

***A Report on NomNom Chocolate's Data  
Management and How Their Systems Can Be  
Developed in The Future***



**November 2018**

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### **1. EXECUTIVE SUMMARY**

This report looks at data and its impact on Nom Nom Chocolate, a small Welsh company. First this report outlines that database management systems are systems that manage and store a company's data, these systems can benefit a company in multiple ways, particularly by increasing their efficiency with tasks, as well as increasing understanding of their customer base. However, such systems do have drawbacks, these drawbacks tend to fall within their need to be managed, the management of such systems can sometimes become complex.

In terms of computerised management systems that are available to Nom Nom Chocolate, it has identified that programs such as Microsoft Access and Oracle could prove useful to them. These programs would be useful due to Nom Nom Chocolate's need to store customer details particularly for online transactions. It is not forgotten that before this data can be stored on a database first it needs to be collected, it becomes evident that Nom Nom Chocolate could utilise programs such as Fast Field Forms in the future.

In terms of big data, big data is everywhere, we leave a trail of information behind us with everything we do. It seems essential to an organisation's success that they exploit the benefits big data has to offer, these benefits help companies such as Nom Nom Chocolate keep up with market trends faster than ever before.

Finally, it is detrimental that it is imperative that all businesses comply with the GDPR, if they want to avoid legal consequences. The GDPR protects personal data, putting strict guidelines in place for both controllers and processors of data, the GDPR applies to Nom Nom Chocolate as they collect and process customer data for transactions, as well as marketing activities.

## **INTRODUCTION**

### **2. INTRODUCTION TO MANAGING DATA**

#### **2.1 DEFINITION**

Wilson (2006) clearly defines managing data as “a manual or computerised source of data relevant to marketing decision making about an organisation”. Whereas Tapp (2008) refers to the process of managing data as sourcing, entering, and storing data on a database. This data will be continually managed, involving keeping the database up to date. The CIM (2005) refers mostly to the electronic database management systems (DBMS) defining them as “a modern-day business database maintained on a central computer to enable sharing of data and avoid duplication; consisting of a number of inter-related tables of records and fields”

Tapp (2008), Wilson (2006), and the CIM (2005) all agree that the key steps to managing data include; Managing the data sources, managing the data entry, managing the database, and managing the applications. Wilson (2006) states that data is a raw material; However, multiple pieces of data can be retrieved from a database, allowing a broader understanding of a customer. Wilson (2006) goes on to say that the relationship between data is important when obtaining information. Using an example of the length of time a business has retained a customer for, this can be done by measuring the length of time between the customers first transaction and their most recent transaction.

#### **2.2 BENEFITS OF SYSTEMS**

Wilson (2006) recognises the major benefits of a data management systems to include; The ability to manage large volumes of data, the prevention of duplication, as well as increased security and consistency of data. Kuznetsov (2018) reinforces the previous statement, he continues by stating that these main benefits inevitably lead to the increased efficiency of processing data. Hurwitz, et al., (2013) implies that a database that guarantees persistence is one of the most important benefits data management systems have to offer; Persistence means that data stored on a database will not be changed without permission, that as long as the data is needed it will always be available to the company.

## INTRODUCTION

### 2.3 DRAWBACKS OF SYSTEMS

Chin (2004) discusses the long-time issue that a company's data is often spread across many different systems, and how this can greatly complicate the process of providing the right information, to the right person, quickly. Chin (2004) refers to the lack of standardisation of key terms, this leads to a company not having access to the information they want to use for a project, research, or marketing despite having it stored on one of their own systems. Chang (1999) reinforces this by stating that a large percentage of data is inaccurately given due to the way it has originally been stored. Tapp (2008) incorporates all of the previous issues in a blanket statement, that databases need large scale management, to ensure cross department co-operation is present there is a large amount of commitment needed from the senior management. As well as the need to comply with current data protection regulations.

### **3. COMPUTERISED DATA MANAGEMENT SYSTEM**

Hurwitz, et al., (2013) states that the choice of a company's Database Management system is fundamental to that company's success. Kuznetsov (2018) talks about relational databases (RDBMS), these are databases that allow the user to both view and analyse data. Collins (2008) defines this type of database as "A data model that views information in a database as a collection of distinctly named tables". With Codd (1970) being the first to propose the relational database, these databases commonly use a Structured Query Language (SQL) sublanguage. The RDBMS type of database has since become widely available and has been commonly used for over thirty years, possibly due to their low-cost nature. Harrington (2009) refers to data being the foundation of what any business does, Harrington (2009) uses a small book store as an example stating that although the store does not have a computerised database, it still has data. This is directly relatable to Nom Nom Chocolate in terms of the size of the business.

