University of KwaZulu-Natal

The Impact of Information Overload on Employees at Vodacom Umhlanga Regional Office

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Abstract

Information overload on employees is one of many factors that impact on staff in an organization. This research sought to understand the impact of information overload in an organization. It was conducted at Vodacom Umhlanga regional office. Its objectives were to determine which business functions were susceptible to information overload, also to figure out causes, the effects as well as coping methods used by employees.

This was a cross sectional, descriptive and quantitative study for which a questionnaire was administered among one hundred and twenty respondents at Vodacom, Umhlanga. Empirical findings of this research suggested that periods such as month end period or promotion periods contribute to feeling of information overload in departments such as Marketing, Customer Care and Finance. Also, departments that handle printed sources are susceptible to feelings of information overload more than departments that do not. Findings also suggested that employee skills or amount of working time did not weigh more than amount of emails received and performance of adjacent teams as the causes of information overload. Further findings suggested that as a result of information overload, employees miss their deadlines or work piles us. They largely cope with information overload by being organized, seeking assistance from other employees or working extended hours.

As recommendations, employees were advised to be on alert on factors that cause information overload at a personal level and are advised to keep organized. Management was advised to craft service level agreements between adjacent teams in order to manage expectations. Management was also advised to send its employees to time management courses.

Declaration

I, Mondli Zibhebhu Pascal Mabaso, declare that,

(i) The research reported in this dissertation/thesis, except where otherwise indicated, is my original research.

(ii) This dissertation/thesis has not been submitted for any degree or examination at any other university.

(iii) This dissertation/thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.

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SIGNATURE: _____

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I would also like to thank my immediate family, my mom, my fiancé Lerato and my daughter Lindokuhle for being part of my life. I would like to dedicate all of my work to my late father, Michael Mabaso who planted the initial seed in me to love education.

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Acronyms and Abbreviations

Abbreviation	Full Name
2G	Second Generation Network (GPRS/EDGE)
3G	Third Generation Network (3G/HSDPA)
APN	Access Point Name
BBM	Blackberry Messenger
ERP	Enterprise Resource Planning
ICT	Information and Communications Technology
IT	Information Technology
LTE	Long Term Evolution network
PC	Personal Computer
SLA	Service Level Agreement
WIFI	Wireless Network

CHAPTER ONE

INTRODUCTION TO THE RESEARCH

1.1 Introduction

Interest in information overload has rapidly increased in the recent past judging by the amounts of online articles and academic studies on the subject (Nosta, 2013). Although it is semantically described differently by different authors, all seem to converge on describing it as a point beyond which additional information gathered does not contribute to clearing uncertainty, or decision making, the fundamental uses of information.

This research sought to understand the impact of information overload on employees at Vodacom. It investigated various factors that contribute to information overload levels in an organization. It also investigated the effects of it as well as coping methods that are used to deal with it.

This chapter begins by giving an introductory background and a motivation for the research problem. It then identifies the actual research problem. It provides the research aim, objectives and research questions that will be answered by the research. It briefly discusses the literature review, the research design chosen, research instrument of choice and finally, an outline of the chapters in this research.

1.2 Motivation for the Study

There are various circumstances that can lead to information overload. The competitive nature under which many organizations operate necessitate that there be, among other things, product and service launches, promotions and events. These activities inevitably increase work load which can lead information overload on employees. Personal factors such as how organized the recipient of information is, the skills they possess to process the information they receive and time allocated to perform work tasks can also contribute to feelings of information overload.

During the course of work, many employees at Vodacom engage in various activities, including but not limited to the following:-

- Planning and delegation of work or activities
- Inter and intra departmental communication
- Marketing or promotional activities
- Work tasks or activities status updates
- Receiving and sending notifications
- Meeting and conference calls
- Information Technology (IT) systems and Enterprise Resource Planning (ERP) systems update
- Attending work-related courses

The above activities cause an increase of information traffic in volumes among the employees. Many employees receive excessive amount of information than they can deal with. For example, many employees cannot give attention to all emails they receive in a work day to an extent that they have many unopened emails items in their email application. If they could try to open and read with comprehension each email they receive, they would end up only reading emails for the entire work day. The risk of having unopened items on email inbox is that important information being missed by the intended recipient, thus increasing chances of making poor communication and thus decision making.

Employees receive both work related and unrelated notifications on their computers and smartphones during the course of a working day. Whether its Microsoft Outlook® email notification, Microsoft Lync® notification, WhatsApp or BlackBerry Messenger (BBM) notification these are interruptive to employees attention and thus has an impact on the employees efficiency in performing a task at hand.

Many employees are required to attend routine and ad hoc meetings, are required respond to ad hoc questions whether in the office corridors or in the canteen during lunch. All these activities increase the information exchange and information load in the workplace.

Generally, the level of information exchange and information volumes is heightened at the Vodacom work place. The question that surfaces is the following: What is the impact of widespread information volume in the Vodacom work place? In particular, what is the impact of information overload among Vodacom employees? This research will fundamentally seek to answer this question.

1.3 Research Aim

The primary purpose of the research was to investigate the impact of information overload on Vodacom employees. It sought to identify causes, effects and coping methods of information overload as experienced at Vodacom. It also sought to identify business areas or functions that experience it the most.

1.4 Research Objectives

The objectives were to determine:-

- Which business areas or functions experience information overload at Vodacom.
- The causes and effects of information overload among Vodacom employees.
- The coping methods employed by Vodacom employees in dealing with information overload.

1.5 Research Questions

1. Which business areas or functions experience information overload at Vodacom?
2. What are causes and effects of information overload among Vodacom employees?
3. How do Vodacom employees cope with information overload?

1.6 Importance and Significance of the Study

This study sought to assist Vodacom management in understanding information overload causes at Vodacom. It sought to highlight to Vodacom the challenges faced by staff due to utilization of the existing communication systems within the organization which may increase information traffic levels and cause information overload. It sought to make the employer aware of information overload's effects and coping methods used by staff.

This study helped Vodacom to understand the causes of stress in the work place. It also assisted the employees understand the source for inefficiency when information appears to be available, accessible and abundant.

This study sought to assist the telecommunication industry and other similar industries in identifying technologies and practices that when adopted can raise the level of information traffic within their organizations which can eventually translate to information overload. It also sought to help academics in identifying factors, behaviour or practices that contribute to the problem of information overload.

1.7 Literature Review

The literature review looked at the academic as well as popular literature that concerns itself with the problem of information overload. It looked at the numerous contexts under which the phenomenon occurs and also looked at suggested solutions. It initially looked at information and the reason for increase in its demand. It then looked at various models that explain the information overload phenomenon. It explored what information overload means for an individual and what it means for an organization. It concluded by identifying gaps in literature which led to the questions that are explored by this study.

1.8 Research Methodology

"Business research is the planning, collection and analysis of data related to business-decision making and the communication of the results of this analysis to management," (McDaniel & Gates, 2001:313).

This research sought to be systematic and objective in the process of gathering, recording and analysis of data for decision making.

Research can be divided into two basic philosophies namely quantitative and qualitative (Bryman, 2008). While these philosophies can be viewed as different approaches to a determination of an enquiry, Bryman (2008) mentioned that they are not mutually exclusive. Quantitative and qualitative research methodologies operate in a different epistemological framework (Schroder, Drother, Kline and Murray, 2003). This research was quantitative in approach.

Polonsky and Waller (2004) stated that the outputs of a quantitative research methodology are characterized by objectivity, factuality, data driven reasons, definite outcomes and reliability. For the purposes of this research study a quantitative approach was used to gather primary data required as it allows for the gathering of data from a large sample. In

addition, the use of a quantitative approach allows for data to be statistically analysed inferences can be made about the population under study.

The research tool that was used was a questionnaire which combined Likert scale and multiple choice questions. It aimed to answer questions derived for the research objectives.

1.9 Chapter Outline

Chapter one (Introduction) explained the motivation and the purpose of the study and clarified its aim and objectives. It explained the research approach, clarifying methods that can be applied to the study in order to answer research questions.

Chapter two (Literature Review) focused on literature review of information and information overload. The literature review looked at information fundamentals, communication and instances which cause information overload. It looked at explaining what information overload is and looked at what it means for individuals as well as organizations.

Chapter three (Research Design) primarily looked at methodology and the design of the research. It described the sample from where the empirical data was to be collected. A questionnaire was used to collect data. It also indicated ethical considerations that were considered for conducting the study.

Chapter four (Data Analysis and Findings) focused on analysis and interpretation of collected data. It discussed the research instrument, the sample description and used empirical data to answer research questions.

Chapter five (Conclusions and Recommendations) addressed the research conclusions and recommendation. The research conclusions were linked to primary research questions. It concluded by assessing the new insights that the research has brought to the question of information overload.

1.10 Summary

This chapter began by giving an introductory background and a motivation for the research problem. It provided the research aim, objectives and research questions that were answered by the research. It briefly discussed elements of literature review, the research design chosen, research instrument methods and finally, summarized the content of the forthcoming chapters. A detailed literature review follows in the next chapter.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This literature review took a journey to understand many contexts under which the issue of information overload has been discussed. It reviewed academic literature as well as popular literature in order to combine multiple perspectives on the subject. It reviewed both the experiences of an individual as well as organizational challenges and possible solutions to the problem of information overload. It initially discusses key information characteristics that may contribute to information overload. It then looks at history of information overload and conditions under which it is experienced. It looks at the models explaining the phenomenon, the causes, the effects; and the coping mechanism for entities experiencing it.

2.2 About Information

This section discusses broadness of information, its characteristics and its uses. It lays a foundation for discussing information overload which is a phenomenon experienced when a subject is handling or using information.

When human beings talk, they convey information. When person A states to person B that "I will see you tomorrow", some facts can be learned from just that utterance. For example, the following facts can be deduced from that statement:

1. Person A will probably move from a different place in order to see person B.
2. At some point we expect person A and B to be together or at least see each other.
3. That implies that perhaps when the following day starts after this promise, person A will not be with person B.

4. Person A expects to have a freedom of movement in order to go to person B, perhaps using a mode of transportation.

The Oxford Dictionary (2010:900) simply defines information as "facts learned about something or someone". Although this is a safe definition and can be used in colloquial terms, the use of the term 'learned' indicates the link between information and knowledge, which is achieved through learning. Facts, when they are interpreted become knowledge.

Floridi (2010:34) explained how information definition is dependent on the discipline or context under which it is used. Regardless of the context, Floridi (2010:4) observed the lifecycle nature of information. He stated that the lifecycle stages are the following:

1. Occurrence – This concerns itself with discovering, designing and authoring.
2. Transmission – This concerns itself with networking, distributing, accessing, retrieving and transmitting.
3. Processing and Management – This concerns itself with collecting, validating, organizing, indexing, filtering, updating, sorting and storing.
4. Usage – This concerns itself with monitoring, analysing, modelling, explaining, planning, forecasting etc.

The use of the term 'lifecycle' gives an impression that all stages will be reached, and that there is some form of a hierarchy from inception to maturity. However, information does not follow Floridi (2010:34) growth pattern. It can exist at an occurrence stage without ever being interpreted or discovered.

Information is an important resource for people because it is used primarily for reduction of uncertainty (Jacob, 2009). It assists in decision making and is the building block of knowledge (Pijpers, 2010). Organizations are increasingly relying on good information in order to strategize well and increase competitiveness. For example, a retail chain would find it useful to know how a particular demographic behaves towards a particular brand. Such information would help in planning for positioning of a product in the market.

The sophisticated business environment under which most organizations operate compel organizations to have increasing demand for information in order to improve quality of their decision making to meet their strategic intentions.

Pijpers (2010) explained how data is different from information and knowledge. He suggested that data is merely a raw series of symbols, facts and rough observations. He further explained that when data is expressed in context and can be analysed it will be called information. Knowledge, on the other hand, is information with elements such as experience, importance, value, understanding, opinion and reason. Pijpers (2010) further stated that information is important to businesses as it contributes to giving a business a competitive advantage.

Information is ubiquitous. Gleick (2011:10) explained how information is fundamental to life and even suggested that it is more fundamental than matter. He compared it to blood and fuel that our world runs on. He elaborated on the extent at which the consumption and interpretation of information is even at a microscopic level as he discussed how even DNA of any cell carries instructions of development on what eventually becomes a living organism. Further to that, he argued that information is interpreted even at an atomic or molecular level. He argued that even passing of electrons from one atom to another is an example of information exchange.

Information is exchanged by means of communication. For an organization, there are various media or channels on which information may be communicated including, but not limited to, letters, emails, video conferences, social networks, telephones, fax and computer networks. For an individual, information can be communicated through face to face conversations, meetings and body language as an example.

Pijpers (2010) explained that the value of information is dependent on its users and cannot be predetermined. Pijpers (2010) further clarified that in order for information to be valuable it needs to be processed by its user's cognitive processes to be made knowledge. Information is valuable when its recipient has a need for it and capacity to process it. The measure of its value is in how much a person is willing to pay to acquire it (Pijpers, 2010).

In summary, information is useful for both organizations and individuals. Information has a sort of lifecycle in which it gets created or authored, it is transmitted via media, it gets processed or managed and it's utilized. It is useful for reducing uncertainty about a particular problem and it assists in decision making. This is particularly useful for organizations in a battle to meet their strategic intents. In order to be useful, information does not exist in a vacuum, but, it exists in a context where it can be interpreted. Its value depends on how much its user is willing to pay for it.

2.3 Information Overload

During the course of information exchange within and outside of organizations, or between individuals, a phenomenon of information overload may occur to the recipients of information. This section takes a look at the phenomenon of information overload. It looks at its history and its definitions. It further looks at the academic models which explain it and looks at its effects in general.

