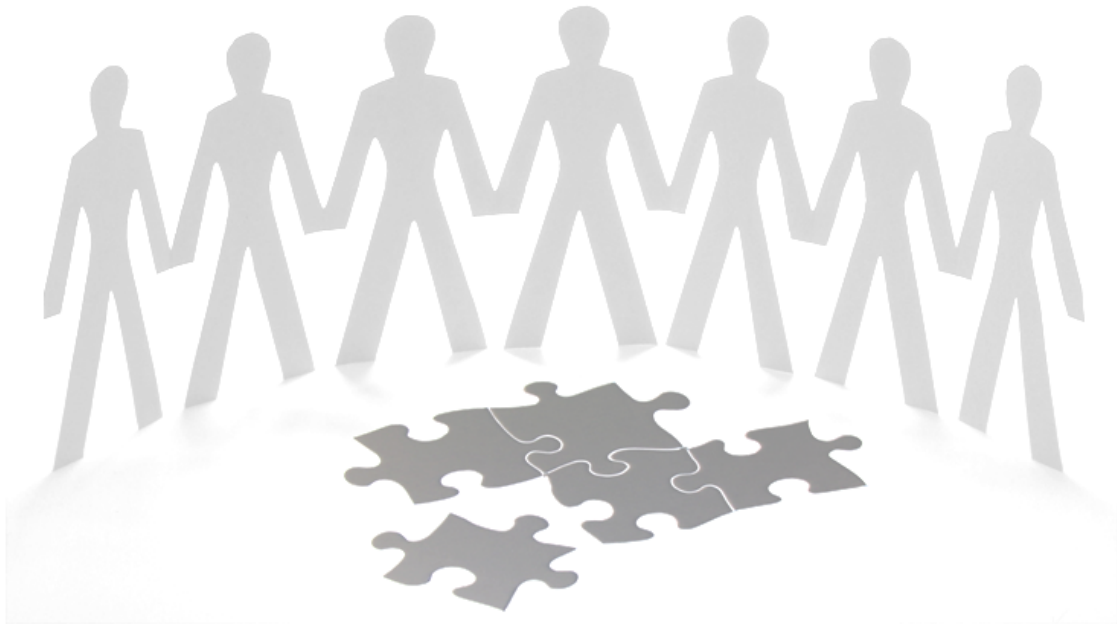


The Innovative Value of Ubuntu:

Knowledge Sharing in African Organizations



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Preface

In this preface I would like to thank everyone who has supported me while writing this thesis. First I'm very thankful to dr. B.J.W. Pennink who introduced me to the concept of *ubuntu* and who was always there for me when I had any kind of questions or trouble. Also I am very grateful to prof. dr. T.A. Satta who provided me with a place on the campus of the Institute of Finance Management in Dar es Salaam and several useful contacts with several Tanzania organizations. Next I would like to thank Leonie Heijink, who was my companion when distributing and gathering questionnaires. Also thanks to dr. C. Reezigt for his critical remarks. Then there are my parents who I owe a lot to, as they always supported me emotionally and financially during my years of study. And also I have to thank my girlfriend, Jolien de Lange, just for being my girlfriend and helping me through difficult times, both in Groningen and in Dar es Salaam. Finally I would like to thank mr. William Austin Burt, who in 1829 invented the typograph and whit that invention started a process which has led to the modern keyboard attached to a computer with a very helpful word processing program. This made it a lot easier for me to write this thesis than for my fellow student several decades and centuries ago.

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Summary

Academic literature on business practices and management is based on Western cultural beliefs and values. This results in problems for African managers and foreign managers working in African organizations, because the continent's indigenous culture has been ignored since colonial times. The concept of *ubuntu* takes the cultural background of African people in consideration and is part of the African Business Renaissance, which encourages to find ways to use culture as a strategic asset. Especially in business practices that require intense social interactions, such as knowledge sharing, it could be a promising step towards innovativeness. In this study, that was done in Dar es Salaam, Tanzania, the assumed positive relationship between the presence of *ubuntu* and knowledge sharing has been confirmed. Also several underlying dimensions of both subjects have been analyzed, which led to more than a few interesting relations. Further research is needed, but this study has found that the humanness of Africans stimulates knowledge sharing, a practice which Western organizations are so willing to integrate in their corporate practices.

Keywords: ubuntu, knowledge sharing, African Business Renaissance, African management, firm innovativeness

1 Background and Introduction

In the 15th century Europeans sailed out of their continent to first discover and later conquer the world. They succeeded in their quest and for centuries the European empires ruled most parts of the globe. Trade of spices, produce, ores and people were in the hands of these supreme powers who formed and mapped the world according to their need, greed and compromises. Although colonies are a thing of the past and the ever growing globalization is involving more and more parts of the world, worldwide business is still being done according to Western principles. A quick look at modern academic literature says it all: the European and American business schools dominate the debates and set out the rules for managing people and organizations. Blunt and Jones (1997) even go as far as to call this a form of “new colonialism”, which could just be as damaging as the imperialism of old times to developing countries. Worldwide, countries and companies are developing to play their role in the global economy, but somehow the African continent, as a whole, keeps lagging behind. It seems African run organizations are not able to tag along with the rest of the world, but also foreign managers coming to the continent seem not to be capable of turning things around, using their knowledge of international business and economics (Gbadamosi, 2003). The main question of course is why. Since about fifteen years academics finally got interested in this matter. One of them is Lovemore Mbigi, who argues that Africa will only be able to be innovative and compete in the global market by harnessing its own cultural strengths and stop imitating Western or Asian practices and models (Mbigi, 2000).

According to Mbigi, these cultural strengths can be found in the human values expressed by the people of Africa in their daily lives. These values, emphasizing a spirit of caring, dignity, respect, importance of community and tolerance are combined in the concept of *ubuntu* (Newenham-Kahindi, 2009; Mbigi, 2000). This concept, having its roots in African philosophy, can, according to several authors, also be found in African management and would show to be the key to success for African organizations (Karsten and Illa, 2005; Mangaliso, 2001; Rwelamila, Talukhaba and Ngowi, 1999).

According to Mangaliso (2001) it is only possible for organizations to enjoy a sustainable advantage over others if they are capable of matching their corporate strategies with the values and beliefs of local communities. If *ubuntu* is the key to understanding African organizations, then how can its values enable innovativeness? The theory underlying this study is derived from a study by Jassawalla and Sashittal (2002), who found that organizations that have low innovation supportive cultures, employ people who are found to be individualistic and competitive. This means that organizations exhibiting *ubuntu* values could well possess a culture favoring innovativeness.

The purpose of this study is to make a beginning in this line of research. As this is new ground, and due to limited time and resources, it would be too much for this study to cover the entire relationship between *ubuntu* and organizational innovativeness. Therefore, one of its most important determinants, intra-organizational knowledge sharing, has been chosen to investigate. Several authors already stressed the positive relationship between knowledge sharing and firm survival (Wolfe and Loraas, 2008) and innovativeness (Liao, 2006; Du Plessis, 2007; MacCurtain, Flood, Ramamoorthy, West and Dawson, 2009), arguing that knowledge and its creation, sharing and utilization are crucial to any innovation process,

while others state that the exchange of information is the lifeblood of product development (Eppinger, 2001).

In academic literature the relationship between *ubuntu* and knowledge sharing has never been examined, which makes this study a bit explorative. The main research question of this study is whether a direct relationship can be established between the presence of *ubuntu* values and the willingness to share knowledge within organizations. Also the relations between *ubuntu* values and some important motivations for knowledge sharing will be examined.

This study attempts to prove the actual worth of *ubuntu* as a management concept. It is said to be focused largely on human capital and claims that the *ubuntu* values are within every African human being due to historical heritage. If this can be established, this research will contribute to a first glance of possible African superiority in a field lots of Western managers and scholars struggle with. And if *ubuntu* is a successful management concept to support innovativeness, maybe other cultures could learn from this African management principle as well. The value of this research can therefore be twofold. On one hand there is a clear need for African companies to break free from Western rules and principles about organization and management theory. Also there exists a need to identify and acknowledge their own strengths, while on the other hand it could also help foreigners working in African organizations understand cultural differences and perform according to local values. If this form of collectivism translates in African organizations into a higher willingness to share knowledge, then maybe a first step to the practical use of *ubuntu*'s characteristics can be made. Not only could *ubuntu* values prove to be quite favorable to create a knowledge sharing climate, but moreover it could provide solutions for a problem that continues to present itself in Western organizations (Bradfield and Gao, 2007).