Harrington (2009) touches on Microsoft access as being a suitable RDBMS for a small business, particularly geared towards single user companies. Microsoft (2018) offer Microsoft access as part of most of their Microsoft office suites available for the PC, Harrington (2009) highlights this software's limitations to be within its inability to grow effectively, with a fast expanding business, due to its single user orientation. However, a DBMS such as Oracle's software has a better ability to grow with an organisation. Oracle (2018) and Harrington (2009) state that Oracle is a DBMS that is designed for larger organisations, however they offer programs more suited to smaller companies that enable the company to grow. Oracle (2018) claim to be "reshaping shared services with AI" storing their information on a "cloud" server. Oracle.com (2018) explain that they have multiple packages to offer, a business can customise these packages to match their specific needs. Meaning that a company such as Nom Nom Chocolate can customise an oracle system to allow them to store data such as, but not limited to; customers address, transaction history, current stock, supplier information, and recipes. Harrington (2009) highlights open source software as being another widely used option for database

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management due to its significantly lower cost, with that said it is crucial that an open source software user is more aware of how to program a database effectively.

The BBC (2018) highlight the importance that before you can store data on a DBMS, first you must collect it, this can be done using simple collection forms on websites, some companies use android or IOS apps that's only purpose is to collect data. An example of this is Fast Field Forms (2018) who create mobile data collection forms, the benefits of using a collection system or form include, easy validation, standard format, they use less disk space, as well as ease to add to a database.

### **4. FEATURE OF DATA MANAGEMENT**

#### **4.1 AN OVERVIEW OF BIG DATA**

Fasli (2014) and The Economist (2012) indicate that Big Data refers to data sets that are too big to be collected, stored and managed by traditional data management systems, Big Data can have the ability to reveal associations, trends, and patterns particularly relating to human interactions and behaviours. Fasli (2014) states that we are making more data now than we have ever before, that we are at risk of drowning in data, we leave a trail of information behind us with everything we do. Both The Economist (2012) and IBM (2018) highlight that even simple tasks like turning a light switch off and on are leaving a trail of information behind us. The IBM (2018) refer to artificial intelligence (AI), the internet of things (IoT), mobile, and social factors to be the driving force of the growing complexity of data. The IMB (2018) state that companies that are analysing big data are twice as successful as their competitors who are not.

Hurwitz, et al., (2013) suggests that big data has the ability to enhance customer experience as well as transform their businesses model, with the potential to become one of the most important technology trends of modern-day data. Hurwitz, et al., (2013) continues that no company should isolate big data from their own operational database systems, continuing they should be analysed collectively. Fasli (2014) highlights the importance big data has to an organisation, in terms of its ability to help companies

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make decisions based on human behaviours and trends, these behaviours and trends are becoming somewhat predictable to organisations. The Economist (2012) highlights that companies using and analysing big data have the ability to be more innovative than ever before. Big data allows organisations to understand customers better than ever before, that it allows for products to be marketed and targeted at customers in ways that they never have been able to before. Hinchcliffe (2018) identifies some of the benefits big data can have to a business as being, faster response to market trends, mass customisation of services, as well as identifying real time cost opportunities, these benefits and the process to achieve them can also be seen in Appendix A.

### 4.2 WHAT BIG DATA MIGHT MEAN TO NOM NOM CHOCOLATE

Hammergren and Simon (2009) identified that “data warehousing” and “data mining” where two key activities that contribute to a company’s success made possible by big data. The Cim (2005) refers to data warehousing as data that has been collected from various organisational databases that is stored by a central source, this broad variety of data creates a clear depiction of business conditions to an organisation. Tapp (2008) and Wilson (2006) both highlight data mining to reveal previously unknown relationships between pieces of data that can be then used to benefit a business. Hammergren and Simon (2009) as well as The Economist (2012) highlight the theme that, the effective use of big data to an organisation will, and to some extent has already become curtail to the success of any organisation regardless of size, in our rapidly developing world. This means that Nom Nom chocolate will have an increased ability to follow and analyse trends, giving them the opportunity to faster respond to market trends, around Christmas and Easter for example. As well as the ability to market their products on a more personal level, with more effective marketing than they would have been able to achieve without the help of big data.

## **DISCUSSION**

### **5. GENERAL DATA PROTECTION REGULATIONS**

#### **5.1 AN OUTLINE OF THE GENERAL DATA PROTECTION REGULATIONS**

The European Union (2018) refers to The General Data Protection Regulations (GDPR) to be the “most important change in privacy regulations in twenty years”, continuing that the GDPR is fundamentally reshaping the way every sector must handle its data. The European union (2018) states that the GDPR applies to all organisations that are handling both directly identifiable and indirectly identifiable personal data, this includes fingerprints, to personal email addresses, and everything in-between. The ICO (2018) highlight the importance that the GDPR applies to both ‘controllers’ and ‘processors’ of data, a controller decides the use of data and how it will be processed, a processor processes the data usually on the behalf of a controller. The ICO (2018) make it clear that both a controller of data and a processor of data can be held legally accountable. A processor of data has legal liability if there is a breach in the processing or managing if their data, the controller is obligated to ensure that they have adequate contracts in place with their data processor guaranteeing they are following the GDPR.