Spira (2011) observed how historical developments contributed to proliferation on information in the present. He pointed out, inter alia, clay tablets, ink, development of alphabets, quill pens, a pencil, newspaper, punch cards, telegraph, typewriter and a computer as some of the developments that have contributed to ease of recording or ease of duplication and distribution of recorded information. Spira (2011) implied a correlation between improvements in technology and proliferation of information.

Bawden and Robertson (2009) suggested that we experience information overload because we are in a digital translation era and therefore information is increasingly available on the digital format rather than printed format. The technological advances have led to great information in more types of formats accessible form greater communication channels. They suggested that a web browser homogenises diverse information. What would otherwise be a book, a magazine; a hand written journal entry, a photo, a newspaper has been converted to fit the formats of a web browser.

While there is a notable volume on digital media, for example, in the newspaper market adopted online presence, there is still a need for paper based content. Other authors have observed that outside of ICT, printed sources caused information proliferation.

This indeed indicates that historical technologies that yielded a way to write and record a language, to be able to convey a message with its meaning via clay tablets were in many ways a foundation of information exchange. Current technologies, such as ICT, are further simplifying mass production and wide distribution of information. At the heart of information overload are information volumes that emerge from either a push or pull.

Johansson, Andersson and Holmberg (2014:81) stated that information overload is “the dilemma of having more information that one can assimilate, or being burdened by a large supply of information, when only some of which is relevant”. Iannone (2014:274) suggested that defining information overload can be simplified as stating that its “excessive encumbrance of knowledge”, or, “an excessive encumbrance of messages imparted.”

Kaiser (2011) pointed out that there are two components of information overload, that is, information beyond and individuals’ capacity and subjects not being able to ignore information they cannot process, which in turn becomes distractive. Kaiser (2011) demonstrated how an information overloaded rational decision-maker avoid additional variety to the alternatives. A decision maker prefers optimal variety. This is a way of dealing with cognitive limits.

Bawden and Robertson (2009) made an observation that information literacy problem is often confused with information overload problems. They made examples of having too much to do (quantity) or, having tasks that are diverse in nature can be mistakenly considered to be information overload. Also, generally poor literacy levels, poor manner of accessing information and poor information communication can be mistakenly considered to be Information Illiteracy.

Watson (2011) pointed out that noise coming through from all media is disruptive and could possibly hamper thoughts that can produce innovativeness. Hemp (2009) suggested that it takes an average of twenty five minutes for a person interrupted by an email to get back to his original task. Watson (2011) further suggested that there is no sufficient time to think deeply, people are constantly interrupted with live news feeds, status updates from Facebook, Blackberry and Twitter, and Google alerts.

Among academics there is not final agreement on what information overload definition should be. At best, they seem to be able to describe it based on the context under which they study. However, many authors seem to agree with the fact that it is points after which further pour in of information does not contribute to good quality decision making. More precisely, it adds to confusion and inability to perform optimally. Since the coining of the term by Toffler (1970), many academics have explained this phenomenon using models.
The following sub section reviews three latest pertinent academic models used to explain the phenomenon of information overload.

Jackson and Farzaneh Model

Largely based on the Eppler and Mengis (2004) model and Kirsh (2000) model, the model by Jackson and Farzaneh (2012) sought to explain the information overload model on both the personal and organizational level. It initially distinguishes between two type factors that cause information overload. It identified intrinsic factors, extraneous factors and a combination of intrinsic and extraneous factors.

Intrinsic Factors

- Quantity of information.

This refers to sheer volumes of information. For example, it is less overloading to consider ten factors compared to considering hundred factors before a decision can be taken. The larger the volumes the more the chances of information overload.

- Information processing capacity:

Information processing capacity refers to the phenomena that, due to the limitation of human brain that has been scientifically proved, people can only process a certain amount of information at the same time;

- Available time.

This refers to the time available to execute a task. Regardless of the simplicity of the task or the skill of the person executing it, if there is insufficient time to execute it, it can cause information overload.

Extraneous Factors

- Characteristics of information;

Factors such as the completeness of information, whether it arrived on time, whether its relevant, etc. are essential in determining whether the person handling information will have information overload or not.

- Quality of information;

Factors that ensure that information meet the quality requirements of that particular context.

- Task and the process parameters;

Some tasks have few variables and can be automated easily. Other tasks may have many variables to consider and this may lead to information overload.

- Personal factors.

Personal Factors are made up of multiple factors combining levels of prior experiences, personal skills, cognitive style, motivation of the person, and personal situation.

Intrinsic and Extraneous Factors

- Sources of information: pulled or pushed information.

From the above, Jackson and Farzaneh (2012) developed the information overload model which consisted of the following seven units:

- Unit 1: Quantity of information
- Unit 2: Characteristics of information
- Unit 3: Quality of information
- Unit 4: Information processing capacity
- Unit 5: Available time
- Unit 6: Task and the process parameters
- Unit 7: Personal Factors

In the model, the seven units are divided into two groups: the “FOR” factors (to the right) which increase the likelihood of information overload occurring and the “AGAINST” factors (to the left) which lessen the possibility of information overload. Tipping point is the point of balance where information overload happens. Figure 2.1 below shows the conceptual information overflow model.

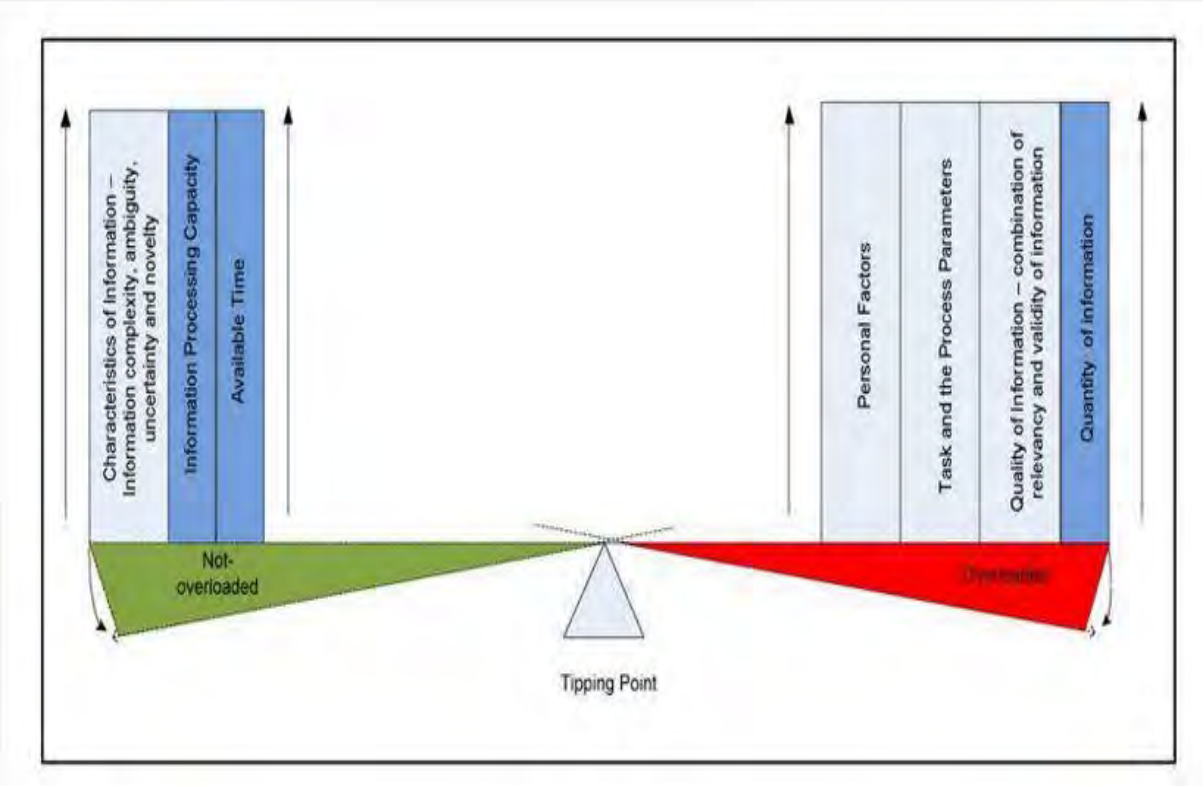

Figure 2.1 : The Conceptual Information Overload Model

Source: Jackson and Farzaneh (2012:530)

The overall essence of the model is that: Information processing capacity, characteristics of information and available time cooperate with each other to decrease the probability of occurrence of information overload while Quantity of Information, Quality of Information, Task and the Process Parameters, and Personal Factors cooperate with each other to increase the probability of information overload occurrence.

The model is extensive in explaining the factors that can contribute to information overload but does not elaborate about remedies.

The Jarrard and Goddard model

Figure 2.2 below shows the MindWerk's information overload model.

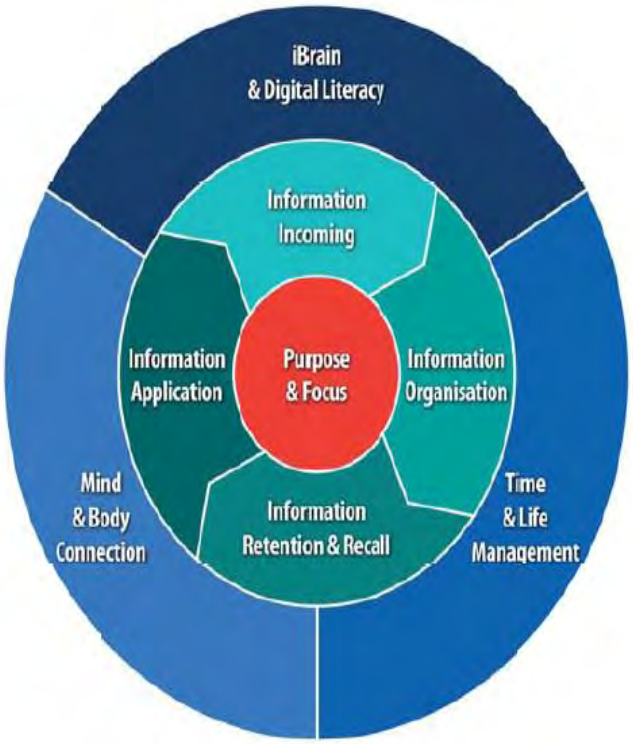

Figure 2.2: Mindwerk Information Overload Model

Source: Jarrard and Goddard (2012:1)

Jarrard and Goddard (2012) model identified impact of information overload as ranging from time wasting to health problems. It identified eight areas which would benefit both individuals and organizations in resolving the information overload problem. These are the following:

- Purpose and focus

Central to managing information overload, Jarrard and Goddard (2012) suggested that an individual or organization should be clear on its short term and long term purpose and focus. This will help in identifying which information should be solicited, kept or avoided.

While this point assists in ensuring that solicited information is necessary for the task or decision at hand it is silent on the push information that may come through unsolicited.

- Information incoming

They stated that there are many sources of information such as books, TV, internet and conversations but an individual or an organization need to fall back to the purpose in order to determine which information to filter and which to permit through.

- Information organization

They also suggested that organization of information should not only be informed by immediate needs, but by future needs as well. They suggested keeping knowledge maps that link different information together and they also suggested keeping flow charts and process diagrams in order to have a conceptual view of information flow. They regard email as a tool that categorises information as it arrives. This suggestion may be practically challenging to implement. There are many immediate needs of the organization, within the organization and external to the organization. It may be challenging to keep an up-to-date knowledge maps for all information.

- Information retention and recall

With regard to information recall and retention, (Jarrard and Goddard, 2012:1) remarked that “if you cannot recall information that has been communicated, it’s a waste of time”. The recipient must know how to retain and recall key information in order to be able to put it into its effective use. They suggested learning to use effective memory techniques such as recalling key information using the principle of mnemonics or using association and imagination.

- Information application

They also suggested that better use of information available leads to improved effectiveness. They suggested that individual and organizations employ strategic thinking, parallel thinking and lateral thinking in order to effectively manage information available.

- Brain and Digital Literacy

They suggested that understanding and harnessing new technologies can help manage information overload. They suggested one can crowd source information from social media using the strength of the social networks.

- Mind and Body Connection

The primary suggestion for this area was based on the observation that a sound mind is found in a sound body. They suggested that poor diet, poor health and stress affect the mind such that it may not be sharp enough and susceptible to information overload. They suggested a healthy diet and exercise as a way to manage mind and body. While there may be a correlation link between a sound mind and a sound body, there is no apparent causal link. People with perfectly sound minds and sound bodies can also experience information overload.

- Time and Life Management.

They suggested that setting priorities for goals and using a calendar to mark the 'to do' list increases effectiveness and lowers the chance of information overload. They suggested that avoiding multitasking by reverting to the central purpose and having tools such as a personal organizer are key in time management and avoiding information overload. This aspect speaks essentially about orderly behaviour with information. In the absence of order, there is a great chance of experiencing information overload.

Jarrard and Goddard (2012) model explains the coping mechanism strategy. They suggested that a centralized purpose and focus in the solution formation of information overload. Everything else should be informed by that central purpose. Jarrard and Goddard (2012) model does not consider information overload that could be due to organizational design

Nathaniel Davis Theory

Regarding information overload, Davis (2011) observed that information overload is defined as both the cause and effect. “We have information overload because of too much information, or, we have too much information because of information overload.” Davis (2011:1). He came to an observation that information overload is essentially due to two problems, that is, the problem of information abundance and the problem of filter failure. Abundance of information causes problems with storage or capacity to process, regardless of the context. This is regarded as Macro events. It is regarded as a conditional point in a continuum. Figure 2.3 below shows the Nathaniel Davis models view of a macro event as a point in continuous axes.

Figure 2.3: Macro Event

Source: Davis (2011:1)

Filter failure is about subjective problems such as when a user is interfered with, thus obstructed from finishing a task. Factors such as skills and experience fall under this category. This is regarded as Micro Event. The figure below shows the two figurines representing person ‘a’ and person ‘b’ on a continuous axes being impacted by micro event and thus experiencing information overload. They experience it at different points of a continuum. Figure 2.4 below shows the Nathaniel Davis models view of a micro event as a point in continuous axes.