The following part of this paper is divided into six sections. First, a more thorough theoretical and academically literature review of the concepts of management in Africa, *ubuntu* and knowledge sharing will be offered, followed by a presentation of the central hypotheses. After that the methodology used in this research will be outlined, followed by a presentation of the results of the statistical analysis and a discussion of its implications. The last section will consist of a summary of conclusions following this research and some general remarks for further research on this topic.

2 Literature Review

This section will give a more extensive review of literature about the topics covered in this study. First an impression of the broader topic of Western management practices within African business contexts will be given. Next the history and emergence of the concept of *ubuntu* will be discussed. Finally the concept of knowledge sharing will be briefly examined. While this last topic is extremely broad and got a lot of attention in academic writing already, only the aspects relevant to this particular study will be elaborated on.

2.1 International management and business discourses in African contexts

In 2001, Jide Osuntokun published an article about the nature of African management prior to the era of colonization. He claims that, contrary to the popular view in the Western world, at that time systematic patterns of planning were carried out and individual and collective resources were managed and used for the benefit of the community.

As a result of colonial times though, European (and later American) ideas have been dominating international business literature since the beginning of its academic life. Business schools and universities all around the world make use of text books that are based on Western management theories and business practices. Students coming from Europe, China or even the Congo are taught that these theories are the best to apply in any given situation (Gbadamosi, 2003). It is no wonder that for a long time, organizations operating in international contexts held on to principles of efficiency and standardization, advocating that those are the only proper ways to manage people and companies. These traditional management visions, which are based on Western corporate cultures, have been dominating organizational discourses and literature around the world at the expense of local cultural values. Modern management theories have been described by Blunt and Jones (1997) as being ethnocentric, they are culturally determined. For the larger part this represents the North American point of view. While these business models have been praised for their excellence due to their evolutionary path and high shareholder value, no one ever cared to wonder if they were maybe only regionally (i.e. in Western Europe and the USA) applicable. These theories were also used in doing business with African organizations (Rwelamila et al., 1999), whereas local cultural business practices have been ignored for a long time. These have been labeled as inferior by international academics and managers for quite a while (Gbadamosi, 2003). Nobody wondered if these possessed any added value to either doing business in non-Western places or management principles in general (Newenham-Kahindi, 2009; Mangaliso, 2001). This led inevitably to problems in management, understanding and communication which have only recently been given the attention it deserves.

To start with, it is important to point out that Western business models are built on a foundation of order, advanced technology and have an emphasis on economic growth and material wealth. The African world on the other hand is characterized by a more chaotic environment, with huge problems in health and politics and has a basis in spirituality and the traditional emphasis on the good of the community (Du Plessis, 2001). Nussbaum (2003) suggests that the southern regions of the world are more shaped by communal ideas of societies and that they are different from the East and the West, who are somewhat individualistic. This is very important when trying to understand the purposes of actions of people in every day (work) life. On top of that, individualistic cultures assume that people

and organizations are rational economic actors who will want to optimize economic rewards. It encourages competition. The problem is that most non-Western cultures do not value individual competition and are therefore not very receptive of business strategies aimed at it (Blunt and Jones, 1997). Therefore, Lutz (2009) argues that theories that have been created for individualistic cultures will not work within communal cultures such as those of Africa. This mismatch means that many African managers are not able to practice what they have learned from theory. Moreover, employees of African firms cannot function effectively if they have to perform within an economic model which is based in a cultural foundation which is not theirs (Ntibagirirwa, 2009).

A recurring problem when adapting Western management practices to African contexts is the relative importance of efficiency and productivity. While Western organizations are measured by their abilities to maximize these determinants, in most African societies however, the practices that achieve high scores are contradictory to intrinsic values. These Western principles destroy interactivity between people, and well-being of employees comes (at best) in second place. Mangaliso (2001), among others, argues that attempts to maximize company efficiency generally disrupt social relations. Obeying the phrase that 'time is money', many Western managers implement changes or new practices without careful considerations of the social impacts. One just has to take a look at the enormous amount of academic literature on this subject to understand that this forms already a problem for American, Asian and European organizations. In cultures that are more communalistic, like most African societies, this leads to even bigger problems. According to several authors, managers working in Africa should consider optimizing, rather than maximizing, productivity which allows higher priority for harmonious relations on the work floor (Mangaliso, 2001; Jackson, 2004).

Dia (1992) agrees with this statement and even takes it one step further. According to him, one of the main failures of Western managers and scholars is to fully grasp the socio-cultural values of other continents. He states that these people incorrectly assume that everyone has the same basic principles and goals in life, wanting material security, driven by a motive for profit and self interest. And consequently Africa has been labeled by some as primitive and underdeveloped because it does not exhibit these values. But those people fail to understand how important it is for African organizations to stay in touch with the roots of its people and culture. Clearly it does not seem to be very effective to imitate Western approaches to management, organizational structure and regulations. According to Mbigi and Maree (1995) the trick is to combine appropriate management techniques from the US, Europe and Asia with the social dimensions and human values of the African people.

The interest in managing African organizations has not emerged solely because of Western and Asian companies establishing branches on African soil. Of course it is very important for them to understand African culture and get the most out of their local employees. However, slowly but steadily, due to globalization, technology development and improvement in political stability and democracy, some African organizations are getting more internationally orientated and are also entering the highly competitive global market and have been exporting their business activities across borders (Newenham-Kahindi, 2009). This means they as well will have more interactions with foreign organizations. For both parties it is interesting to understand how African organizations work. Foreigners should recognize cultural beliefs and values that are important when working with Africans, while African managers (and foreigners working in African organizations) need to comprehend and

identify internal aspects that are unique compared to their foreign counterparts and which could create competitive advantages for them (Gbadamosi, 2003).

As one of the first Sub-Saharan countries, South Africa managed to take part in global competition, although still in its margins. Mangaliso (2001) argues that the next step to actually be able to excel, must be to create understanding for the culture, values and norms of the African workforce and act accordingly. Newenham-Kahindi (2009) emphasizes that most multinational companies (MNCs) from emerging economies, like Africa, have traditional organizations based on social systems. It represents humanistic values and a stakeholder (rather than a shareholder) approach in which everyone involved should benefit or is able to have a say in things. He shows in his study on South African MNCs that the ones that are successful were able to combine American and European HRM policies with their own national and cultural organizational practices. This is only one example that the notion that “Western norms are the best way to go” is slowly fading in this world of growing globalization.

Several authors, like Jackson (2004) and Mangaliso (2001), are suggesting that the best strategic attitude for (foreign) managers and organizations is to be flexible and willing to learn from local cultures and embed them in a hybrid system which combines the best of both worlds. Karsten and Illa (2005) and Rwelamila et al. (1999) state as well that managers in African organizations need to embrace its indigenous values and combine, rather than subordinate, it with Western views to a hybrid system. Better cultural understanding and interactions could provide a solution for many of the contemporary problems in African workplaces. According to them, *ubuntu* could definitely be this cultural stepping stone.

2.2 Ubuntu

The problems outlined above provide the need for an approach that incorporates African values and beliefs into managerial practices in African organizations. Not only does this help African organizations to perform better based on their own internal strengths, but it also assists foreigners to understand and cope with the cultural environment they have to encounter when working in or with African organizations. In the last fifteen years, slowly but steadily, a serious line of research has emerged around these issues focused on the philosophical concept of *ubuntu*. The next section will dig deeper into this concept and discuss its evolution into an alleged management concept in African organizations.

