

Written Report
(Assessment Component 1)

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Student Name: Enes Erdzhan Mustafov

Student ID: 2007660

Lecturer: Mr. Khaza Ahmed

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Introduction.

Data Warehousing (DW) and Business Intelligence (BI) are the technologies used by most of the businesses nowadays to help them to operate better and make important business decisions. Data Warehousing is about the process of collecting, storing, and managing a large amount of data while Business Intelligence is the process of transforming this data into information that can be used for decision making. In today's modern world, these methods are highly preferred by the business owners because it helps them to effectively manage and analyse the data, it enables them to gain insights into their business and take better decisions or make changes based on the data, so it can lead to a better outcome. The report will provide an overview of Data Warehousing and Business Intelligence and their importance, the data warehousing architecture, the tools used in Business Intelligence and how businesses can utilize them to achieve better results and improve performance, and the impact those methods have on modern businesses.

1. Data Warehousing (DW) and Business Intelligence (BI)

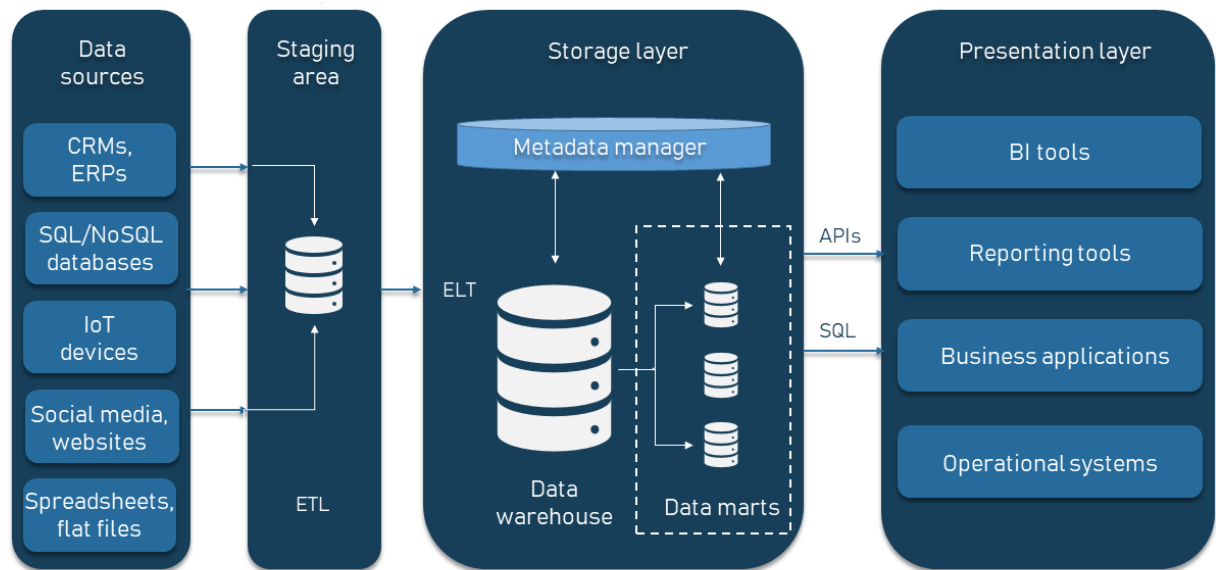
Data Warehousing and Business Intelligence are technologies used by almost every modern business, they play huge roles in helping organisations to take important decisions. Data Warehousing is made to collect data from multiple different sources and proceed to be stored in a way that's easily accessible so it can be used later for analysis and reporting. All the stored data is used to support management's informed decision-making. The data stored in the data warehouse can be either structured data which can be presented as dates, numbers, strings or unstructured which occurs data images, videos, customer feedback from social media. On the other hand, Business Intelligence is processes and tools used to transform the collected data from the Data Warehouse in a meaningful way, which can be used later within the business's current or future goals. The goal of Business Intelligence is to help businesses discover new trends, make informed decisions, understand their customers and the market, and also to improve the overall performance of their business.