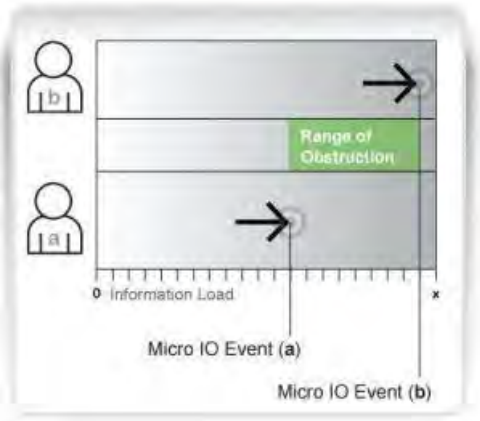

Figure 2.4 : Micro Event

Source: Davis (2011:1)

Davis (2011) stated that system architects are skilled at identifying macro events that cause information overload. They can plan for storage capacity and processing capacity. He suggested that information architects (IA) should be equally skilled at identifying micro events that can cause information overload. This would improve the manner in which the problem of information overload is resolved.

Although Davis (2011) claimed to be broad, his perspective was based on information overload primarily caused by ICT. There are few other contexts which have system architects who would be able to spot Macro events and be able to fix.

In summary of this section, Jackson and Farzaneh (2012) model was analysed. It improved on the Eppler and Mengis (2004) by identifying the delicate balance upon which aggravating factors and moderating factors that contribute to information overload hang. Jarrard and Goddard (2012) centralised 'purpose and focus' as the key aspect in eliminating useless information, thus reducing information overload. Davis (2011) observed that information architects are in a position to effectively deal with the problem of information overload if they are able to separate macro events from micro events and direct their efforts accordingly.

2.4 Information Overload in Organizations

This section takes a closer look into information overload as experienced in particular by organizations. Information is an important resource in an organization. Organizations are information processing systems. In addition to machinery and other resources, organizations need information to be able to carry out their strategic intents. This perspective of organization mandates that information communication systems be planned well in order to protect organization from unsolicited information and stream line communication channels so that relevant information reached its intended recipient or audience. The communication system needs to be designed in such a way that avoids information overload.

Spira and Burke (2009) discussed information overload at Intel Corporation and the solutions that were implemented. They focused on interruption at work place. They identified sources of interruption as email, meetings, face to face conversations, IM and phone calls. As a solution, Intel suggested an introduction of quiet time in which employees can have four hour blocks of no interruption in the work place. They also suggested a fairly relaxed an email service level agreement (SLA) to which an agreement is reached with a sender which states that an email response time should be 24 hours. The SLA would forbid any follow up phone call if 24-hours has not expired on the original email. The obvious problem with this method is that some interruption actually improves an activity at hand. For example, if a secretary receives an email updating them about a cancellation of a planned meeting, she would be able to react accordingly if she allows to be interrupted with new information about the changes.

Mesmer-Magnus and DeChurch (2009) investigated the factors that contribute or detract to team performance. The amount of information exchange was identified as a major contributing factor and could positively predict team performance. The moderating factors to information exchange are uniqueness (a level at which a single piece of information is shared among a group) and openness (team communication, progress meetings, co-ordination).

Many organizations rely on formation and performance teams to execute operational tasks or projects. Lines of communication need to be observed and a balance be found so that team members do not suffer from information overload due to repeated information or team not sufficiently communicating.

Zhuang, Qiu and Peng (2011:69-81) sought to determine the extent of the information overload problem in tourism industry in China. Zhuang et al., (2011:81-83) concluded that information overload is a problem to both individuals and organizations. Contributing factors to information overload in the tourism industry are:

1. Seasonality of the market demands.

   Many organizations experience a period of being very busy and not too busy. For example, month-end is often very busy for retail shops. While being busy, perhaps after a marketing campaign, there will be an increase in activities in an organization which can cause high information demand, leading to information overload for the employees who are trying to meet the demand.

2. Diverse and changing consumer demands.

   Low customization of a product limits the decisions that the manufacturer has to take on a product. Few decisions can lead to improved turnaround time and automated responses. This contrasts with diverse and changing demands. When the manufacturer allows various customizations to a product, it will have to accept and use a lot of information for decision making and this may cause information overload.

3. Low level of job standardization.

   Job standardization speaks to a level at which a single job outcome is managed and does not vary a lot. Low job standardization is about en employee performing one task today and a completely different task the next day. There is insufficient learning period. The employee cannot fully apply his mind on a single job task.

Bridle (2010) suggested that a new type of business advisor called information contextualizer is needed to provide the right information for the problem. His or her solution would assess all relevant data, success and failures of the data and provide the options for an organization. This suggestion is some form of an information filter. The glaring problem with filters is what happens if the piece of information that is filtered out had a significant change on the task at hand.

Organizations keep high availability of their resources to maximise production. According to Watson (2011), if organizations begin to see their human resources as resources that also need downtime and maintenance period, they can mandate vacation.

In summary, organizations process information. Communication systems need to be well designed in order for information to reach its intended recipients inside and outside of the organizations. The modern worker uses information to choose best path among many alternatives in decision making. Market demand, diversity of demand and low job standardization also contribute to the industry information overload. The suggested mitigation for organizations is being organized. Reduction of interruption and managed email responses via a service level agreement (SLA) are also recommended.

2.5 Information Overload on Individuals

This section looks into detail information overload phenomenon as experienced by individuals.

As pointed out by Davis (2011), information overload can also be caused by micro factors such as interruption which render the recipient incapable of fulfilling intentions. Many corporate environments have inescapable, widespread interruption. The ad hoc meetings, a phone call, office floor or cubicle conversations, instant chat messenger like Microsoft Lync and email notifications deplete employee attention to a task at hand. Fischer *et al.* (2010:103) studied the factors that influence interruptibility of a person. They concluded that the perceived quality of the content of the interruption rather than the timing of the interruption influence interruptibility of a person. They identified interest, entertainment, relevance and actionable as contributing factors to perception of quality of content.

The landscape of knowledge for an individual seems to be insurmountable. Comparing what a person had to know in the past in order to survive or thrive over different ages clearly show the complications they face in this day and age. Pijpers (2010) argued that users acquire information to meet their needs; if not for basic survival then to thrive. Each additional piece of information increases the value of information that has already been received – but only up to a certain point. Beyond that point additional pieces result in information overload.

Hemp (2009) concurred that the ease of duplication, storing, distribution and manipulation of information has contributed to information proliferation. In particular they noted photocopying, telecommunications, email and internet to be central in information overload experienced by people. Hemp (2009) further added that recipients own information addiction can cause information overload.

The term information addiction suggests that the users will seek to find information for no reason. This can be the case for push technologies. However, if information was sought, even if it is not used currently, it will be stored for later use – or it will clarify or assure a certain thought. This might not be apparent to an external party.

Ordinarily, a person is subjected to a myriad of marketing campaigns which are aimed at grabbing the attention of any cognitive sense of a consumer. According to Anderson and Palmer (2012), there exists a competition for consumer attention among organizations inter and intra industries. The cause of the competition is to capture consumer attention when communicating about products or services. Marketers are aware that information depletes the attention of its recipient and therefore seek to gain most prominence in the communication channels. Anderson & Palmer (2012) also add that abundance of information creates poverty of attention. Dean and Webb (2011) suggested that information overload directly corresponds to attention fragmentation. They argued that information overload kills productivity, reduce creativity and had a negative impact on happiness.

The rate at which information flows to the recipient compared to the processing capacity of the recipients is a recipe for information overload. Hemp (2009) suggested that stress follows inability to process information as it arrives.

While it may seem that interruption, addiction and attention fragmentation should leave the information recipient analytically paralysed, many cope by satisficing. MacDonald, Bath and Booth (2011) sought to increase understanding of manager's information behaviour at the work place. Their research amongst health services managers eventually concluded that managers tended to satisfices, that is, they terminate the search process and make a good enough decision, while recognizing that information gaps remain. They further described satisficing as when decision makers face an array of poor alternatives, they will eventually select the best out of a bad lot. Satisficing is coping mechanism.

Bawden and Robertson (2009) suggested, as a solution to information overload, taking control to avoid powerlessness. They also suggested improved time management, desk/working station management, avoiding push technologies, filtering, personalizing and critical thinking. They advised that the solution needed to be rationalized and personalised in order to be effective. The solution must cater for the fact that information use is individualistic and contextual.

Dean and Webb (2011) suggested that in an organization leaders must adopt self-discipline and avoid multitasking. Further, they suggested that leaders need to filter information by avoiding the notion that stated that a leader must be on top of everything. Also, they suggested that a leader must allocate time to be offline as that would allow the mind the space it needs for reflective thinking and creativity.

The metaphor of computer based technology can be a steep learning curve for certain individuals, and can induce a feeling of overload. For a computer illiterate person, a simple activity like filling in an online application form can be too much to grasp and concepts can cause confusion. Tarafdar, Tu, and Ragu-Nathan (2011:304) concluded that techno stress, which is a stress caused by inability to cope with computer usage demand, can be solved by involving the users and encouraging them to take risk to increase user satisfaction with ICT systems.

In summary, the authors reviewed in this section have wide ranging views as to what causes information overload on a person or an employee. Some vaguely point out factors such as pressure and distraction in the organization, whereas, others attribute all information overload to recipient behaviour. The effects identified seem to range from reduced attention and inability to make quality decision, to physical symptoms such as stress, anxiety and sleeplessness. The coping methods identified also range widely from ending active participation to satisficing to delegating, avoiding being on top of everything.

2.6 Conclusion

Authors on the topic seem to agree that information overload is a problem. They start to differ when attempting to define what it is and what its solution should be. In their attempts, they try to be exhaustive in their definition for all information overload cases.
The suggested causes vary widely, some attribute it all to ICT and related factors, while others cast the net much wider and attribute it to printing press and human behaviour. It would be important for an organization to identify the causes of information overload particularly within its operating environment.

Literature reviewed identified serious symptoms attributable to information overload. They vary from inability to be attentive, poor decision making, low innovation, low productivity, stress, anxiety and sleeplessness. All these symptoms directly influence the performance of an organization and its potential of meeting its targets. An organization needs to identify the particular symptoms experienced in its ranks in order to be able to respond appropriately.
Their suggested coping methods would have unintended consequences. For example, some authors suggested that to avoid feeling the information overload a person must disconnect cell phones and internet. Another author suggested that people should be granted a right not to know. Such suggestions may be effective for short term but they would have unintended consequences for the information dependent society of today. Both these suggestions would eventually lead to poor decision making. It's important for an organization to identify the coping methods that is employed by its staff. This would also assist in formulating a perfect strategic response to the problem, leveraging from the current practice.

There needs to be a deeper appreciation of the contextual nature of information overload. Information need is contextual. It will thus always pose a challenge to be exhaustive and objective on a subject that it subjective.

There exists a common bias among some of the reviewed literature that information need, and thus demand, is the only driver of information load levels. This completely overlooks the supply side of information which may not be prompted by any demand. For example,

advertisements carry information that may not be solicited, or, a “reply to all” email that may send information to users who do not necessarily need it. It’s important to point out at this stage that such proliferation of unsolicited information can generate new needs. For example, a billboard advertisement of a certain product can prompt the user to enquire more about that product and be interested in purchasing it.

It’s hard to discard information as useless because it can possibly be useful in the future. This prompts recipients of information, solicited or unsolicited, to store a lot of information that they could possibly need in the future. This contributes to the proliferation of information and information anxiety experienced by individuals.

Information overload is a problem from an individual person perspective. In this perspective it is largely caused by incapacity to process incoming information. It affects decision making, and thus, tasks execution. An individual may feel information overload while his or her peer, with same information load levels does not feel overloaded. This problem can be reduced by building capacity of an individual feeling overloaded. Experience with information load levels also reduces the feeling of being overloaded.

Information load level is not the only factor that contributes to information overload. Individuals can experience overload due to diverse nature of information to be considered for decision making. A multidimensional problem with many variables to consider need not be in multiples in order to create information overload experience. Another contributing factor can be interruptions. Interruptions eat up on designated time for a task. When time is reduced for a task then the individual can feel overloaded. The irony with interruption is that it can be good as it can facilitate quicker decision making if the information interrupted with is useful information for the task at hand. It is thus a challenge to measure exactly whether interruptions are good or bad. Social networks notifications and email notification are notorious for interruptions.

Information overload is a problem from an organizational perspective. It can be experienced by all staff in the same work area. This would suggest that it's not an individual problem but rather an organization problem. Management need to, inter alia, review job tasks, review individual job description in that area, reorganise work area, review architecture of communication system and increase general capacity. The challenge for managers is what can be used as a yardstick to measure overload levels in their organizations. Chapter three that follows contains the research methodology.

CHAPTER THREE

RESEARCH DESIGN

3.1 Introduction

This chapter explains and justifies the methodology and design choices that were made for this research. Through research design decisions, this research sought to produce valid and dependable results to explain the impact of information overload on employees at Vodacom Umhlanga. It begins by stating the primary aim and the objectives of the study. It further discusses who the participants are and where they are located. It discusses research philosophy, target population and sampling. Data collection, the research instrument, pilot testing, questionnaire collection, validity and reliability are deliberated. It concludes by discussing the limitations and ethical considerations of this study.

3.2 Methodology

Research can be divided into two basic philosophies namely quantitative and qualitative (Bryman, 2008). While these philosophies can be viewed as different approaches to a determination of an enquiry, Bryman (2008) mentions that they are not mutually exclusive. Quantitative and qualitative research methodologies operate in a different epistemological framework (Schroder, Drother, Kline and Murray, 2003).

