrency technique | Transaction is adapted from DBMS not matured | No transaction management and no concurrency |
| Version management | Versioning over tuples,row,tables | Versioning over tuples or graph is possible | Versioned as whole |
| Flexibility | It is schema dependent and less flexible | It is more flexible than structured data but less than flexible than unstructured data | it very flexible and there is an absence of schema |
| Scalability | It is very difficult to scale DB schema | It’s scaling is simpler than structured data | It is very scalable |
| Robustness | Very robust | New technology, not very spread | \_ |
| Query performance | Structured query allow complex joining | Queries over anonymous nodes are possible | Only textual query are possible |

**Supply Chain Management for WFP -**

**What is Supply Chain Management ?**

Supply chain management is the management of the flow of goods and services and includes all processes that convert raw materials into final products. This requires the successful streamlining of supply-side business activities in order to optimise product loyalty and achieve a competitive advantage in the marketplace.

SCM is an initiative by manufacturers to develop and implement supply chains that are as effective and competitive as possible. Supply chains include everything from manufacturing to brand design to the information systems required to coordinate such undertakings.

**How Supply Chain Management Works in WFP ?**

Usually, SCM attempts to centrally monitor or connect the production, delivery and distribution of the material. Through handling the supply chain, WFP is able to reduce additional expenses and produce goods more efficiently to the customer. This is achieved by keeping tighter control of corporate inventories, internal development, supply, marketing and inventories of client vendors.

SCM is based on the idea that almost any commodity which falls onto the market is the outcome of the actions of the various organisations which make up the supply chain. While supply chains have operated for years, many businesses have only recently paid attention to them as an added value to their operations.

**In SCM, the supply chain manager coordinates the logistics of all aspects of the supply chain which consists of five parts for the WFP:**

* The plan or strategy
* The source (of raw materials or services)
* Manufacturing (focused on productivity and efficiency)
* Delivery and logistics
* The return system (for defective or unwanted products)

The Supply Chain Director aims to eliminate gaps and reduce costs. It's not just about storage and stock buying. According to Salary.com, Supply Chain Managers, "make recommendations for increasing profitability, reliability and operational efficiency."

Enhancements in efficiency and quality go back down to the bottom line of an organisation and have a real and tangible effect. Effective supply chain management takes businesses out of the spotlight and far from costly accidents and lawsuits.

**What are Supply Chains in WFP ?**

The supply chain is a network of people, organisations, services, practises and technology participating in the manufacture and sale of a product or service. The supply chain starts with the shipment of raw materials from the producer to the distributor and finishes with the delivery of the final product or service to the end consumer.

SCM oversees every point of contact of a company's product or service, from its inception to its final sale. With so many supply chain locations that can add value through efficiencies or lose value through increased costs, proper SCM can increase revenues, reduce costs and impact the bottom line of the WFP.

### Conclusion

This report discusses the differences between unstructured and semi-structured data within an organisation. It also compares the tools and techniques associated with business intelligence functionally. This report will also discuss about the decision making structures and strategic layers in an organisation.

Supply Chain Management (SCM) is a centralised management of the flow of goods and services and encompasses all processes that transform raw materials into final products. By managing the supply chain, companies are able to reduce excess costs and deliver products more quickly to the consumer. Effective supply chain management takes businesses out of the headlines and away from expensive accidents and litigation.