2.2.1 Philosophical term

Ubuntu originates from Africa, where it applies as a traditional philosophy that explains the relationship between people and the social world around them. The word is derived from the Zulu expression "Umuntu Ngumuntu Ngabantu", which means that a person is a person through other persons (Mangaliso, 2001; Karsten and Illa, 2005). Translated directly into English, *ubuntu* can be defined as ‘humanness’ or ‘humaneness’ that individuals or groups display for each other (Mangaliso, 2001; English, 2002; Lutz, 2009; Sigger, Polak and Pennink, 2010), although Rwelamila et al. (1999) use it interchangeably with the word ‘harmony’. Generally *ubuntu* includes sharing, generosity, cooperation and harmony (English, 2002), caring, community, harmony, hospitality and respect (Mangaliso, 2001) or survival, solidarity, compassion, respect and dignity (Mbigi, 1997). This last set of dimensions will be

used for analyses in this study, as they have been used by Sigger et al. (2010) to measure the presence of *ubuntu*. Moreover this is the only existing measurement tool for *ubuntu* at this moment.

Although seen as present in many traditional central, eastern and western African societies (English, 2002), *ubuntu* has generally been ascribed to South Africa. Both Nelson Mandela and Archbishop Desmond Tutu named the concept as a pillar of the new South African republic after the abolition of apartheid. After a long period of inequality of people and immoral behavior against certain groups within South Africa, *ubuntu* emphasizes the unity of the country and the moral ethics to make decisions which are the result of consensus (Mangaliso, 2001). It represents a nation in which people care about each other and where the communal well-being is more important than individual status. But it also means that it is unthinkable for any person adhering to *ubuntu* to defile the dignity or rights of other people (Tambulasi and Kayuni, 2005). In fact, a person's status is actually dependent on his behaviors towards others. *Ubuntu* asserts that one's status in society is not determined by money, power or formal position, but by recognition of others and one's relationships and interactions with other people (English, 2002). It addresses human interconnectedness and responsibility towards each other (Nussbaum, 2003).

As this short introduction into the concept already shows, the values that are attributed to *ubuntu* by scholars are not unanimous, though they more often vary in name than in meaning. All definitions however have to do with the way a person treats others and the suppression of self interest. And in every case, it is about the interdependence between human beings. In this view, no one can exist without others. These values have traditionally only been attributed by philosophers and anthropologists when referring to societies or groups of people. But in modern business academics, it now is also being applied to organizational settings. The following section will elaborate on this line of thinking.

2.2.2 *Ubuntu as management practice*

When writing about *ubuntu* as a management concept, one has to keep in mind that it is a more social reaction to Western practices, as has already been outlined above. It is meant as a way to understand people and processes in African organizations. In his works, Mbigi (1997; 2000) refers to the African Business Renaissance, which is about the ability of African organizations to move away from imitating Western (efficiency) or Asian (technical capabilities) business practices. Instead, they need to focus on their own cultural strengths to gain a competitive advantage and be innovative at global markets. Acts like taking time to get to know ones employees or colleagues, establishing relations and long and open decision making processes, which are all reflected in *ubuntu*, are also seen by Ntibatirirwa (2009) as assets to be exploited by African organizations rather than treated as a cultural nuisance hindering efficiency. It is the management of people that should reflect a unique and distinctive approach and that is what this line of research is all about.

In his work on African management approaches, Jackson (2004) argues that there is a more humanistic way of viewing organizations and employees. As discussed before, it sees them as unique, valuable contributors to collective goals and benefits, instead of the more strategic Western 'humans as resources' point of view for reaching corporate goals to satisfy shareholders. Karsten and Illa (2005) see *ubuntu* not only as a set of practices but actually as part of (or influence on) the *habitus*, a collection of mental and ethical dispositions which

establish a person's behaviors and attitudes in day to day life. They therefore state that *ubuntu* is more than just an employee participation program. It is something that is embedded in corporate culture and is present in the way employees interact and share knowledge and experiences. The importance of these interactions is sometimes hard to understand for non-Africans.

One crucial difference between traditional Western management principles and *ubuntu* is the assumption about motivations for acting in an organizational and economical environment. Western systems are mostly individualistic, assuming individuals will want to earn as much as possible while contributing as little as possible (Mangaliso, 2001). This contradicts to the collectivist view of *ubuntu* in which the well being of the group and others is more important. Self-interest is rejected, reciprocity is celebrated. This is also expressed by Rwelamila et al. (1999), who explain this difference as follows: The Western philosophy of humanism is based on the premise of humans as rational beings, who can make individual choices. The African *ubuntu* philosophy does not recognize this, because it is not something one can choose. It simply exists and people act as they intuitively do as life comes. Moreover, *ubuntu* treats an organization as a community, rather than a collection of individuals. Following this point of view the purpose of management is not to benefit one or more groups of individuals (which is common in Western stakeholder or owner-value-maximization theories), but to benefit the entire community (Lutz, 2009).

The communal nature of *ubuntu* in organizations could be reflected in employee relations, teams and collective goals. People are, without any extrinsic reward, willing to help others, share ideas and cooperate for the sake of the higher goal (Lutz, 2009; Mangaliso, 2001). There is an emphasis on working together and respecting others (English, 2002). Communication is the vital process here. It is a social means of building relationships between people and creating understanding of each other's beliefs and motivations. In an *ubuntu* environment, decisions can only be properly made when all opinions are heard. Diversity in vision and ideas are permitted and encouraged and everyone involved in the decision-making process is allowed to venture their arguments. It is only after everyone has spoken that a consensus can be reached. This takes time and to time driven Europeans and Americans this may seem as an inefficient process, but for African organizations it makes perfect sense. Harmony is more important than business effectiveness. As Mangaliso (2001) stated: 'A decision that is supported is considered superior to the "right" decision that is resented or resisted by many'. And in the long run this leads to employees that are happy at their workplace and feel that they are important to their companies.

Closely related is the concept of family, which is also very important when assessing *ubuntu*. First, there is the comparison between family and organizations. People working in an organization are viewed as the members of one large family, whose main goal is to take care of each other and achieve the best results for the entity so everyone can benefit (Mangaliso, 2001). They are not working there for the benefit of the organization, but the organization is seen as a means to reach a better life together. Also, there is the belief that if employees treat their colleagues as family, they will show more respect and kindness, resulting in better informal contacts, and a comforting atmosphere at the work place. Moreover this leads to greater commitment to organizational goals (Mangaliso, 2001) and employees will have higher levels of accountability and will become more innovative (Newenham-Kahindi, 2009). Second, in African societies and work places, kinship ties are deemed very highly. It is perfectly normal to hire family members before attracting outsiders,

because their qualities are known and this even reinforces the cordial relationships between employees.

There is however a downside to this as well as Lazaro Katuma points out (personal conversation, March 2010). Because of the importance of family, he was asked by his sister to hire her sons into his organization. Although requested kindly, this was actually an order which was not to be ignored. His unemployed nephews needed a job to survive and he was by far the highest ranked member of the family. Therefore it was his moral duty to find a position for them in the organization he worked in, although they were not qualified for the jobs. At the same time, this meant that someone else who really was right for that job was not hired, and therefore the company got damaged in some way. Nevertheless he argues that now the network at his organization is more closely connected. Also he can discipline his nephews and is able to make them learn to do their jobs profoundly, while an outsider brings in social risk. So generally the organization as a whole should benefit in the long run. This line of thought is also found in the ideas of Mangaliso (2001).

Finally, *ubuntu* can be seen as the collective participation of all who are involved (Rwelamila et al., 1999). It is the belief that no organization is able to attain its highest potential if it neglects its moral and ethical base. And this base is about working together and acknowledging interdependence between all people that are involved. According to Van der Colff (2003), the social values of *ubuntu* can form an innovative process in people management. Not only in Africa, but also in global management organizations could learn to work together in harmonious ways. And Rwelamila et al. (1999) even argue that the goal of working together within an *ubuntu* environment happens for the sake of harmony. It is the highest goal. Men do not exist to serve a project, but the project exists to serve men. They conclude that if a manager were to treat his employees as 'cogs in the machine', they will just work for the money and show no sign of commitment, which results in weaker performance.