Polonsky and Waller (2004) stated that the outputs of a quantitative research methodology are characterized by objectivity, factuality, data driven reasons, definite outcomes and reliability. Babbie (2005) add that a quantitative approach is “particularly useful in describing the characteristics of a large population” than would be possible if a qualitative methodology was adopted. Qualitative philosophy is concerned with developing theories

using rich but subjective data. For the purposes of this research study a quantitative approach will be used to gather primary data required as it allows for the gathering of data from a large sample. In addition, the use of a quantitative approach allows for data to be statistically analysed inferences can be made about the population under study.

Sekaran and Bougie (2009) stated that the nature of the study can be exploratory, descriptive, hypothesis testing or a case study analysis. Exploratory research is undertaken when not much is known about the situation or no similar problems were solved in the past. Descriptive research is undertaken to describe characteristics of a variable of interest in a situation. Hypothesis testing is conducted to explain the variance of a dependant variable or to predict organizational outcomes. A descriptive study methodology was selected for this study.

There was no attempt made to change the behaviour or condition of the present situation in the work place at Vodacom, but rather to observe the natural settings without interference. The goal of descriptive study is to offer a researcher a profile or to describe the phenomenon of interest from an individual or an organization. This study aims to describe the information overload phenomenon at Vodacom Umhlanga.

3.3 Population and Sample

The target population for this study were the employees at Vodacom SA based at the Umhlanga regional office. There are 120 employees in the target population. Sampling is a process of selecting a portion of a very large group to represent the total population and that the sample may be a true representation of the larger population (Henning, 2005: 70-71).

For this study, the entire population of one hundred and twenty Vodacom Umhlanga, employees based were selected to participate.

Willemse (2007:10) stated that a probability sample is one in which the items chosen are based on known probabilities. The choice of items is left to some form of chance or random procedure. Any sampling technique in which the selection of sample items is not determined by chance, but rather by personal convenience, expert judgement, or any type of conscious researcher selection, is called non-probability sampling (Willemse, 2007:10)

3.4 Validity and Reliability

Validity and reliability are important criteria in establishing and assessing the quality of research for researchers. Observing quality requirements is necessary in research.

Validity determines whether the research truly measures what it was intended to measure. According to Trochim (2006:92) validity can be defined as the best available approximation to the truth of a given proposition inference or conclusion whereas reliability usually means dependable or trustworthy. A measurement scale that provides consistent results over time is reliable (McDaniel and Gates, 2010:313).

Reliability of measure is established by testing for consistency and stability (Bougie,2009). Cronbach's alpha is a reliability coefficient that was used to assess internal consistency of a questionnaire. A pilot studies was conducted in order to ensure the reliability of the questionnaire. In addition, a Cronbach Alpha test was conducted. Cronbach's Alpha equalled to 0.658, which indicates a suitable level of reliability.

Literature was used to design the questionnaire in order to ensure the validity of the research instrument. Questionnaires from similar studies were also used to construct this research questionnaire.

3.5 Ethical Issues

Sekaran and Bougie (2009) stated that the researcher has an obligation to conduct an ethical research. Ethical considerations include moral principles, norms or standards of behaviour that guide moral choices about behaviour and relationships with others.

Ethical clearance was obtained from the University (Appendix 3). A gate keeper permission letter was obtained from the organization under study prior to conducting this study (Appendix 4). All participants were informed about the nature of the study through a letter that was attached to the questionnaire. The respondent's right to confidentiality was respected in that all questionnaires collected were password protected. The respondents were informed that the study is voluntary and that they were allowed to withdraw from the study if they felt the need to do so.

3.6 Questionnaire Construction

A questionnaire was selected as a research instrument for collecting empirical data (Appendix 1). This was chosen because of low cost and quicker collection rate (Struwig and Stead, 2001). According to Mouton (2001) questionnaire design is susceptible to the following mistakes:

- Use of ambiguous phrases
- Poor arrangement of questions
- Use of unnecessary questions
- Joined questions
- Unethical questions

A combination of a five point Likert-style rating and open-ended multiple choice was selected for the questionnaire. The open ended multiple choice questions aimed at allowing the respondent with a choice if the available answer options were limited for them. McBurbey and White (2007:241) stated that the Likert-style rating scale allows the respondent to indicate how strongly he or she agrees or disagrees with a statement. The Likert scale of rating also allows for a small, manageable set of dimension ratings from a large number of opinion statements.

The questionnaire required the respondents to rate statements according to either:

1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; and 5 = Strongly agree

The questionnaire (Appendix 1) was developed with the intention of achieving the objectives of this study and is divided into four sections as follows:

- **Section 1: Demographics**

This section captured the race, age and other demographic related questions. It sought to identify the respondent demographically.

- **Section 2: Causes of Information Overload**

This section captured the respondents' response to various causes of information overload. Factors identified in theory are put to the respondents.

- **Section 3: Effects of Information Overload**

This section captured the effects of information overload in the workplace. It is based on the theory reviewed about effects of information overload.

- **Section 4: Coping methods for dealing with Information Overload**

This section sought to capture the coping methods employed by Vodacom employees in order to deal with information overload.

- **Section 5: Current Overload Levels**

This section sought to capture a snap shot of current perceptions on overload that Vodacom employees were experiencing.

- **Section 6: Productivity Levels**

This section sought to capture the coping methods employed by Vodacom employees in order to deal with information overload.

3.7 Pilot Study

According to Blumberg (2005) pre-testing a research instrument is necessary for the following reasons:

- To determine if participants understand the questions.
- To determine if the questions are arranged correctly in terms of chronology.
- To determine if there are any problems with the omitted questions.
- To determine whether the allocated time was sufficient to complete the questions.

Saunders *et al.,* (2009:300) advised that prior to using the questionnaire to collect data, it should be tested as the pilot study assists the study to refine the data collection plans with respect to both the content of the data and the procedures to be followed. A pilot study was conducted with 10 employees from the target population. Participants were requested to test for clarity, content, wording and length. All changes recommended were incorporated into the final questionnaire.

3.8 Data Collection

Cooper and Schindler (2006) suggest that data can be described as "information collected from participants, by observing, or from secondary data". Choosing a data collection method is influenced by the sample frame, the research topic, the characteristics of the sample and the survey costs (Saunders *et al*., 2003). According to Saunders *et al*., (2003), interviews, questionnaires and observations are the most commonly used data collection methods. They further state that questionnaires can be used for descriptive and explanatory research. In this research a structured survey in the form or a questionnaire will be selected as a data collection instrument. The questionnaire is selected because it is an efficient and cost effective data collection mechanism (Sekaran and Bougie, 2009:197).

An email containing a link to online questionnaire was sent to all participants as this was an efficient and cost effective method to gather primary data for the study. Participants were given one week to complete before a reminder was sent to all participants.

3.9 Data Analysis

Data was analysed by using the Statistical Package for Social Sciences (SPSS). Descriptive and inferential frequency was used to analyse the findings of this study. Findings from the demographics were used to cross-tabulated against other relevant questions from the questionnaire. Interpretation of empirical data relevant to the research questions was summarized and presented as findings.

3.10 Limitations to the Study

This study was done in part for the fulfilment of studies at the University KwaZulu Natal. It was not commissioned by the industry or the company that was being studied, Vodacom. Time limitations, expectation to conduct research in a short period of time meant that longitudinal studies could not be conducted. It would have been interesting to observe information overload phenomenon over a long period of time. A choice of quantitative study was also influenced by the amount of time available for the study. An experimental, longitudinal study covering an entire industry could yield more concrete conclusions to answer research questions. That would require expensive resources which were not available. The quantitative methods to collect data are a limitation as they do not allow the respondent to give an in-depth explanation of specific questions or reasons why participants answered in a specific manner (Sekaran and Bougie, 2009). Although the results of the study can bring insight into the study of information at Vodacom as a whole, it was limited to only the employees of Vodacom Umhlanga.

3.11 Conclusion

This chapter has explained and justified the methodology and design choices that were made for this research. Through research design decisions, this research sought to produce valid and dependable results to explain the impact of information overload on employees at Vodacom Umhlanga. It began by stating the primary aim and the objectives of the study. It further discussed who the participants were and where they are located. It discussed research philosophy, target population and sampling. Data collection, the research instrument, pilot testing, questionnaire collection, validity and reliability were all deliberated upon. It concluded by discussing the limitations and ethical considerations that impacted the study. Data Analysis follows in the next chapter.

CHAPTER FOUR

FINDINGS AND DATA ANALYSIS

4.1 Introduction

This chapter focuses on the analysis of data gathered from research participants using a questionnaire attached (Appendix 1). It also focuses on the research findings and links them to the research questions. Data from the research is presented in tables and figures; in the form of graphs for easy interpretation. The main purpose of this study was to find the impact of information overload on employees at Vodacom Umhlanga regional office.
What follows is a detailed discussion of the research instrument, the sample characteristics and descriptive and inferential statistics based on the main research questions.

4.2 Research Instrument

Issues to do with the research instrument are discussed below.

4.2.1 Response Rate

An online questionnaire was distributed via a distribution list. The email distribution list contained email contacts of all employees employed at Vodacom, Umhlanga regional office. The first email containing a link to an online questionnaire was sent on 2 December 2014.
For that, a response received was 81 respondents, a collection rate of 67.5%. The second email, sent on the 15 December 2014 which resulted in a total of 120 respondents, increasing the collection rate to 100% of employees at the office. The questionnaire completion rate was 94%. This was because questions were not mandatory, and because 15 December is traditionally the last day of year at the office and employees surveyed was in haste to complete the questionnaire. The data analysis statistical tool SPSS 22 was used to analyse the collected data.

4.2.2 Reliability

A Cronbach's alpha coefficient of reliability was used. An alpha of 0.7 is considered to indicate a reliable set of items (de Vaus, 2002). Cronbach alpha is a measure of internal consistency, it is not a measure of uni-dimensionality and cannot be used to infer uni-dimensionality. Unidimensional measurement and structural equation models with latent with multi-item measures. The internal consistency measure is the best reliability test variables (Danes & Mann, 1984). Of the internal consistency measures, Cronbach's alpha is the most widely used.

The research instrument consisted of 19 items, with a level of measurement at a nominal and ordinal level. Cronbach's Alpha equalled to 0.658, which indicates a suitable level of reliability. However, upon analysis, it became apparent that low reliability was attributable to the sensitivity of some questions. Also, different people from different departments answered differently. This is due to the heterogeneous nature of job tasks. This prompted inconsistent responses ($\alpha = 0.658$, n = 10). Cronbach's alpha would improve to ($\alpha = 0.69$) if items question 2.4 were omitted. This is close to ($\alpha = 0.7$). Table 4.1 below shows the results of the Cronbach Alpha test.

TABLE 4.1 – Cronbach Alpha Test

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q2_4 I have information overload when adjacent teams are not processing information efficiently	26.3488	25.924	.001	.690

4.2.3 Normality

The importance of conducting a normality test on collected data is to assess whether normal distribution tests can be applied to it. The Kolmogorov-Smirnov and Shapiro-Wilk normality tests indicate a significance level of .000. This value is less than .05 and is indicative of the

data are not being normally distributed and hence requiring the use of a non-parametric test. According Pallant (2005), parametric test such as ANOVA and t-tests cannot be used if data normality is violated. Instead, non-parametric test, Spearman's Rho correlation, Fisher Exact test and Kruskal-Wallis test were used, on the advice of a professional statistician. Table 4.2 below shows the results of the normality test.

TABLE 4.2 – NORMALITY TEST

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
1.1 Gender	.361	59	.000	.634	59	.000
1.2 Age group	.209	59	.000	.883	59	.000
1.3 Department	.139	59	.006	.919	59	.001
1.4 Seniority Level	.285	59	.000	.817	59	.000
1.5 Years of experience in current role	.303	59	.000	.822	59	.000
2.1 I have sufficient skills to analyse information relating to my work duties	.420	59	.000	.574	59	.000
2.2 I have sufficient time to execute my work duties without interruption	.322	59	.000	.790	59	.000
2.3 I feel overloaded by the amount of printed sources I have to go through for work	.319	59	.000	.747	59	.000
2.4 I have information overload when adjacent teams are not processing information efficiently	.379	59	.000	.748	59	.000
2.5 Amount of Email I receive causes me information overload	.313	59	.000	.823	59	.000
2.6 Internal business systems such as ESS and SAP cause me information overload	.361	59	.000	.755	59	.000
2.7 I feel information overload when Vodacom conducts product or service promotion	.301	59	.000	.798	59	.000
2.8 I feel information overload when Vodacom hosts events such as Durban Vodacom July	.383	59	.000	.751	59	.000
2.9 I feel information overload during the month end period	.293	59	.000	.770	59	.000
2.10 I feel information overload during the holiday seasons such as December or Easter	.357	59	.000	.760	59	.000
Q3_1 The effects of information overload: Work runs behind schedule / Missed deadlines	.370	59	.000	.631	59	.000
Q3_2 The effects of information overload: Work builds up	.414	59	.000	.606	59	.000
Q3_3 The effects of information overload: Last minute rush	.361	59	.000	.634	59	.000
Q3_4 The effects of information overload: Poor decisions	.352	59	.000	.636	59	.000
Q3_5 The effects of information overload: Mistakes	.361	59	.000	.634	59	.000
Q3_6 The effects of information overload: Personal stress	.439	59	.000	.579	59	.000
Q3_7 The effects of information overload: Feeling let down by colleagues	.422	59	.000	.598	59	.000
Q3_8 The effects of information overload: Causes problems with my domestic life	.529	59	.000	.347	59	.000
Q3_9 The effects of information overload: Demotivation	.535	59	.000	.111	59	.000
Q4_1 I cope with information overload by: Applying time management techniques	.370	59	.000	.631	59	.000
Q4_2 I cope with information overload by: Being organized	.431	59	.000	.589	59	.000
Q4_3 I cope with information overload by: Taking time off to ease the pressure	.473	59	.000	.528	59	.000
Q4_4 I cope with information overload by: Leaving my desk to ease pressure	.439	59	.000	.579	59	.000
Q4_5 I cope with information overload by: Seeking assistance from colleagues	.379	59	.000	.628	59	.000
Q4_6 I cope with information overload by: Working extended hours	.396	59	.000	.619	59	.000
Q4_7 I cope with information overload by: Delegating work	.510	59	.000	.431	59	.000
Q4_9 I cope with information overload by: Motivation	.535	59	.000	.111	59	.000
5.1 My current levels of information overload	.168	59	.000	.941	59	.007
6.1 My current levels of productivity	.199	59	.000	.926	59	.002

a. Lilliefors Significance Correction

4.3 Sample Characteristics Statistics

This section describes the participants demographically and it helps in assessing the demographic influence in research questions. A professional statistician was consulted to analyse raw data. The sample was the entire population of a total of 120 respondents, all employees from Vodacom Umhlanga regional office.