For example, Business Intelligence can be used in market analysis which will help them to quickly adapt to any new changes and trends. (Kimball and Ross, 2013)

2. Importance of DW and BI, including the DW architecture.

These technologies are very important to modern businesses because it gives them the ability to make informed decisions towards the market movement. Having all the data stored and analysed in the system using both technologies, helps organisations to understand their customers, be aware of new trends and identify areas of improvement. Data Warehousing and Business Intelligence are also important because it gives organisations a competitive advantage, with the access to the accurate data, businesses can make the right decisions instead of hoping on intuition. This will also help them to improve efficiency, be aware of the risks and be more strategic in planning, which will help them with the growth of their business. (English and Hoffmann, 2018)

2.1 DW Architecture



(AltexSoft, 2022)

Data Warehouse Architecture is a system designed to store and manage data for businesses, so it can be used for reporting and analysing. It has several components:

1. **Data Sources:** all the sourced data in the warehouse, from external data sources.
2. **Data Extractions:** staging area where data is temporarily stored and prepared to be loaded in the data warehouse.
3. **Data Warehouse:** where all the data is stored and optimised for analysis.
4. **Presentation Layer:** the interface of the Business Intelligence which is generating reports based on the stored data.
5. **ETL:** Extract, Transform, and Load tools are used to extract data from the various sources, transform it how the data warehouse requires and load it in the data warehouse.

(AltexSoft, 2022)

3. Business Intelligence tools being used by businesses

Business Intelligence tools are very popular among modern businesses nowadays because it allows them to collect, process and analyse a large amount of data which contributes to improving their performance. Data visualisation tools, reporting tools and data analytics tools are the types of BI tools. Data visualisation tools plays a role to present data in an interactive and creative way, it can be charts or dashboards. Reporting tools on the other hand helps businesses to generate reports based on the data collected and allows sharing data insights, it can be used for sales report. Data analytics tools performs the hardest part, it deals with complex data analysis, it provides data mining and helps businesses to make their data more sensible which contributes to better decision making.

Some examples of the most preferred Business Intelligence tools are:

1. SAP: SAP is one of the world's leading software companies that is offered in 127 countries around the world, it offers to its customers a big range of tools which can be used towards their business improvement with ease, because SAP is created to be flexible and scalable, giving an opportunity to the businesses to react if their needs change.
2. Microsoft Power BI: this tool is cloud-based developed by the Microsoft company that provides data analysis and visualisation tools. It gives the opportunity to businesses to create interactive dashboards, data models and reports.
3. Qlik: Qlik is self-contained Business Intelligence platform that provides data analytics and BI solutions, which focuses on self-service data discovery, it has best integrated BI tools which contributes to creating highly interactive applications.
4. Tableau: Tableau helps businesses to be more data-driven, the tool is used to easily create dashboards and reports. It connects to a large amount of data and helps to analyse it in real-time.
5. Sisense: is one of the most preferred tools because it's simplified. With Sisense businesses can extract data from Google Analytics, the software allows faster data processing than most of the competitors because of its well created technology.

(Gartner, 2011)

4. Impact of DW and BI on modern businesses.

The use of Data Warehousing and Business Intelligence has a big positive impact on modern businesses, it improves their performance and contributes to making their goals more likely achievable. For example, DW and BI has a great impact on the hotel industry in Thailand. By using both DW and BI tools the organisation reached high levels of customer satisfaction and benefited a lot from using AI systems like managing booking and purchasing, tracking customer preferences, this way the organisation is able to provide their customers more personalised services. Using these modern tools creates a good self-image and contributes to a strong business advantage, because the organisation utilized the modern technology and stands out in front of other businesses. An example by Tong-On, Sirpipatthanakul and Phayaphrom (2021, pp 1-16)

Conclusion

Overall, the report included how important Data Warehousing and Business Intelligence is for modern businesses, especially for their data management. Both tools provide businesses with so many benefits, such as make informed decisions and improve their performance. Explanation on how Data Warehousing Architecture was given, how it works and what are the exact steps to store and analyse data. The most used Business Intelligence tools were discussed, with explanations how they work and in what area they are more useful. An example was given on what impact both Data Warehousing and Business Intelligence has on the hotel industry in Thailand, the impact was significant on their performance. By the help of these technologies, hotels were able to understand their customers and provide the best possible services.

Reference List

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