2.2.3 Dimensions of *ubuntu*

The concept of *ubuntu* has been defined in differing ways and has been said to be made up out of different dimensions. Most of the times though, they aim at the same kind of actions, values and meanings. In one study, Broodryk (2006) described sixteen different values that can be found within *ubuntu*. For this study, the dimensions first outlined by Mbigi (1997) and later by Poovan et al. (2006) have been chosen as the basic groups of aspects that explain what *ubuntu* is made out of. As one of the pioneers in the field of *ubuntu* as a management concept, he argues that it is constructed out of five dimensions, which are closely related. These are Compassion, Solidarity spirit, Survival, Respect and Dignity. They describe the core values of humanness and are defined in terms that fit organizational settings by Sigger et al. (2010). In their study they tried to embed also the sixteen values of Broodryk into the dimensions of Mbigi. One has to bear in mind that the basic features of these values are essentially present in human nature in general (Lutz, 2009). However, currently they seem to be more present in African societies.

Compassion

The dimension of compassion is about understanding the problems and dilemmas of others and feeling the urge to help them (Mbigi, 1997; Poovan et al., 2006; Sigger et al., 2010). It is one of the cornerstones of the communal characteristics of *ubuntu*, as it forms relationships and creates a feeling of interconnectedness. Broodryk (2006) sees it as a vital

remembrance of the interconnectedness of African people and compassion is represented in the way people reach out for each other so that relations can be formed. And according to Poovan (2006) compassion forms the foundation for a culture of caring and sharing as the wellbeing of others is equally or more important than someone's own wellbeing.

Solidarity

A spirit of solidarity also enlarges the communal feelings of a group. Again it means that someone chooses to help other people instead of aiming for individual glory (Sigger et al, 2010). Also it encompasses the idea that difficult tasks can only be accomplished collectively. According to Poovan et al. (2006) it also means that people really take time to get to know each other and do things together. He even makes a comparison with the Israelian Kibbutz, which is a non-individualistic value system based on mutual efforts and voluntary participation of all members. They work together to accomplish communal goals and he claims that the solidarity dimension of *ubuntu* holds these same values. This feeling of togetherness is part of the values Africans learn from their childhood, which praise the good of the community. Through rites such as singing and dancing these values are expressed in most communities. Nussbaum (2003) describes how the well being of the community defines a person's status, using the phrase "I am because we are". Poovan et al. (2006) therefore concludes that the solidarity spirit of *ubuntu* can be seen as the opposite of selfishness and competitiveness.

Survival

The concept of survival is closely related to the dimension of solidarity. For some parts there is some overlap when it come to the feelings of responsibility for others and combined efforts to accomplish mutual goals (Poovan et al., 2006). Survival is about people who share their expertise and resources and make sacrifices for the benefit of the group or community (Sigger et al. 2010). Individual gains are reached through collective goals (Lutz, 2009), which increases the coherence of a group or team. This has come forth out of the struggles most African tribes and communities had to deal with in their histories. This created scenarios where one was only able to survive when acting and caring as member of a group (Poovan et al., 2006). Also there is a parallel with the dimension of compassion, as Broodryk (2006) points out. In order to survive in a world of natural disasters, war, political instability and poverty, people are dependent on the survival of others. This interdependence created bonds that are still present in most Africans and one manifestation of this is the sharing of wages and food between employed and unemployed family members and friends.

Respect & Dignity

Although identified as separate values by Mbigi (1997), most academics using his categorization combine these two to make up for one dimension (Sigger et al. 2010; Broodryk, 2006; Poovan et al., 2006) because they are very closely related. Respecting others is valued highly in most cultures around the world, but has been defined by Poovan et al. (2006) as one of the building blocks of African societies. Also there is deeply rooted respect for elder people, authority and other persons fulfilling their tasks for the community good (Mbigi, 1997). Respect and dignity in African societies are in the first place is about tolerating and valuing other people as well as their opinions and ideas. These opinions can be related to ideas at the workplace or to ethnical or religious matters.

Within organizations all around the world diversity is praised as people from different origins bring in new and different opinions. In Africa, this is true as well, but according to Mbigi and Maree (1995) this is not the result of cultural driven HRM practices but a general

and sincere interest in other people. Organizations expressing an *ubuntu* spirit on their work floor place high emphasis on hearing all opinions to reach consensus. Everyone's meaning is valued highly. One does not have to earn respect but generally receives it, regardless of position or status according to Broodryk (2006). A very important consequence of mutual respect in relations is the growing of trust between people. And where there is trust, there is a sharing of ideas and information. This is also encouraged by the notion that everyone is equal. As already mentioned, after the apartheid regime in South African and many other colonial regimes in other countries, people wanted to be treated as equals and this very much present within the dimension of respect and dignity.

Although *ubuntu* has been the topic of several articles, research about its actual existence in African organizations is still young. Most authors refer to it in its anthropological terms and translate them into business practices and behaviors. Only recently did Sigger, et al. (2010) make a first attempt to measure the presence of *ubuntu* in Tanzanian companies with a newly designed scale. This study will take a next step in this line of research, using the same measurement tool, adjusted according to the suggestions done by the researchers themselves. The purpose will be to use it and find a relationship with the concept of knowledge sharing. The next section will elaborate on this other central topic of this study.

2.3 Knowledge Sharing

In current times, knowledge has proven to be a crucial organizational resource. There is an endless list of authors who stated the value of knowledge for organizational survival or growth and the creation of a competitive advantage (see for instance: Wang and Noe, 2010; Lin, Lee and Wang, 2009; Pretorius and Steyn, 2005; Bock, Zmud, Kim and Lee, 2005). The following section will elaborate on knowledge sharing, its relation with firm innovativeness, its problems for management and the factors influencing it.

2.3.1 Definitions

Knowledge is a very broad concept, which can be tacit (experiences, learned abilities and creativity) or explicit (files, records and databases) (Kim and Lee, 2006). It is especially tacit knowledge that has great value, but both forms are considered in this study when the term "knowledge" is used. According to Bock et al. (2005) knowledge resides in employees who create, apply, access, archive and recognize knowledge while performing their tasks. In literature, there have been debates whether knowledge and information differ from each other or not. Although some argue that information is only a flow of messages and data and that knowledge is the usage of information depending on one's beliefs (Nonaka, 1994) or interpretations (Nevis, DiBella and Gould, 1995), this study will use the two concepts interchangeably. As Wang and Noe (2010) point out, there is not much practical utility in distinguishing between the two concepts when doing knowledge sharing research. This means that knowledge will be treated as information processed by individuals including all expertise, experience, ideas, factual data and individual assumptions, which have any relevance for other employees, teams or the organization as a whole (Bartol and Srivastava, 2002).

Lin et al. define knowledge sharing as 'a social interaction culture, involving the exchange of employee knowledge, experiences, and skills through the whole department or

organization' (2009: 26). Cummings adds that knowledge sharing occurs to collaborate with others to solve problems, develop new ideas or implement policies or procedures (2004: 353). Finally, Kim and Lee see knowledge sharing as 'the ability to share experience and, expertise and information with other employees through formal and informal interactions' (2006: 371). In any case, there has to occur some form of communication between two or more individuals at hand. In most cases these individuals are at the same geographical place at a certain moment in time, in a face-to-face setting. But knowledge sharing can also occur by phone or over the internet or through (digital) data storage in which case people are not physically at the same place. In this study, all forms are admitted for examination.

2.3.2 Knowledge sharing and firm innovativeness

In literature about determinants of the innovative capabilities of organizations, knowledge sharing can be found as one of the main factors. Du Plessis (2007) expresses this very well by stating that the management of knowledge is not solely focused on innovation, but that it does create an environment conducive for innovation to take place. This is based on the premise that knowledge sharing leads to the combining and transferring of new ideas, suggestions for improvements and solutions (Jantunen, 2005). The findings of Lin (2007) and Liao (2006) also show that organizational innovativeness is significantly related to the process of knowledge sharing, because it enables new ideas, processes, products or services. Calantone, Cavusgil and Zhao (2002) add to this that knowledge sharing is crucial to prevent a loss of organizational knowledge and experience due to employee turnover and transfer. Jantunen (2005) argues that recent academic literature is very much resource-based. Within these frameworks knowledge is seen as a key asset which is valuable, inimitable and intangible and can make a difference in innovative processes to create a competitive advantage. According to Du Plessis (2007) knowledge is a resource used to reduce the complexity in these innovation processes. Sharing knowledge makes information available for all that are involved, quickening problem solving and idea creation.