4.3.1 Gender

The figure below represents respondents according to gender.

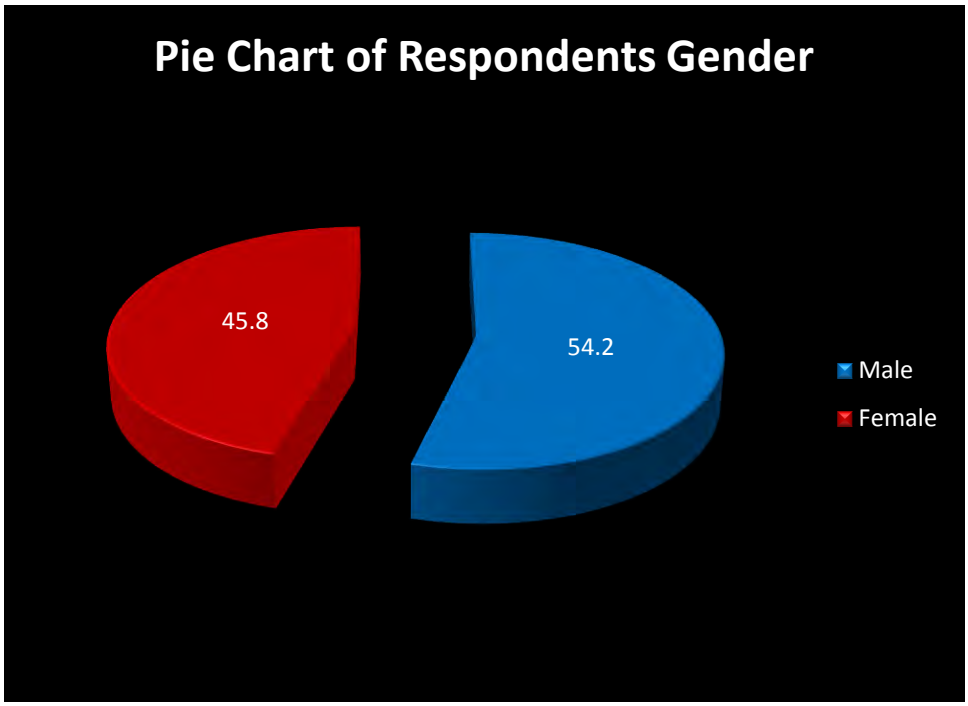

FIGURE 4.1 - GENDER

In terms of the gender of the respondents, there were 118 responses to the question with 2 missing. Out of the total, 54.2 % were male and 45.8 % were female (n=120). There were slightly more male respondents than females. Table 4.3 below shows the gender of respondents.

TABLE 4.3 – GENDER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	64	53.3	54.2	54.2
	Female	54	45.0	45.8	100.0
	Total	118	98.3	100.0	
Missing	System	2	1.7		
Total		120	100.0		

4.3.2 Age Group

The figure below represents respondents according to age group.

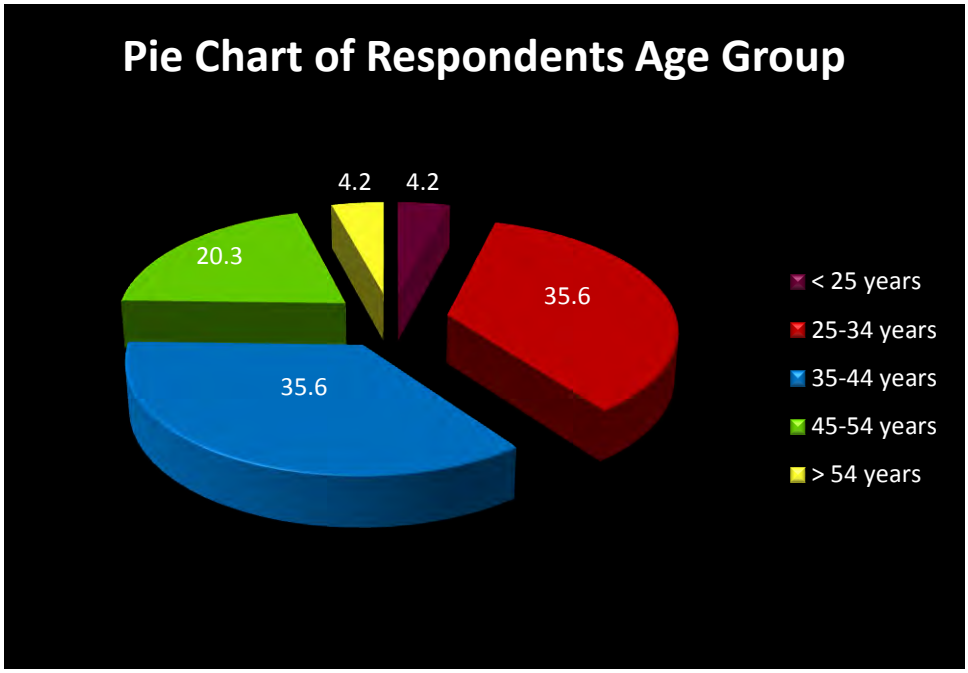

FIGURE 4.2 – AGE GROUP

In terms of age group of the respondents, there were a total of 118 responses to the question with 2 missing. In total, 4.2% were below the age of 25, 35.6% were between 25 and 34 years old, 35.6% were between 35 and 44 years old, 20.3% were between 45 and 54 years old and 4.2% were above 54 years (n=120), (Table 4.4 below). The skewness was 0.383. This suggests that data was largely on the left side of the mean (35 to 44 years). Out of 118 responses, a majority, 75.4% were below 44 years old. The Kurtosis was -0.594 indicating that data was flatter than a normal distribution with a wider peak. This means

there was no over focus on a single age group in the expense of others during the questionnaire distribution. Table 4.4 below shows the age group of respondents.

TABLE 4.4 – AGE GROUP

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 25 years	5	4.2	4.2	4.2
	25-34 years	42	35.0	35.6	39.8
	35-44 years	42	35.0	35.6	75.4
	45-54 years	24	20.0	20.3	95.8
	> 54 years	5	4.2	4.2	100.0
	Total	118	98.3	100.0	
Missing	System	2	1.7		
Total		120	100.0		

4.3.3 Department

The figure below represents respondents according to department.

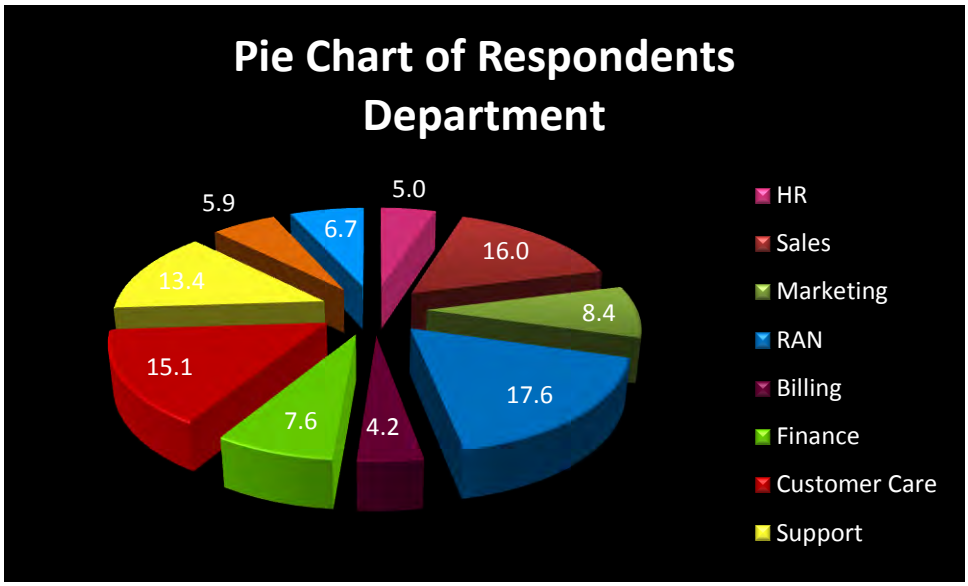

FIGURE 4.3 - DEPARTMENT

In terms of the department where respondents work, a total of 119 responses were recorded and one missing response. Of the total responses, 5% of respondents were from HR, 16% were from Sales, 8.4 % were from Marketing, 17.6% were from Radio Access Network (RAN), 4.2% were from Billing, 7.6% were from Finance, 15.1% were from Customer Care, 13.4% were from Support, 5.9% were from Transmission and 6.7% were from Core Network. See Table 4.5 below. The median was Finance. The skewness was 0.05 and the Kurtosis was -1.308. A positive skewness suggest most values are left of the mean, in this case, most respondents (58%) were from HR, Sales, Marketing, RAN and Billing. The negative kurtosis suggests that the peak was lower than in normal distribution. This indicates that there was not over emphasis on a single department. Table 4.5 below shows the department's rate of response.

TABLE 4.5 – DEPARTMENT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	HR	6	5.0	5.0	5.0
	Sales	19	15.8	16.0	21.0
	Marketing	10	8.3	8.4	29.4
	RAN	21	17.5	17.6	47.1
	Billing	5	4.2	4.2	51.3
	Finance	9	7.5	7.6	58.8
	Customer Care	18	15.0	15.1	73.9
	Support	16	13.3	13.4	87.4
	Transmission	7	5.8	5.9	93.3
	Core Network	8	6.7	6.7	100.0
	Total	119	99.2	100.0	
Missing	System	1	.8		
Total		120	100.0		

4.3.4 Seniority Level

The figure below represents respondents according to seniority level.

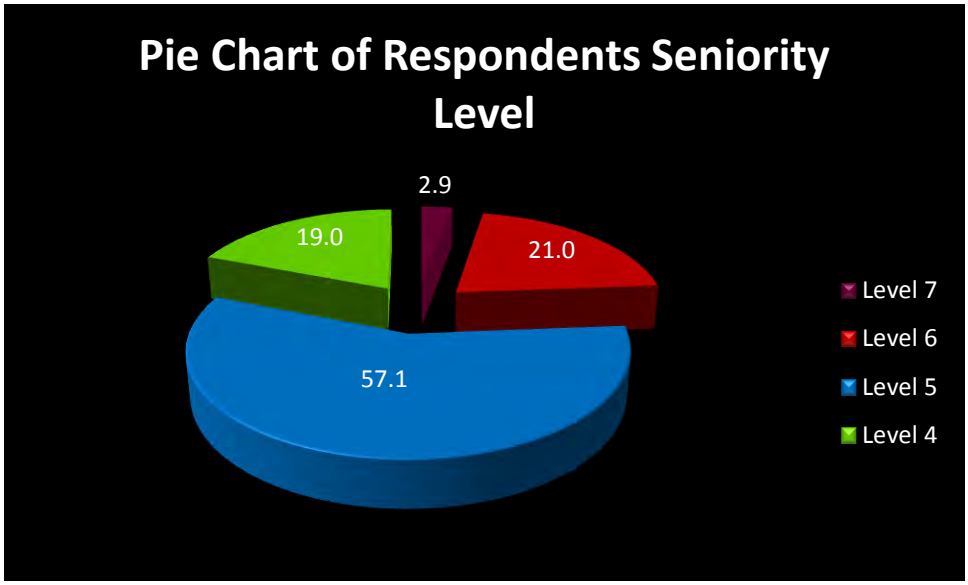

FIGURE 4.4 – SENIORITY LEVEL

In terms of seniority level of respondents, a total of 105 responses were recorded and 15 missed. Of the total responses, 2.9 % were on Level 7, 21.0% were on Level 6, 57.1% were on Level 5 and 19% were on Level 4, (Table 4.6 below). The median was Level 5. The skewness was -0.377 which means that most data falls on the right of the mean. Collectively, level 5 and level 4 contribute to 76% of responses. The kurtosis is 0.89 which indicates a sharper curve. This is due to the fact that many of respondents are level 5. Table 4.6 below shows the seniority level.

TABLE 4.6 – SENORITY LEVEL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Level 7	3	2.5	2.9	2.9
	Level 6	22	18.3	21.0	23.8
	Level 5	60	50.0	57.1	81.0
	Level 4	20	16.7	19.0	100.0
	Total	105	87.5	100.0	
Missing	System	15	12.5		
Total		120	100.0		

4.3.5 Years of experience in current role

The figure below represents respondents according to experience in their role.