The Harvard Business Review (2018) refers to the GDPR as the beginning of the ‘era of consent’, the ICO (2018) reinforce this by saying one of the ways to be able to store and process personal data is by obtaining the individual in questions consent to do so. The ICO (2018) states that if an organisation does not have consent to store and possess personal data then their reason for storing or processing data must meet one or more of the other set strict criteria. This criterion includes but is not limited to, legal obligation, legitimate interest, or a lawful basis for processing. The European Union (2018) also highlights the criticality of a company being lawful, fair, and transparent, in the reasons for their use of personal data.

#### **5.2 HOW THE GDPR EFFECT NOM NOM CHOCOLATE WHEN MANAGING AND CONTROLLING THE DATA IT COLLECTS**

With what is highlighted in the above section considered the first step is to identify the type of personal data Nom Nom Chocolate will likely be storing and processing. Nom Nom Chocolate (2018) will need from each online customer, an address, email address, card details, name, and phone number, for them

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to carry out a basic transaction, the initial need for this data would fall into the legitimate interest section of the GDPR. This is due to them genuinely needing to take this data to complete their transaction. However, it is not the case for their ability to store and process this data after the initial transaction, for example to carry out market research, or to send promotional offers to in the future. According to both the ICO (2018) and the European Union (2018) Nom Nom chocolate would have to gain consent via a lawful, truthful, and transparent method that outlines their intentions for the data, in order to store and process it after this point or risk facing potential legal action

### **6. CONCLUSION**

To conclude, database management systems are critical to a successful organisation, including a small company such as Nom Nom Chocolate, they help store data in an effective organised manor. Despite sometimes being complicated to use and or manage, the benefits they have to offer an organisation are tremendous. From the small scale of an individual customers transaction history, to the much larger scale of looking at previous product sales and trends to help with stock the following year.

While there are a variety of systems available it seems that there are systems to meet the needs of all businesses, Microsoft access having been developed from a relational model initially developed in the 1970's. Examples such as oracle offering multiple flexible systems that suit most businesses. The future of data is going to become reliant on big data, due to the trail of information society now leaves behind itself. However, it is crucial that companies comply with the GDPR particularly with big data which often includes a significant amount of personal data. Due to the limitations of this report not all aspects of data management could be considered in depth, future considerations may take an in-depth look at the extensive variety of DBSM's that are available.

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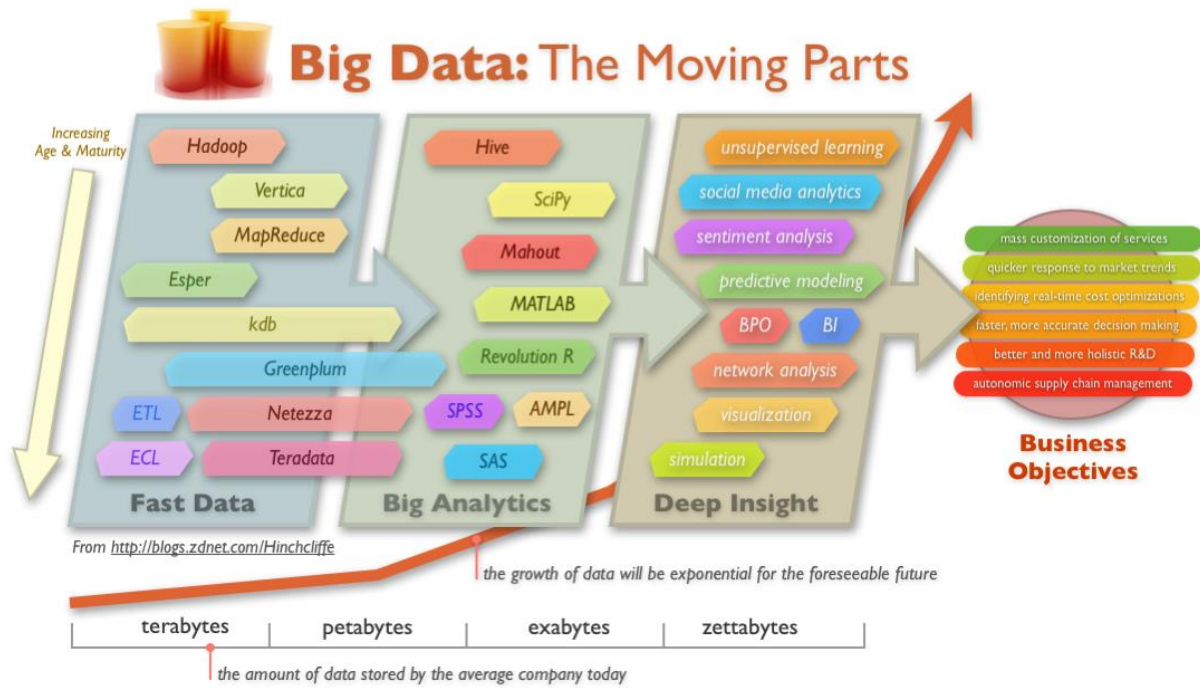
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## 6. APPENDICES

## Appendix A



Source: <https://www.enterpriseirregulars.com/40616/the-enterprise-opportunity-of-big-data-closing-the-clue-gap/>