In innovative processes, research activities and rapidly changing orientations are becoming more and more the key to success. Both rely on the development, acquisition and dissemination of knowledge and the effective use of new information by employees (Liao, 2006; Liebowitz, 2002). Knowledge sharing thus enables people to combine their ideas and circulate knowledge throughout a firm. This interactive environment gives organizations the possibility to make efficient use of its tacit and explicit knowledge base, creating a very valuable intangible asset which can lead to a competitive advantage in innovation processes.

2.3.3 Management problems involving knowledge sharing

The preceding sections clearly presented the vital importance and use of knowledge sharing within organizations. However, sharing knowledge cannot be taken for granted, given the enormous amount of research that has been done in this field to identify factors that can establish and enhance it to benefit organizations. A big range of problems in (Western and Asian) organizations have been identified which hinder effective sharing or even obstruct knowledge sharing from actually happening at all. To illustrate the magnitude of this problem, a study by Babcock (2004) showed that failing to share knowledge resulted in a total of \$31.5 billion per year being lost by Fortune 500 companies.

One of the main problems that are presented in academic writing is the concept of power. In organizational cultures where individual results are the main measure of determining performances and rewards, the possession of knowledge is vital for gaining personal benefits. This results in defensive behavior by employees to guard one's position and possibilities, by withholding ideas and knowledge from colleagues (Lin et al., 2009). Moreover, knowledge sharing creates a sort of public good dilemma, in which knowledge assets are contributed for the benefit of the organization and can be used by others, but there is no guarantee of others making the same kind of contributions (Dawes, 1980). It leads to a kind of uncertainty for employees which results in the tendency to withhold knowledge, just to be sure not to contribute too much valuable information.

Another problem that is associated with this is the fact that organizations find it hard to correctly reward knowledge sharing (Bock et al., 2005). As Scarbrough (2003) points out, rewards for some, be they tangible (promotions or financial bonuses) or intangible (increased respect or status), can lead to dissatisfactions for others. Especially in Western cultures in which individual profit maximization is the main driver for performance, knowledge sharing can become solemnly a strategic activity. In these pay-for-performance structures, knowledge sharing is discouraged (Bock et al., 2005). Employees only share because of the expected rewards, not out of concern for the best organizational outcome. This problem presents itself also at the levels of teams and divisions.

All academic writings strongly agree on the idea that top management must introduce systems of knowledge management to establish a knowledge sharing climate and culture. Employees have to be triggered, and moreover learned, to show any kind of sharing behavior (Lin, 2007). To enable knowledge sharing within an organization, managers should try to determine the most important factors influencing this kind of behavior and create favorable circumstances and culture.

2.3.4 Dimensions of knowledge sharing

Although a variety of academics has tried to identify the factors and mechanisms used to enhance, create or motivate the sharing of knowledge, they have not agreed yet on a single set of determinants. Below some of the recurring determinants or predictors of organizational knowledge sharing found in academic literature will be given. These are derived from Lin et al. (2009) which were established in their study identifying the most influential dimensions of knowledge sharing.

Corporate culture

The first dimension which influences knowledge sharing within organizations is the corporate culture. According to the study done by Lin et al. (2009), it is in fact the highest ranking overall factor in promoting knowledge sharing. It indicates that an organization needs to be socially oriented to provide employees with a climate in which their interactions encourage the sharing of ideas and information. The dimension of corporate culture has been made up out of the following subjects: social networks, interpersonal trust, sharing culture, learning orientation and organizational rewards. Below each of these will be briefly introduced.

Starting with social networks, Cross and Cummings (2004) found that the ties among individuals within social networks facilitate the transfer of knowledge and contribute to its quality as well. Employees expecting to strengthen these social ties participate more in community activities and show higher intentions of knowledge sharing. As Käser and Miles (2001) state, employees working in these kinds of networks perceive knowledge sharing as social exchange between the individual and the community. Finally, social networks facilitate open and informal communications. Kim and Lee (2006) found that especially the latter is an important influence on knowledge sharing among employees.

Maybe even more important is the concept of trust. Strong social connections can only be formed when people trust each other. Employees need to make sure that their honest intentions are met when sharing information and ideas. Käser and Miles (2001) argue that the highest form of knowledge sharing can only be achieved through very high levels of trust. Moreover Liao (2006) found that trust is a prerequisite for knowledge sharing and firm innovativeness, as it is fundamental for social situations that demand cooperation and employee interdependency.

An organization's culture can only influence knowledge sharing if the tendency to share information and ideas is regarded as a daily, routine activity. There is an emphasis on the value and benefits of sharing knowledge and everyone is expected to contribute. This kind of sharing culture stems from organizational values and beliefs that accept failure, support risk taking and reward team or organizational performance instead of individual results (Kim and Lee, 2006). The concept of psychological safety, which means that one does not have to be afraid of giving his or her opinion, is also closely related. If this is the case, there is no reputational risk for sharing, which definitely enhances its occurrence.

The link between knowledge sharing and a learning orientation seems obvious. The concepts are closely related, because knowledge is one of the basic requirements for learning. Learning organizations use the knowledge they have received through earlier cycles to customize or create new products, services or processes (Liao, 2006). Therefore these companies encourage employees to be hungry for knowledge and acquire new skills in different areas of expertise.

The positive influence of organizational, or extrinsic, rewards on knowledge sharing has been debated. Although some scholars (Ewing and Keenan, 2001; Kim and Lee, 2006) found that the promise of financial or promotional rewards for knowledge sharing activities was effective, others were not able to find this relationship and doubted the underlying motives (e.g. Bock et al., 2005; Lin, 2007). As has already been mentioned, wrongly implemented, rewards can lead to selfish behavior and actually hinder sharing. However, in certain organizational cultures, some kinds of rewards do seem to be able to increase knowledge sharing. This is especially true when it is the sharing itself that is rewarded, rather than individual performances using knowledge and when the target is to promote involvement or communication (Kim and Lee, 2006).

Employee motivations

The second dimension, the personal motivations of employees for sharing their knowledge, is considered to be a very important aspect contributing to knowledge sharing. These reflect the individual values and beliefs of employees in their actions.

Closely related to the issue of interpersonal trust, is the expectation of reciprocity (Lin, 2007). This is the belief that if one shares knowledge now, a later request for critical knowledge will be returned in the future by colleagues. Again this touches the problem of

only sharing when getting something for it in return, although this is not on the level of direct rewards. In an open and sharing organizational culture, employees should not have to worry about finding colleagues not returning any favors (Brock et al., 2005).

Previous research showed that one of the main motivations is the intrinsic need to contribute knowledge, because it is challenging or pleasurable (Wasko and Faraj, 2005; Lin, 2007). In this case, knowledge sharing is a voluntary act, which allows for growing competences and personal abilities (Käser and Miles, 2001).

Another sort of motivation comes from employee self-efficacy, which is their own judgment of their capability to perform well and share knowledge. It is present in people believing that their contributions will be able to solve problems and help colleagues with work related problems (Luthans, 2003; Lin, 2007). Wang and Noe (2010) point out as well that this has to do with a form of self confidence about the value of the knowledge one owns.

Reputation and respect are also strong motivators for sharing knowledge. This has to do with the social exchange theory. Dating back to 1981, Emerson suggests that individuals base their actions upon the benefits they expect to become them. The decision to share knowledge then comes from the belief that one will gain respect from colleagues or in some cases more tangible rewards. This last aspect however has already been mentioned as a subject of debate about its effectiveness when it comes to encouraging knowledge sharing (Brock et al., 2005).

Management/leadership

Leadership and top management involvement is also found to have serious impact on knowledge sharing within organizations (Lin et al., 2009). This dimension includes the setting of clear organizational visions and goals, the support and encouragement of top management to share knowledge and the existence of an open leadership climate.