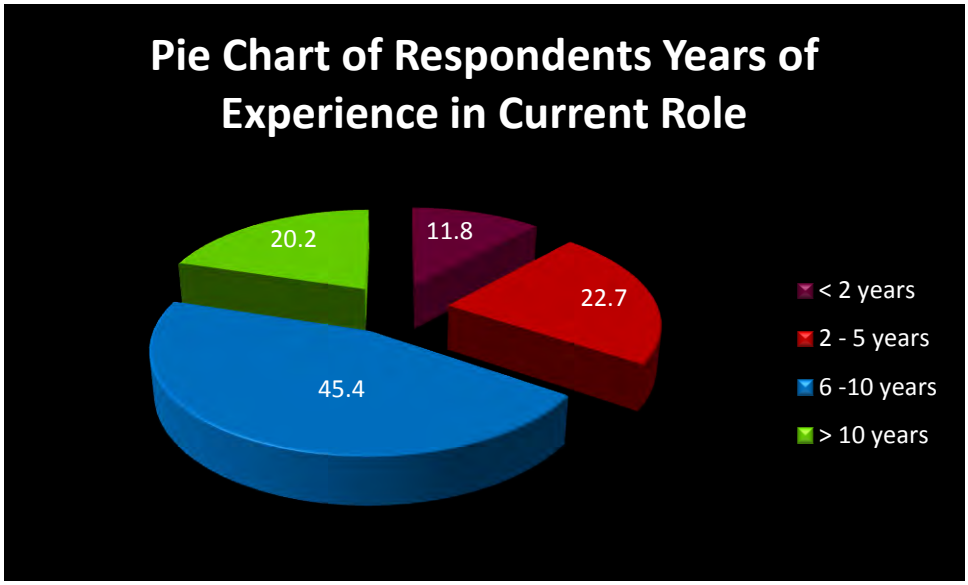

FIGURE 4.5 – YEARS OF EXPERINCE IN CURRENT ROLE

In terms of respondents' years of experience in their current roles, a total of 119 responses were recorded with one missing. Of the total, 11.8% were below two years, 22.7% were between 2 to 5 years, 45.4% were between the 6 to 10 years and 20.2% were greater than ten years, (Table 4.7). The median experience was 6 to 10 years. The skewness was -0.744. This suggests that most data is on the right of the mean. A majority of respondents (65%) are six years or above in experience. The Kurtosis was 0.235. This means that the data is slightly peaked at the mean. Most respondents have 6 to 10 years' experience. Table 4.7 below shows the years of experience in current role.

TABLE 4.7 – YEARS OF EXPERINCE IN CURRENT ROLE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 2 years	14	11.7	11.8	11.8
	2 - 5 years	27	22.5	22.7	34.5
	6 -10 years	54	45.0	45.4	79.8
	> 10 years	24	20.0	20.2	100.0
	Total	119	99.2	100.0	
Missing	System	1	.8		
Total		120	100.0		

The entire target population of Vodacom, Umhlanga was sampled. This means that the survey results would be representative and generalizable to the branch.

4.4 Descriptive and Inferential Statistics

4.4.1 Research Question 1: Which business areas or functions experience information overload at Vodacom?

4.4.1.1 Department and Printed Sources

There is a significant difference between various departments and feeling overloaded by the amount of printed sources they have to go through for work ($H(9) = 23.499$, $p = 0.005$). Table 4.8 below shows the cross tabulation between department and printed sources.

TABLE 4.8 – Department and Printed Sources crosstab

		2.3 I feel overloaded by the amount of printed sources I have to go through for work					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1.3 Department	HR	0	0	2	4	0	6
	Sales	0	8	2	8	1	19
	Marketing	0	4	1	3	2	10
	RAN	1	9	6	4	0	20
	Billing	0	1	0	3	0	4
	Finance	0	3	3	3	0	9
	Customer Care	0	2	2	12	2	18
	Support	0	7	2	5	0	14
	Transmission	0	5	0	1	0	6
	Core Network	0	7	0	0	1	8
Total		1	46	18	43	6	114

The employees from the RAN, Transmission, and Core Network departments were more likely to disagree with this statement, however, HR, Customer Care and Billing department were more likely to agree that they feel overloaded by the amount of printed sources they have to go through for work.

HR processes manual paper based forms to capture some employee details and signatures. Customer Care handles paper based forms whenever a device has to be booked in or to capture customer identity. Billing department has to issue billing statements to customers; therefore they handle paper based invoices.

The correlation above indicates that a department which handles printed sources of paper for work purposes is more likely to feel paper based information overloaded compared to a department that does not.

4.4.1.2 Department and Product or Service Promotion

There is a significant difference between various departments and feeling overloaded when Vodacom conducts product or service promotion (H(9) = 27.150, p = 0.001). Table 4.9 below shows the cross tabulation between department and feeling of information overload when there are promotions.

TABLE 4.9 – Department and Product or Service Promotion crosstab

		2.7 I feel information overload when Vodacom conducts product or service promotion					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1.3 Department	HR	0	1	1	3	1	6
	Sales	1	7	0	9	2	19
	Marketing	0	0	1	5	3	9
	RAN	1	12	4	2	0	19
	Billing	1	2	0	2	0	5
	Finance	0	4	3	2	0	9
	Customer Care	0	4	1	9	3	17
	Support	0	7	2	6	0	15
	Transmission	0	4	1	2	0	7
	Core Network	0	4	1	3	0	8
Total		3	45	14	43	9	114

The employees from HR, Marketing, and Customer Care were more likely to agree that they feel overloaded when Vodacom conducts product or service promotion, and the RAN employees were more likely to disagree.

During a promotion of a product or a service, Marketing departments will have increased amounts of activities. Customer Care department may also have increased number of activity due to enquiries or teething phase relating to the new product or service. It is not clear why HR would have increased overload during promotions.

The correlation above seems to show that a department which participates in products or service promotion is more likely to feel information overloaded compared to a department that does not.

4.4.1.3 Department and Hosting Events

There is a significant difference between various departments and feeling information overload when Vodacom hosts events such as Durban Vodacom July (H(9) = 26.575, p = 0.002). Table 4.10 below shows the cross tabulation between department and feeling of information overload when hosting of events.

TABLE 4.10 – Department and Hosting Events

		2.8 I feel information overload when Vodacom hosts events such as Durban Vodacom July					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1.3 Department	HR	0	2	0	2	1	5
	Sales	2	9	0	5	1	17
	Marketing	0	0	1	4	5	10
	RAN	1	12	2	3	0	18
	Billing	1	2	0	2	0	5
	Finance	0	9	0	0	0	9
	Customer Care	1	7	3	5	2	18
	Support	1	7	1	6	1	16
	Transmission	0	3	1	1	0	5
	Core Network	0	5	0	3	0	8
Total		6	56	8	31	10	111

The employees from RAN and Finance are more likely to disagree, whereas the employees from Marketing are more likely to agree that they feel an information overload when Vodacom hosts events such as Durban Vodacom July.

Hosting of events such as Vodacom July is often a responsibility of Marketing. There is increased activity during this time.

The correlation above seems to show that a department that partakes in events co-ordination and hosting is more likely to feel information overloaded compared to a department that does not.

4.4.1.4 Department and Month-end Period

There is a significant difference between various departments and feeling an information overload during the month end period (H(9) = 17.213, p = 0.045). Table 4.11 below shows the cross tabulation between department and the feeling of information overload during the month end period.

TABLE 4.11 – Department and Month-end Period

		2.9 I feel information overload during the month end period				
		Disagree	Neutral	Agree	Strongly Agree	Total
1.3 Department	HR	2	0	2	2	6
	Sales	4	4	8	3	19
	Marketing	3	1	2	3	9
	RAN	12	5	3	0	20
	Billing	2	0	2	1	5
	Finance	3	0	6	0	9
	Customer Care	4	1	9	2	16
	Support	5	2	7	2	16
	Transmission	4	1	1	0	6
	Core Network	5	0	3	0	8
Total		44	14	43	13	114

Employees from RAN are more likely to disagree, whereas employees from Finance, and Customer Care are more likely to agree that they feel an information overload during the month end period.

There may be an increased amount of activities at finance department during month end. One may find suppliers and contractors submitting invoices during this period. Salaries have to be paid during the month end period. Customer Care may have increased activity during this period. Customers often recharge air time and make more calls during this period.

The correlation above shows that a department that has increased its month end activities is more likely to feel information overload compared to the department that has not increased its workload.

4.4.1.5 Department and Current Levels of Overload

There is a significant difference between various departments and current levels of information overload. Table 4.12 below shows the cross tabulation between department and current levels information overload.

TABLE 4.12 – Department and Current Levels of Information Overload

Cross Tabulation	20. [Q20] My current levels of information overload on a scale of 1 to 10											
		1 = Under Capacity	2	3	4	5 = At capacity	6	7	8	9	10 = Extremely above capacity	Row Totals
4. [Q3] DEPARTMENT	HR	0	0	0	0	2	0	2	1	1	0	6
	SALES	0	0	0	2	5	1	4	4	0	0	16
	MARKETING	0	1	0	1	2	0	4	0	1	0	9
	RAN	0	1	2	0	5	5	4	1	0	0	18
	BILLING	0	0	1	0	1	1	1	1	0	0	5
	FINANCE	0	1	0	0	2	2	3	0	0	0	8
	CUSTOMER CARE	0	0	1	2	5	2	3	4	0	0	17
	SUPPORT	0	0	2	0	3	4	2	3	1	0	15
	TRANSMISSION	0	0	0	1	0	1	4	1	0	0	7
	CORE NETWORK	0	0	1	0	0	2	1	2	1	0	7
	Column Total	**0**	**3**	**7**	**6**	**25**	**18**	**28**	**17**	**4**	**0**	**108**

In terms of current information overload levels per department, 66% of HR respondents, 56% of Sales respondents, 55% of Marketing respondents, 55% of RAN respondents, 62% of Finance respondents, 52% of Customer Care respondents, 66% of Support respondents, 85% of Transmission respondents and 85% of Core Network respondents feel current information overload is above their capacity (n=108).

The correlation above shows that all departments experience information overload but at varying degrees. The networking side such as Core Network and Transmission recorded 85% on feeling information overloaded currently. The proportionally lower levels came through from Sales at 56% and RAN at 55%.

4.4.1.6 Other

There is a significant, moderate, positive correlation between feel overloaded by the amount of printed sources they have to go through for work, and feeling an information overload during the month end period ($r = 0.457$, $n = 110$, $p < 0.0001$). The Finance department and the Customer Care department possibly have increased paper based activities during the month end period.

There is a significant, moderate, positive correlation between feeling information overload when Vodacom hosts events such as Durban Vodacom July, and Internal business systems causing an information overload ($r = 0.415$, $n = 107$, $p < 0.0001$). The marketing department which is often directly involved with hosting events, has to interact a lot more with internal business systems during this period.

In summary, concerning the business areas or functions that experience of information overload:-

Literature: Theory suggested that seasonality of demand causes information overload (Zhuang, Qiu and Peng, 2011:69-81). They also suggested that customer facing departments or business functions feel more information overloaded than others in certain seasons in the tourism industry in China.

Data Found: A department which handles printed sources of paper for work purposes is more likely to feel paper based information overload compared to a department that does not. Finance Department and Customer Care are more likely to experience information overload during the month end periods. Marketing department is more likely to agree that they experience information overload when Vodacom hosts events such as Vodacom July. The employees from HR, Marketing, and Customer Care were more likely to agree that they feel overloaded when Vodacom conducts product or service promotions. Although there seems to be an increase in overload during month end, promotions and events; proportional comparisons, however, shows that overall, core network and transmission feel more overloaded.

4.4.2 Research Question 2: What are causes and effects of information overload among Vodacom employees?

4.4.2.1 Skills

In terms of having sufficient skills to analyse information, 6.7% disagreed with having sufficient skills, 8.3% were neutral about their skills, 69.2% agreed to having sufficient skills to analyse information and 15.8% strongly agreed to having sufficient skills (n=120).

The median answer is Agree. The skewness of -1.336 indicated that there were more responses to the right of the mean, thus more respondents agreeing or strongly agreeing. The kurtosis of 6.155 indicates a sharp peak on agreement with the statement.
By far the majority (84.4%) of respondents agree or strongly agree to have sufficient skills to analyse information related to work duties. Table 4.13 below shows response of having sufficient skills.

TABLE 4.13 - SKILLS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	8	6.7	6.7	6.7
	Neutral	10	8.3	8.3	15.0
	Agree	83	69.2	69.2	84.2
	Strongly Agree	19	15.8	15.8	100.0
	Total	120	100.0	100.0	

4.4.2.2 Time

In terms of having sufficient time to execute work duties without interruption, 3.3% of respondents strongly disagree, 33.3% disagree to having sufficient time. In total there were 36.6% of respondents who disagree with having sufficient time to execute work duties. There were 11.7% of respondents who were neutral, 49.2% agreed and 2.5% strongly agreed to have sufficient time (n=120).

The median Agreed. The skewness of -0.459 indicates more data was on the right of the mean thus, indicating agreeing or strongly agreeing with statement. The kurtosis of -1.204 indicates a flatter peak; data is wider spread around the mean.

Collectively, 51.7% of respondents agreed or strongly agreed to have sufficient time to work without interruption, whereas 37% disagreed or strongly disagreed. Table 4.14 below shows the response of having sufficient time.

TABLE 4.14 - TIME					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	3.3	3.3	3.3
	Disagree	40	33.3	33.3	36.7
	Neutral	14	11.7	11.7	48.3
	Agree	59	49.2	49.2	97.5
	Strongly Agree	3	2.5	2.5	100.0
	Total	120	100.0	100.0	

4.4.2.3 Printed Sources

In terms of being overloaded by the amount of printed sources, 0.9 % strongly disagree, 40% disagree, 15.7% were neutral, 38.3% agree and 5.2% strongly agreed (n=118).

The median was Neutral. The skewness was 0.314 which indicated that more data was to the left of the mean, thus, disagreeing. The kurtosis of -1.569 indicated a flatter peak. Responses were more wide spread around the mean.
Collectively, 40.9 % disagreed and 43.5% agreed to feeling overloaded by printed sources. Table 4.14 below shows the response of amount of printed sources.