Setting clear organizational visions and goals has always been indicated as one of the main tasks of top management. Apart from that, it guides organizations in their activities and according to some it also influences knowledge sharing. Gold, Malhotra and Segars (2001) suggest that clear goals and vision engender a feeling of involvement and collectivity, which leads to mutual contributions among employees.

A commonly believed aspect of this is the visible support of top management to create a organizational climate that is supportive to sharing and provide sufficient resources to establish this (MacNeil, 2004; Lin, 2007). Moreover Lin and Lee (2004) claim top management encouragement to be a necessity in this process. To show this, knowledge sharing can be entered into official company policies or statements. This support is also argued by Wang and Noe (2010) and Pretorius and Steyn (2005) to be positively related towards knowledge sharing. Perceived supervisor support and encouragement to share ideas for new opportunities contribute towards both the amount and quality of knowledge sharing within an organization.

Finally, in an open leadership climate, authority is considered to be informal. Every employee is allowed to venture ideas and solutions for business problems (Lin et al., 2009).

Information Technology

In modern times Information Technology (IT) has become very important for the processes of storing and retrieving knowledge (Kim and Lee, 2006). Rapid access to information is crucial for efficient problem solving or product development and computers,

internet, data warehouses and databases are nearly indispensable in these processes. The use of knowledge networks and database utilization increases the volume and effectiveness of knowledge sharing, according to Mosia and Ngulube (2005). Nevertheless, the role of information and communication technology (ICT) in knowledge sharing processes has also been contested. These concepts are undoubtedly closely linked, because a well function technology infrastructure supports communications and collaborations between employees, while enabling them to search within databases of corporate knowledge (Huysman and Wulf, 2006). In his study however, Lin (2007) found that ICT contributes to requesting knowledge, but does not per se lead to the donation of individual knowledge. His main argument is that knowledge sharing is a social practice which needs human interaction. This indication has also been found by Pretorius and Steyn (2005). Still, IT systems seem to be positively related to the capabilities of employees to share knowledge, as Kim and Lee (2006) found.

This section gave a broad literature overview of the main concepts of this study. The next section will use these to form and present hypotheses that will be tested and form the central part of this paper.

3 Hypotheses

As stated in this study's introduction, it does not fit within the scope of this research to examine the entire set of relations between *ubuntu* and firm innovativeness. Moreover, such an approach would only examine a vague connection between innovativeness and *ubuntu*, while it would not be able to explain how this relation intrinsically works. Therefore the choice has been made to examine knowledge sharing as a concept that has proven to be an important determinant of a firm's innovative capabilities. The underlying idea is that knowledge sharing could also be one of the organizational processes in which a social and communal culture as *ubuntu* is clearly capable of making a difference compared to Western management principals. Finding a positive relation could mean a first step in identifying aspects of African management practices to focus on in achieving a competitive advantage over their American, European and Asian competitors.

3.1 Knowledge sharing in *ubuntu* cultures

As seen in theoretical analysis of this study, one of the much praised characteristics of *ubuntu* is the interdependence between people, expressed in reciprocal relations. In their analysis of different cultures, Hampden-Turner and Trompenaars (1993) indicate that these feelings of belonging to the collective lead to intrinsic motivations to contribute to mutual goals. This spirit of solidarity not only stimulates cooperation, but it is argued that this can grow out to be a competitive advantage over more individualistic cultures by allowing individuals to contribute their best efforts for the sake of the team (Mangaliso, 2001). Wolfe and Loraas (2008) found that both the intention to share knowledge and the total amount of knowledge that is shared increases when people tend to be more collectivistic rather than individualistic. Moss Kanter (1972) takes this even one step further. In her work on social perspectives of communities, she states that individuals that perceive themselves as part of a community do not see the need for competition. It simply does not serve the community purpose. Therefore the community is expected to provide its members with the knowledge they need, without deliberations for personal gains.

Another characteristic of *ubuntu* is the quest for consensus. All opinions are heard before decisions are made, which takes time, but in *ubuntu* environments it is more important to be 'harmonious and united' than 'right, but contested' (Mangaliso, 2001). In these decision-making processes it is important that all available information is shared and discussed, it is the only way to reach a shared agreement. But what is more important to remember here, is that there is no direct link between the amount of communication and the amount and effectiveness of knowledge sharing. Liao (2006) reminds us that it is not about the quantity of communication, but the quality of it. Also, employees will not share more knowledge per se if invoked from above. These two features create an opportunity for *ubuntu*, which principles put value on intense communications and interactions bases on humanness.

Also, Lin (2007) stated that knowledge sharing is a social process, which works best when relationships are close and people are willing to help each other. Pretorius and Steyn (2005) also suggest that human relations and interactions should be fostered within organizations, using teambuilding and mentorship programs. In African organizations, people should take more time in greeting each other and are more interested in each other's concerns, therefore these interactions should be already part of the daily routine of employees instead

of an intensive management attempt. Lin et al. (2009) claim that several of the items contributing to important knowledge sharing predictors are about sharing, helping and informal communications within the organization. These are actions that should be very much present in companies where *ubuntu* values are celebrated. And as Karsten and Illa (2005) argued, *ubuntu* is about close interactions and sharing experiences within a company.

Finally, Käser and Miles (2001) point out that two important preconditions for knowledge sharing are a high level of trust between the sharing parties and the presence of intrinsic motivations. Both are inherent in *ubuntu* and it should therefore stimulate knowledge sharing. Because of its communal focus, people holding *ubuntu* principles should feel no constraints helping others and sharing valuable information with them. Therefore the main hypothesis of this paper states that people scoring high on the scale of *ubuntu* values, should also score high on their willingness to share knowledge.

Hypothesis 1: Employees scoring high in valuing ubuntu values, will show greater willingness to share knowledge than those employees who don't score high on valuing ubuntu values.

3.2 Ubuntu and knowledge sharing dimensions

Following this line of reasoning, it is also expected that each of the four dimensions of knowledge sharing that have been identified for this study are also positively related to *ubuntu*. Moreover, as Ntibagirirwa (2009) has argued, it is time to explore if the traditional African values of community show economic potential. As *ubuntu* should be part of the intrinsic motivation for behavior and reasoning of a person, it should also be present when considering an organization's culture, leadership and personal motivations of employees. Although the use of IT has not yet fully developed in Tanzania, it is assumed here that people make more use of it for knowledge sharing, if their score on *ubuntu* is higher as well. Therefore the next set of hypotheses state that people scoring high on the scale of *ubuntu* values, should also score high on each of the knowledge sharing dimensions.

Hypothesis 2a: Employees scoring high on ubuntu values, will show more personal motivations to accommodate knowledge sharing than those employees who don't score high on valuing ubuntu values.

Hypothesis 2b: Employees scoring high on ubuntu values, will attribute more value to leadership supporting knowledge sharing than those employees who don't score high on valuing ubuntu values.

Hypothesis 2c: Employees scoring high on ubuntu values, will attribute more value to a corporate culture supporting knowledge sharing than those employees who don't score high on valuing ubuntu values.

Hypothesis 2d: Employees scoring high on ubuntu values, will make more use of IT to share knowledge than those employees who don't score high on valuing ubuntu values.

3.3 Ubuntu dimensions and knowledge sharing

Except from the positive relationship between the general presence of *ubuntu* within an organization and knowledge sharing, this study also assumes a positive relation exists between each of the individual *ubuntu* dimensions and knowledge sharing. This is based on the idea that those dimensions all contain certain characteristics that should encourage

knowledge sharing behavior as well. These assumptions are expressed in the next set of hypotheses:

Hypothesis 3a: *Employees scoring high on Compassion, will show greater willingness to share knowledge than those employees who don't score high on Compassion.*

Hypothesis 3b: *Employees scoring high on Solidarity, will show greater willingness to share knowledge than those employees who don't score high on Solidarity.*

Hypothesis 3c: *Employees scoring high on Survival, will show greater willingness to share knowledge than those employees who don't score high on Survival.*

Hypothesis 3d: *Employees scoring high on Respect & Dignity, will show greater willingness to share knowledge than those employees who don't score high on Respect & Dignity.*

Moreover it is also expected that each of the *ubuntu* dimensions that have previously been defined, have a positive causal effect on the four knowledge sharing dimensions. Each *ubuntu* dimension is based around a central set of values that support outcomes that benefit a group, community or team as a whole. They are about treating others with respect and helping them if possible. These traits should ideally result in a positive contribution to all aspects of knowledge sharing.