TABLE 4.15 – PRINTED SOURCES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.8	.9	.9
	Disagree	46	38.3	40.0	40.9
	Neutral	18	15.0	15.7	56.5
	Agree	44	36.7	38.3	94.8
	Strongly Agree	6	5.0	5.2	100.0
	Total	115	95.8	100.0	
Missing	System	5	4.2		
Total		120	100.0		

4.4.2.4 Adjacent Teams

In terms of feeling overloaded when adjacent teams are not processing information efficiently, 1.8% disagreed strongly, 14% disagreed 12.3% were neutral, 55.3% agreed and 16.7% agreed strongly (n=114), as indicated in Table 4.16 below.

The median was Agree. The skewness was -0.940 indicating that more data was on the right of the mean, thus, agreeing or strongly agreeing with statement. The kurtosis was 0.297 indicating a flatter than a normal distribution with a wider peak.

Collectively, the majority (72%) either agrees or strongly agrees with the statement that they have information overload when adjacent teams are not processing information efficiently. Table 4.16 below shows the response of being overloaded by adjacent teams not processing information efficiently.

TABLE 4.16 – ADJACENT TEAMS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.7	1.8	1.8
	Disagree	16	13.3	14.0	15.8
	Neutral	14	11.7	12.3	28.1
	Agree	63	52.5	55.3	83.3
	Strongly Agree	19	15.8	16.7	100.0
	Total	114	95.0	100.0	
Missing	System	6	5.0		
Total		120	100.0		

4.4.2.5 Amount of Emails

In terms of overload by amount of received emails, 0.9% strongly disagree, 22.5% disagreed, 15.3% were neutral, 45.9% agreed and 15.3% strongly agreed (n=120), (Table 4.17).

The median was Agree. The skewness was -0.407 indicating that more data was on the right of the mean, thus, agreeing or strongly agreeing with the statement. The Kurtosis was -0.896 indicating a flatter than a normal distribution with a wider peak.

Collectively, the majority (61.2%) either agree or strongly agree with the statement that the amount of email received causes information overload. Table 4.14 below shows the response of information overload by amount of emails.

TABLE 4.17 – AMOUNT OF EMAILS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.8	.9	.9
	Disagree	25	20.8	22.5	23.4
	Neutral	17	14.2	15.3	38.7
	Agree	51	42.5	45.9	84.7
	Strongly Agree	17	14.2	15.3	100.0
	Total	111	92.5	100.0	
Missing	System	9	7.5		
Total		120	100.0		

4.4.2.6 Internal Business Systems

In terms of overload by internal business systems, 4.5% of respondents strongly disagreed, 51.8% disagreed, 13.4% were neutral, 23.2 % agreed and 7.1% strongly agreed (n=112).

The median was disagree. The skewness was 0.969 indicating that more data was on the left of the mean, thus, disagreeing or strongly disagreeing with statement and Kurtosis was -0.218 indicating a flatter than a normal distribution with a wider peak.

Collectively, the majority (56.3%) of respondents disagreed or strongly disagreed with the statement that internal business systems cause information overload. Table 4.18 below shows the response of information overload by internal business systems.

TABLE 4.18 – INTERNAL BUSINESS SYSTEMS					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	4.2	4.5	4.5
	Disagree	58	48.3	51.8	56.3
	Neutral	15	12.5	13.4	69.6
	Agree	26	21.7	23.2	92.9
	Strongly Agree	8	6.7	7.1	100.0
	Total	112	93.3	100.0	
Missing	System	8	6.7		
Total		120	100.0		

In summary about the causes of information overload:-

Literature: Jackson and Farzaneh (2012) suggested that lack of skills and experience are contributors to information overload. Davis (2011) stated that interruption leads to decreased task accuracy and increase time to finish a task. Spira (2011) implied that proliferation of printed sources cause information overload. Zhuang, Qiu and Peng (2011:69-81) said low job standardization causes information overload in Tourism Industry.

Data Found: By far the majority (84.4%) of respondents agreed or strongly agreed to have sufficient skills to analyse information related to work duties. 51.7% of respondents agreed or strongly agreed to have sufficient time to work without interruption. 43.5% of respondents agreed to feeling overloaded by printed sources. The majority (72%) either agrees or strongly agrees with the statement that they have information overload when adjacent teams are not processing information efficiently. 61.2% of respondents either agreed or strongly agreed with the statement that the amount of email received causes information overload. 56.3% of respondents disagreed or strongly disagreed with the statement that internal business systems cause information overload.

4.4.2.7 Effects of Information Overload

The effects identified by respondents that result from information overload are, 52.5% of respondents selected missed deadlines or work running behind schedule, 60.8% selected that work builds up, 55.8% selected last minute rush, 48.3% selected poor decision making, 55% selected mistakes, 35% selected personal stress, 30% feel let down by the colleagues, 8% feel it causes problem with domestic life and 0.8% feel it demotivates (n=120). Table 4.19 below shows the effects of information overload.

TABLE 4.19 – EFFECTS OF INFORMATION OVERLOAD				
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Work runs behind schedule / Missed deadlines	63	52.5	52.5	100.0
Work builds up	73	60.8	60.8	100.0
Last minute rush	67	55.8	55.8	100.0
Poor decisions	58	48.3	48.3	100.0
Mistakes	66	55.0	55.0	100.0
Personal stress	43	35.8	35.8	100.0
Feeling let down by colleagues	37	30.8	30.8	100.0
Causes problems with my domestic life	10	8.3	8.3	100.0
Demotivation	1	0.8	0.8	100.0
Total	120	100.0	100.0	

In summary about the effects of information overload:-

Literature: Jackson and Farzaneh (2012) stated that information overload causes stress and anxiety. Jackson and Farzaneh (2012) also stated that information overload causes people to take sub optimal decisions and generally feel loss of control.

Data Found: Some 52.5% of respondents selected missed deadlines or work running behind schedule, 60.8% selected that work builds up, 55.8% selected last minute rush, 48.3% selected poor decision making, 55% selected mistakes, 35% selected personal stress, 30% feel let down by the colleagues, 8% feel it causes problem with domestic life and 0.8% feel it demotivates.

4.4.3 Research Question 3: How do Vodacom employees cope with information overload?

The figure below represents respondent's means of coping with information overload.

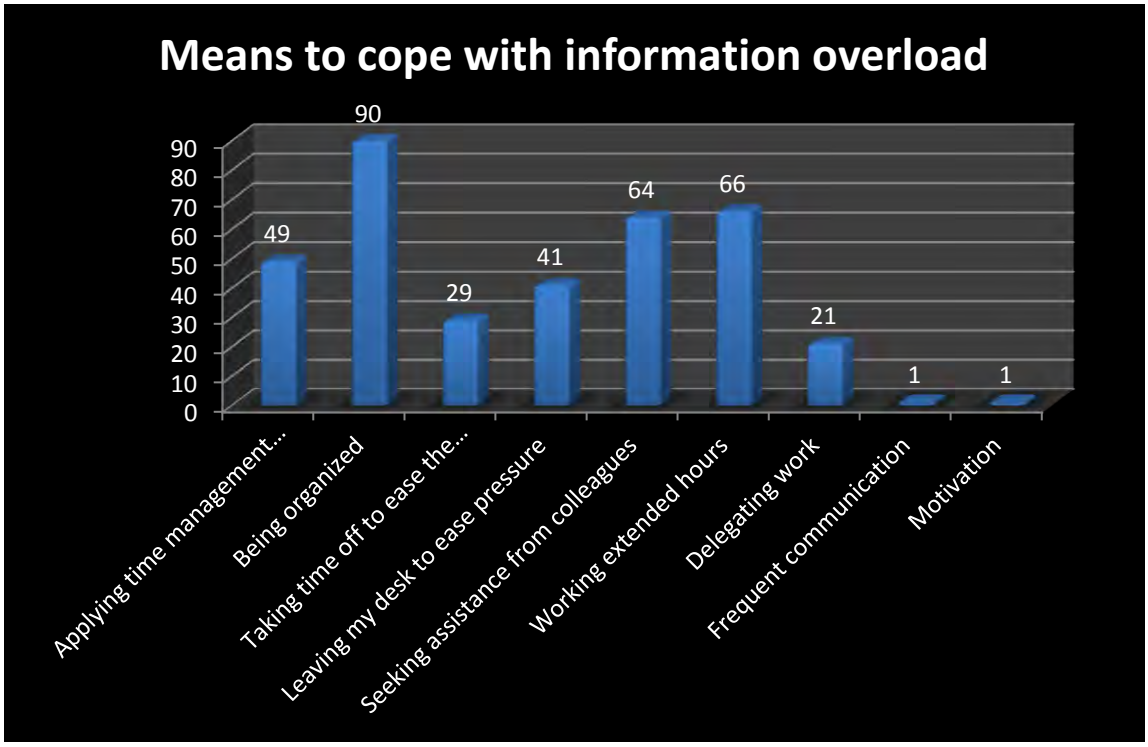

FIGURE 4.6 – COPING METHODS

The coping methods for information overload as identified by the respondents are, 49 cope by applying time management techniques, 90 cope by being organized, 29 cope by taking time off to ease the pressure, 41 cope by leaving desk to ease the pressure, 64 seeks assistance from colleagues, 66 works extended hours, 21 delegate work, 1% increases frequency in communication and 1% by motivation (n=362), (Table 4.20 below). Table 4.20 below shows respondents coping methods.

TABLE 4.20 – COPING METHODS			
	Responses		Percent of Cases
Means to cope with information overload	**$COPE_INFO Frequencies**	Percent	
Applying time management techniques	49	13.5%	40.8%
Being organized	90	24.9%	75.0%
Taking time off to ease the pressure	29	8.0%	24.2%
Leaving my desk to ease pressure	41	11.3%	34.2%
Seeking assistance from colleagues	64	17.7%	53.3%
Working extended hours	66	18.2%	55.0%
Delegating work	21	5.8%	17.5%
Frequent communication	1	.3%	.8%
Motivation	1	.3%	.8%
Total	362	100.0%	301.7%

In summary of coping methods employed by Vodacom employees:-

Literature: Dean and Webb (2011) and Watson (2011), suggested that users must allocate time to be offline to allow the mind the space it needs for reflective thinking and creativity. Jackson and Farzaneh (2012) suggested that improving time management and being organized helps in reducing a feeling of being overloaded.

Data Found: Data indicates that 13.5% of Vodacom employees cope by applying time management techniques, 24.9% cope by being organized, 8% cope by taking time off to ease the pressure, 11.3% cope by leaving desk to ease the pressure, 17.7% seeks assistance from colleagues, 18.2% works extended hours, 5.8% delegate work, 0.3% increases frequency in communication and 0.3% by motivation.

4.5 Conclusion

This chapter discussed the research instrument and then discussed the response rate of the online questionnaire distribution. It discussed the reliability of the questionnaire, looking at internal consistencies. The normality of data as a whole and methods of tests that are used when data is not normal, were discussed. This chapter also discussed the demographics of the respondents and expanded on each of the research questions.

The factor of seasonality seems to affect the feeling of information overload. Customer facing and Finance department responses indicate this notion. However, the non-customer facing departments (Transmission and Core Network) recorded the highest level of information overload. Skills and Time did not seem to be a major cause of information overload. Efficiency of adjacent teams and amount of email were largely identified by respondents as major causes of information overload. Respondents largely identified misses deadlines, work build up and mistakes as the effects of information overload. Respondents largely identified being organized, applying time management techniques and working extended hours as a means of coping with information overload.

The findings were extensively discussed in this chapter. Weaknesses were also identified. Conclusions and recommendations based on the findings will be made in chapter 5.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter begins by summarizing the previous chapters of this research which have led to this stage. It then arrives at conclusions for the research using empirical findings and taking all other discussed factors into consideration. It concludes by giving recommendations for employees and management. It also presents recommendations for academia to conduct further research.

5.2 Summary

The purpose of this research was to study the impact of information overload on employees at Vodacom Umhlanga regional office. Ordinarily, a Vodacom employee engages in many activities that involve information exchange on a normal working day. Good information is essential for executing job tasks and decision making. Information is thus sought after as it increases knowledge and reduces uncertainty. However, accumulation of information may lead to information overload, which may reduce effectiveness of employees.

Vodacom is vested in its employees being both effective and efficient in their work duties. It must be privy to issues that may impede performance of employees so that those issues may be addressed, or, at the very least, managed. Understanding the extent of information overload can result in management strategic action to ameliorate the situation.

This research was limited to Vodacom employees at the Vodacom Umhlanga regional office. These employees, although not representative of all divisions in Vodacom, represent the majority of Vodacom functions and work in the same way as the other regions, that is, Midrand, Cape Town, Bloemfontein, Limpopo and Nelspruit.

A cross-sectional descriptive quantitative study was chosen for this study. This was influenced by the objectives which seek to describe an existing phenomenon of information overload and the limited resources such as time to conduct a full scale longitudinal study. The whole population on Vodacom Umhlanga was sampled with 100% response rate of the 120 employees. A piloted questionnaire was selected as a research instrument to gather primary data. SPSS was used to analyse data.

The following heading considers the evidence and presents the important conclusions from the research study.

5.3 Findings, Conclusions and Recommendations of the Research

5.3.1.1 Objective One

To determine which business areas or functions experience information overload at Vodacom.

5.3.1.2 Findings from the Literature

Organizations must be able to identify, in particular, where the source of the problem can be found. In a study conducted by Zhuang, Qiu and Peng(2011) on hotel industry in China, they concluded that not all business functions experience information overload at the same time. Certain parts of the businesses, like reception or bookings department, become overloaded seasonally.

5.3.1.3 Findings from the Research

Empirical data analysis for this study shows that employees in all business departments at Vodacom Umhlanga reported experiencing information overload that surpasses their current capacity. However, the highest rate of information overload at the time of conducting this research was recorded by Core Network and Transmission department. The departments that reported the least rate of information overload were Customer Care, Marketing and Sales. Collectively, Core Network and Transmission department fall within the engineering department in the organization. Collectively, Customer Care, marketing and Sales are customer facing departments.