3.4 Compassion

The first dimensions is compassion. This concept is defined as the need to care for other people and the willingness to help them with their problems. It is expected that these feelings will lead to a greater willingness to share knowledge in all its aspects. This is formulated as follows:

Hypothesis 4a: *Employees scoring high on Compassion, will show more personal motivations to accommodate knowledge sharing than those employees who don't score high on Compassion.*

Hypothesis 4b: *Employees scoring high on Compassion, will attribute more value to leadership supporting knowledge sharing than those employees who don't score high on Compassion.*

Hypothesis 4c: *Employees scoring high on Compassion, will attribute more value to a corporate culture supporting knowledge sharing than those employees who don't score high on Compassion.*

Hypothesis 4d: *Employees scoring high on Compassion, will make more use of IT to share knowledge than those employees who don't score high on Compassion.*

3.5 Solidarity

The second dimension is solidarity. If one possesses this spirit, the individual goals are set aside to bundle resources and knowledge to complete collective tasks. Therefore this study assumes that there is a direct relationship between the presence of solidarity spirit and the willingness to share knowledge in all its forms. These expectations are formulated as follows:

Hypothesis 5a: *Employees scoring high on Solidarity, will show more personal motivations to accommodate knowledge sharing than those employees who don't score high on Solidarity.*

Hypothesis 5b: *Employees scoring high on Solidarity, will attribute more value to leadership supporting knowledge sharing than those employees who don't score high on Solidarity.*

Hypothesis 5c: *Employees scoring high on Solidarity, will attribute more value to a corporate culture supporting knowledge sharing than those employees who don't score high on Solidarity.*

Hypothesis 5d: *Employees scoring high on Solidarity, will make more use of IT to share knowledge than those employees who don't score high on Solidarity.*

3.6 Survival

The dimension of survival represents the feeling that it is good to work together and help each other, because in that way everyone is able to survive. In an organizational context this means that everyone is able to keep their jobs and execute them properly to earn money for themselves and their family. Consequently it seems normal that employees with a strong sense of survival will share their knowledge to help others perform their tasks. This leads to the following assumptions up for analysis:

Hypothesis 6a: *Employees scoring high on Survival, will show more personal motivations to accommodate knowledge sharing than those employees who don't score high on Survival.*

Hypothesis 6b: *Employees scoring high on Survival, will attribute more value to leadership supporting knowledge sharing than those employees who don't score high on Survival.*

Hypothesis 6c: *Employees scoring high on Survival, will attribute more value to a corporate culture supporting knowledge sharing than those employees who don't score high on Survival.*

Hypothesis 6d: *Employees scoring high on Survival, will make more use of IT to share knowledge than those employees who don't score high on Survival.*

3.7 Respect and Dignity

The last dimension is respect & dignity. Within *ubuntu* communities, this part resembles the open culture in which people value each other's opinions and beliefs. It is important to trust co-workers and treat them all equally. Therefore this study assumes that when people respect each other within an organization, they have no reason to mistrust the motives of other persons and will therefore feel no barriers to share knowledge. This leads to the final set of hypotheses of this study:

Hypothesis 7a: *Employees scoring high on Respect & Dignity, will show more personal motivations to accommodate knowledge sharing than those employees who don't score high on Respect & Dignity.*

Hypothesis 7b: *Employees scoring high on Respect & Dignity, will attribute more value to leadership supporting knowledge sharing than those employees who don't score high on Respect & Dignity.*

Hypothesis 7c: *Employees scoring high on Respect & Dignity, will attribute more value to a corporate culture supporting knowledge sharing than those employees who don't score high on Respect & Dignity.*

Hypothesis 7d: *Employees scoring high on Respect & Dignity, will make more use of IT to share knowledge than those employees who don't score high on Respect & Dignity.*

4 Research Methodology

4.1 Data collection and participants

To obtain data, a survey using questionnaires was conducted in Tanzania. This country has been chosen for two main reasons. First of all, prior research to validate a scale measuring *ubuntu* has also been conducted in Tanzania. The existence of *ubuntu* within organizations in this country therefore has already been established, which makes it a perfect geographical location to test for relationships with other organizational constructs. The second reason why Tanzania was chosen has come out of practical reasons. The available network of initial contacts already existed in Dar es Salaam.

The questionnaire used for obtaining data was made available in both English and Kishwahili, the official language of Tanzania. This was done to make the survey also accessible to non-English speakers and hopefully this reduced misunderstanding due to errors in translating. This survey samples employees born in Sub-Saharan countries from 70 small and large organizations in Dar es Salaam and Arusha in Tanzania. The organizations were chosen because of their accessibility and all questionnaires have been distributed by hand or email. The questionnaires were to be filled out anonymously. Within a few days after handing them out, the organizations were visited again to collect the questionnaires. Of the 300 questionnaires distributed, 215 were returned and used for analysis, which is a response rate of 71,7%. Out of this total, nine participants were ignored because they were born outside of Africa.

4.2 Measures and scales

To measure the presence of *ubuntu* and knowledge sharing in organizations, items were used that were mainly adapted from previous studies. These scales were adjusted according to the findings and recommendations of those researchers after using them. All constructs were measured using multiple items. Respondents were asked to indicate to which extent they agreed to statements regarding these items using a five-point Likert scale (ranging from 1 = strongly agree to 5 = strongly disagree). For the sake of comparison or the results, the scales have been reversed for all questions. Next, the items have been grouped into eight scales, representing the four existing dimensions of *ubuntu* and the four dimensions of knowledge sharing that have been conceptualized previously. This has been done by summing up the scores for the items in each dimension and then dividing this by the number of items. Finally these dimension scales have also been summed up and have been divided by the number of dimensions to come up with two mean scales for *ubuntu* and knowledge sharing. Scores of 2.4 or less indicate a low level of *ubuntu* or a negative attitude towards sharing knowledge. Scores between 2.5 and 3.5 indicate moderate levels of *ubuntu* and Knowledge sharing, while scores 3.6 indicate a high level or positive attitude. A complete list of these items for each scale can be found in Appendix A. Below a short description for the chosen scales is given.

The four dimensions of *ubuntu* have been derived from the study of Sigger et al. (2010), which main target was to design a measurement tool for *ubuntu*. These dimensions, Compassion, Survival, Solidarity and Respect/Dignity have first been identified by Mbigi (1997). The total scale consists out of 39 items. The present study will also make use of this

scale as it is the only known and validated measurement tool for this concept. The four dimensions of knowledge sharing have been measured according to the study of Lin, Lee and Wang (2009), which aimed at evaluating the factors that influenced intra-organizational knowledge sharing. A total of 16 items is used to measure the four factors. These four dimensions are Employee Motivation, Corporate Culture, Leadership and Information Technology. This scale has been chosen because it is very broad and comprehensive in the items it measures and has shown to be applicable to every industry.

4.3 Procedure

To get a first impression of the results the means and standard deviations for all dimensions and constructs will be calculated. Next, to check for reliability and the Cronbach's alphas will be generated and also all dimensions scales will be analyzed both internally and compared to other dimensions using correlation matrices. Also a factor analysis using the principal components analysis will be executed as an extra check on the scales that were used. Then several regression analyses will be done to explain any correlation found between the different dimensions and concepts. Also all hypotheses will be checked for explained causal relations. Finally the research model for this study will be evaluated and if necessary redesigned.

4.4 Validity and reliability

The first step now is to check if the scales that will be used for measuring knowledge sharing and *ubuntu* and their dimensions are applicable in this particular context. The Factor Analysis is a method to verify validity and will be used here to establish if the measurement tools that have been used in prior research are appropriate to use in this study. In the ideal situation these results back up the previous findings by identifying four dimensions per construct and providing an orderly Rotated Component Matrix to indicate a simple structure. All Factor Analyses have been performed using the Principal Components analysis in combination with a Varimax rotation.