Further, analysis of data suggested that certain seasonal factors impact on the feeling of overload in different departments. Data suggested that Marketing department experiences an increase in information overload when Vodacom conducts promotions on products or services or when it hosts events. Finance and Customer Care experience increase in information overload during the month end period.

5.3.1.4 Deductions From Findings

- Engineering employees feel more information overloaded than customer facing employees at Vodacom.
- Information overload is experienced seasonally in some Vodacom departments.

5.3.1.5 Recommendations

Vodacom engineering is fundamental to service offered by Vodacom. All products and services depend on the engineering department to maintain a stable network. All engineering departments are tightly integrated and have to work together to maintain a stable network. For that reason, there is co-dependence on adjacent teams. Management should consider conducting a deeper investigation of factors that contribute towards the higher feelings of information overload in engineering departments compared to others.

Inevitably, engineering departments work with a lot of raw data from the systems. This data often needs to be extracted and correlated among many systems in order to be interpreted correctly and be made useful. There needs to be an investigation of whether collecting, correlating and analysing the data can make one feel information overload. Vodacom is also engaged in network expansion in order to accommodate increasing subscriber base. With more network nodes and systems, there is increase in number of alarms and systems alerts and nodes that can cause network faults. This could also be a contributing factor for engineering employees in particular to feel information overload more than other departments.

Vodacom promotions are essentially about giving away either a service or a product at reduced prices. Promotion messages are distributed among many channels, for example, TV adverts, websites, radio adverts, billboards etc. Management should consider conducting a deeper investigation of factors that contribute towards the higher feelings of information overload in Marketing when conducting promotions. Factors such as whether the promotion message is sufficiently clear to avoid back and forth messages that seek clarity. Also, factors such as whether the product or service being promoted is understood by the target audience. Regarding information overload being seasonal for Finance and Customer Care, management should consider conducting an investigation of whether finance activities such as journal entries, balance sheet reconciliation or the capture of suppliers causes information overload. Management should also determine whether month end information overload on customer care can be linked to higher usage during month end periods. If so, there may be issues of capacity or lack of robustness of systems when the demand is high.

5.3.2.1 Objective Two

To determine the causes and effects of information overload among Vodacom employees.

5.3.2.2 Findings from the Literature

It is important to identify the causes of information overload in an organization. These may vary from industry to industry or from business to business. But, once identified, they would help in planning to ameliorate the situation and improve the effectiveness and efficiency of employees. Literature has suggested that failing to arrest the spread of information overload can lead to mistakes and poor decision making. Reducing information overload is a strategic imperative to better business and operational decisions. Poor decision can lead to real loss in a business. Hemp (2009) suggested that working with emails can be the cause of information overload. Bawden, Holtam and Courtney (1999:252) suggested, among other things that working with printed sources can cause information overload. O'Reilly (1980) and Davis (2011) suggested that interruption may cause information overload to a person who handles information. According to Jackson and Farzaneh (2012) personal traits for either the sender or the recipient of information like age, skills and experience to be contributing factors in the causes of information overload. They also suggested that the manner in which the organization is designed contributes to information overload, for example, collaborative work, where other parties can flood information to the recipient.

Whittaker, Bellotti and Gwizdka (2006) suggested there could be clutter in the email inbox caused by email overload. According to Goulding (2001:109) extreme information overload can lead to increased anxiety and sleeplessness. Jackson and Farzaneh (2012) stated that information overload causes stress and anxiety. Jackson and Farzaneh (2012) also stated that information overload causes people to take sub optimal decisions and generally feel loss of control.

5.3.2.3 Findings from the Research

Empirical data analysis for this study showed that lack of skills was largely rejected as a course of information overload. There was no significant difference between employees who have sufficient time to work without interruption and employees who do not have. Lower than expected levels of performance from adjacent teams causes information overload. The amount of emails received by many Vodacom employees causes information overload. Internal business systems do not seem to have a significant impact on information overload on Vodacom employees.

Further, data analysis for this study showed that for a majority of employees, work builds up as the effect of information overload. Thus, there is last minute rush and this makes them prone to mistakes. Further, data suggests that employees are susceptible to poor decisions when experiencing information overload. 35% employees indicated personal stress as the effect of information overload.

5.3.2.4 Deductions From Findings

- Performance of adjacent teams and amount of emails are leading causes of information overload on Vodacom employees.

- In the majority, Vodacom employees experience last minute rush. Only a few of them experience personal stress.

5.3.2.5 Recommendations

The first recommendation management should consider is to improve communication between adjacent teams in their environments. There needs to be an assessment of existing communication. There needs to be a determination of whether existing communication allows relevant information to flow between departments that collaborate. There needs to be a determination of whether adjacent departments understand each other's objectives and the objective of a whole service or product line. If the assessment indicates problems, steps must be takes to solve communication problems.

Email is often the most used tool in work places for communication. Vodacom management, teams and colleagues use email extensively in their work environments. Employees need to be cautious when sending or replying to email as these can cause inbox flooding. This can help to reducing amounts of emails. Management should consider implementing service management systems where service or query requests are logged against an employee. Proper use of such a tool can allow work to be distributed evenly among team members. This can help to reduce work build up. Management and employees should consider implementing peer reviews of work task in order to reduce poor decision making. Lastly, management should mandate time off work in order to reduce stress and anxiety associated with information overload.

5.3.3.1 Objective Three

To determine the coping methods employed by Vodacom employees in dealing with information overload.

5.3.3.2 Findings from the Literature

Dean and Webb (2011) and Watson (2011), suggested that users must allocate time to be offline to allow the mind the space it needs for reflective thinking and creativity. Jackson and Farzaneh (2012) suggested that improving time management and being organized helps in reducing a feeling of being overloaded.

5.3.3.3 Findings from the Research

Empirical data analysis for this study shows that being organized is the primary choice for Vodacom employees to deal with information overload. Working extended hours and seeking assistance from colleagues follows as the most popular method of coping with information overload.

5.3.3.4 Deduction From Findings

Many Vodacom employees choose to be organised in order to deal with information overload. Employees also opt to seek assistance from colleagues and work extended hours to deal with information overload.

5.3.3.5 Recommendations

Vodacom management must encourage employees to be organized. Management should encourage employees to keeping a diary of work tasks, having sufficient drawers for orderly organisation of paper, or, creating different folders in the email application so that email can be categorised accordingly. They must also encourage employees to seek assistance when overwhelmed by work. That could be a sign of a job role that requires additional manpower. Management should recognise employees who go the extra mile to assist others in finishing their tasks. That would instil a successful organizational culture. Management should encourage work to be finished on time during office hours to avoid overtime costs. Alternatively they can introduce day and night shift. Finally, Vodacom management should consider sending employees to time management courses, this will help is assisting an employee use his time efficiently.

5.4 Recommendation for Further Research

This was a descriptive, cross sectional and quantitative study limited to Vodacom, Umhlanga. An industry wide, longitudinal and qualitative study that seeks to answer the impact of information could be more beneficial to the entire industry, and its result can feature during the operational planning as a risk to be ameliorated.

An area of interest that can be further investigated by other researches is the handling of email by employees in general. This study indicated that employees rely on email as a communication tool but it often carries a lot of distractive noises and possible mishandling, a better insight into type of email traffic that reaches employees and how it is handled and responded to could assist in better communication in the organizations.

5.5 Conclusion

This chapter has provided a summary of previous chapters as a background of this final chapter. It then focused of the conclusions of the study, deriving meaning from research findings and available literature. It concluded by giving recommendations for employees, recommendations for management and recommendations for academia for further research.

This was a research worthy topic. The answers to the research questions brought more insight into information overload phenomenon in organizations in general, and Vodacom in particular. It is without doubt that information is an essential resource in all organizations. Information is a strategic imperative as it allows companies to be competitive in their industries and allows operational excellence within a company. How organizations or employees handle incoming information can result in information overload. For many organizations, employees are susceptible to information overload and many studies conducted over decades confirm this.

There are many factors that were identified in previous studies as the cause of information overload. This study showed the limited extent to which use of work related computer systems causes people to be information overloaded. Contrary to initial assumptions, it also showed that most employees feel they have sufficient time and skills to perform their duties. It however, confirmed that factors such as amount of email and lack of performance of adjacent teams are prominent causes of information overload in Vodacom, confirming what was in the previous studies.

Although some factors contributing to general feelings of information overload were omitted by this research, the results of this study can be used for operational planning. Departments or business functions were identified, the prominent causes and effects were identified and the popular copings methods were identified allowing for better planning in Vodacom.

The overall impact of information overload is essentially a camouflaged phenomenon. It requires regular assessment of its indicators in an organization in order to be able to formulate a strategic and operational response to it.

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APPENDIX 1 – The Questionnaire

1. DEMOGRAPHICS

1.1 Gender	
Male	Female

1.2 Age group				
< 25 years	25-34 years	35-44 years	45-54 years	> 54 years

1.3 Department				
HR	Sales	Marketing	RAN	Billing
Finance	Customer Care	Support	Transmission	Core Network

1.4 Seniority Level					
Level 7	Level 6	Level 5	Level 4	Level 3	Level 2

1.5 Years of experience in current role			
< 2 years	2 - 5 years	6 -10 years	> 10 years

2. CAUSES

2.1 I have sufficient skills to analyse information relating to my work duties.				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2.2 I have sufficient time to execute my work duties without interruption.				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2.3 I feel overloaded by the amount of printed sources I have to go through for work.				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2.4 I have information overload when adjacent teams are not processing information efficiently.				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2.5 Amount of Email I receive causes me information overload.				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2.6 Internal business systems such as ESS and SAP cause me information overload.				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2.7 I feel information overload when Vodacom conducts product or service promotion				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2.8 I feel information overload when Vodacom hosts events such as Durban Vodacom July.				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2.9 I feel information overload during the month end period.				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2.10 I feel information overload during the holiday seasons such as December or Easter.				
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. EFFECTS

3.1 The effects of information overload are: (TICK ALL THAT APPLIES)
Work runs behind schedule / Missed deadlines
Work builds up
Last minute rush
Poor decisions
Mistakes
Personal stress
Feeling let down by colleagues
Causes problems with my domestic life
OTHER:

4. COPING METHODS

4.1 I cope with information overload by: (TICK ALL THAT APPLIES)
Applying time management techniques
Being organized
Taking time off to ease the pressure
Leaving my desk to ease pressure
Seeking assistance from colleagues
Working extended hours
Delegating work
OTHER:

5. OVERLOAD LEVELS

5.1 My current levels of information overload on a scale of 1 to 10									
1 = Not Productive	2	3	4	5 = At capacity	6	7	8	9	10 = Extremly Above Capacity

6. PRODUCTIVITY LEVELS

6.1 My current levels of productivity on a scale of 1 to 10									
1 = Not Productive	2	3	4	5	6	7	8	9	10 = Maximum Productive

APPENDIX 2 – Informed Consent Form

University of KwaZulu-Natal
Graduate School of Business and Leadership
Westville Campus

Dear Participant

Title of the Research: Impact of Information Overload among Vodacom Employees

You are invited to participate in a study conducted by **Mondli Zibhebhu Pascal Mabaso** who is currently pursuing a Masters of Business Administration in Business Studies.

If you decide to participate in this research, please can you answer the attached questionnaire related to the study. Please note that there are no risks towards you while participating to the research and there are no benefits for you. Kindly note that any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. If you give us your permission by signing this document this will give us permission to use the data collected for the purpose of the study.

Your decision whether or not to participate will not prejudice your future relations with your employer. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty. If you have any questions, please ask us. If you have any additional questions later, my supervisor Alec Bozas (mwbozas@mweb.co.za) will be happy to answer them.

YOU ARE MAKING A DECISION WHETHER OR NOT TO PARTICIPATE. YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE, HAVING READ THE INFORMATION PROVIDED ABOVE.

Name: _____
Department: _____

Date **Signature**

_____

***Please can you return the consent form once you have signed it.**

APPENDIX 3 – Ethical Clearance

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

27 October 2014

Mr Mondli Zibhebhu Pascal Mabaso (9502811)
Graduate School of Business & Leadership
Westville Campus

Protocol reference number: HSS/1434/014M
Project title: The Impact of Information Overload on employees at Vodacom Umhlanga Regional Office

Dear Mr Mabaso,

Full Approval – Expedited Application

In response to your application received on 21 October 2014, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

....

Dr Shenuka Singh (Chair)

/ms

Cc Supervisors: Mr Alec Bozas and Mr Bakhetsile Dlamini
Cc Cc Academic Leader Research: Dr E Munapo
Cc School Administrator: Ms Zarina Bullyraj / Ms Gina Mshengu

Humanities & Social Sciences Research Ethics Committee
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APPENDIX 4 – Gate Keepers Letter

University Of KwaZulu Natal

DATE: 01 September 2014

STUDENT NUMBER: 9502811

A LETTER OF PERMISSION TO CONDUCT A STUDY

I, Mondli Zibhebhu Pascal Mabaso (ID: 7803225454081) employee number 14875 currently employed as a Specialist in Vodacom KwaZulu-Natal region hereby request permission to conduct a study entitled:-

"*The Impact of Information Overload on employees at Vodacom Umhlanga Regional Office*"

This study is in fulfilment of the dissertation for Masters in Business Administration from University of KwaZulu – Natal.

☒ APPROVED

☐ NOT APPROVED

V. Singh (Executive Head: Vodacom Operations – KZN)

APPENDIX 5 – Turnitin Summary

Turnitin Originality Report

Mondli Research by Mondli Mabaso

From Final Chapter (Dissertation 2015)

- Processed on 09-Jul-2015 11:30 AM CAT
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