4.4.1 Ubuntu scale validity

Starting with the *ubuntu* scale, the first thing to look at is the Kaiser criterion to determine the number of factors that are present within the construct. This method identifies all components that have an Eigenvalue over 1.0 as separate factors. The results then show 11 component that have been extracted which score above the 1.0 on their Eigenvalues. These explain a total of 66.05% of all variance. The Kaiser criterion however is known to extract too many components as Pallant (2005) points out. As a better criterion he suggests the Parallel Analysis, which uses the number of variables and subjects to calculate the average Eigenvalues for a certain amount of randomly generated samples. All factors from the study results that present higher values than the criterion values from the Parallel Analysis are to be retained. This leads to the result that the first five factors are accepted, which is interesting as the original model of Mbigi (1997) also identified five dimensions. These five component explain 47.48% variance. When creating a Rotated Component Matrix and entering five components (see Appendix B.1) however, it becomes obvious that not all items seem to load in the way that was expected. Although complex, this gives rise to the idea that in this context the dimensions are not exactly measuring what they were intended to do. Looking at the

Matrix, a slight pattern emerges showing a clustering of questions about co-workers, team-level and organizational level. This could indicate some sort of respondent bias, as the questions in the questionnaire were categorized in the same way.

The current Factor Analysis does however not justify the use of the scales in the proposed form within this context. Therefore a series of carefully entering and removing items from analysis has been sequenced in order to identify a better structure. This led to the deletion of four items which were not found to show any true shared factor loadings with the rest of the items. Out of the 35 items that were left, two more have been omitted, because no proper theoretical explanation could be given for their presence within the factors the results showed them to be part of (see Appendix B.2d for these items). The remaining 33 items have been used to make a final new Factor Analysis. Using the Kaiser criterion, still nine separate factors were identified with an Eigenvalue above 1.0. According to the Parallel Analysis however, a total of four factors should be retained (see Appendix B.2b), which resembles the original amount. These four factors explain 46.25% of all variance. The results in the Rotated Component Matrix show a rather different arrangement of items than the original measurement tool. Appendix B.2a depicts these new factor loadings. The four components however still seem to reflect the original dimensions of ubuntu, which can be explained by the fact that the dimensions show some overlap within their definitions. Moreover all items are in some way related to each other as they all measure the humanness in ubuntu. Also it is possible that certain definitions given by African academics have been interpreted in other ways by Western scholars. Nevertheless, this study will continue to use these four dimensions in their new compositions, which now show a solid ground for further use. Appendix B.2d presents the new arrangement of items used for this study and provides a short theoretical explanation for the items that have changed scale.

4.4.2 Knowledge sharing scale validity

Next, a Factor Analysis has been done for the knowledge sharing scale of Lin et al. (2009). These results, which can be found in Appendix B.3, present scores that are more in line with the expected outcomes. The items for IT form a nice cluster and the same goes more or less for employee motivations. The items for leadership and corporate culture are clustered together as well, but according to the Rotated Component Matrix they form one component. This can be explained by the fact that both dimensions are focused at management decisions and form a more organizational strategic group within the knowledge sharing dimensions. One corporate culture item however does not seem to load at all to this factor and will therefore be removed from this scale. Appendix B.4 presents the results of the new Principal Components analysis for which 15 items were used. Now also all four employee motivation items are grouped together into one factor.

According to this structure, it seems better to combine the factors of leadership and corporate culture into one dimension. Moreover, the Parallel Analysis suggests to remain three factors for the knowledge sharing scale. Therefore the remainder of this study will use these three dimensions (employee motivations, leadership & corporate culture and information technology) to measure knowledge sharing.

Consequences for hypotheses

Due to the combination of Leadership and Corporate Culture into a single dimension, some new hypotheses come into existence. To begin with, hypotheses 2b and 2c concerning the relation between ubuntu and these knowledge sharing dimensions are deleted and are now combined into the new hypothesis 2b:

Hypothesis 2b: *Employees scoring high on ubuntu values, will attribute more value to leadership and a corporate culture supporting knowledge sharing than those employees who don't score high on valuing ubuntu values.*

The same goes for the hypotheses concerning the underlying ubuntu dimensions and the two specific knowledge sharing dimensions. This means that hypotheses 4b and 4c, 5b and 5c, 6b and c and 7b and 7c are deleted as well and replaced respectively by the following hypotheses:

Hypothesis 4b: *Employees scoring high on Compassion, will attribute more value to leadership and a corporate culture supporting knowledge sharing than those employees who don't score high on Compassion.*

Hypothesis 5b: *Employees scoring high on Solidarity, will attribute more value to leadership and a corporate culture supporting knowledge sharing than those employees who don't score high on Solidarity.*

Hypothesis 6b: *Employees scoring high on Survival, will attribute more value to leadership and a corporate culture supporting knowledge sharing than those employees who don't score high on Survival.*

Hypothesis 7b: *Employees scoring high on Respect & Dignity, will attribute more value to leadership and a corporate culture supporting knowledge sharing than those employees who don't score high on Respect & Dignity.*

The changes mentioned above also imply that hypotheses 2d, 4d, 5d, 6d and 7d are now relabeled as 2c, 4c, 5c, 6c and 7c.

4.4.3 Means and reliability

The next step in assessing the value of the scales that are used, all the means and standard deviations of the two central concepts of this study as well as the scales of their dimensions are computed. The results are presented in Table 1. As can be seen, all dimensions have means scores above 3.6. This leads to the assumption that the mean level of ubuntu is high and that there is a positive attitude towards sharing knowledge. Moreover the standard deviations range from .457 to .815 and this indicates that the answers for all dimensions are distributed closely to the mean. The fact that the standard deviation is highest for Information Technology is not surprising. Although improved in the last decade, the electricity net and internet connections are still not very stable in Dar es Salaam. This makes it risky to use IT facilities for organizations which do not possess electric generators to cope with the daily power outages.

Table 1 – Means and Standard Deviations

	Mean	Std. Deviation
<i>Ubuntu</i>	3.925	.457
Compassion	4.103	.484
Solidarity	3.767	.544
Survival	4.332	.489
Respect / Dignity	3.512	.756
Knowledge Sharing	3.919	.507
Employee Motivations	4.161	.533
Leadership & Corporate Culture	3.783	.659
Information Technology	3.788	.815

The next step is to check for the reliability of the scales, using the Cronbach's alpha. It is generally accepted that a Cronbach's alpha of 0.6 or higher indicates an intrinsically correct and reliable scale. As the results in Table 2 show, all scales that have been composed are reliable to use in this study. To double check for internal consistency and validity of the research dimensions, correlation matrices for all constructs were calculated and these findings confirmed that there was no reason to exclude any other item for analysis in this study. Per dimension, more or less all items appeared to be significantly correlating with the other items.

Table 2 – Cronbach's alphas for all constructs and dimensions

	Cronbach's alpha	Nr. of items
<i>Ubuntu</i>	.916	33
Compassion	.726	8
Solidarity	.705	7
Survival	.785	8
Respect / Dignity	.891	10
Knowledge Sharing	.859	15
Employee Motivations	.639	4
Leadership & Corporate Culture	.859	8
Information Technology	.762	3

5 Analysis and results

5.1 Correlations

Now that we have confirmed that all scales are reliable and valid, they are ready for comparison and further use. This section will elaborate on the correlations between the two central concepts of this study, *Ubuntu* and knowledge sharing, and their dimensions. To measure correlation, the Pearson Correlation test was used. These results only give an indication if there is any kind of relationship between two variables and if this relationship is positive or negative. To make maximum use of the answers, all missing values have been excluded pair wise.

The correlation that is most interesting when answering the central research question is the one-on-one analysis between the *Ubuntu* mean and the Knowledge Sharing mean. This resulted in an initial Pearson score of .702, which was found to be significant at a level of 0.01. This finding signals the positive relationship between the presence of *Ubuntu* in a human being and the willingness to share knowledge.

Table 3 – Correlations between *Ubuntu* and Knowledge Sharing dimensions

		<i>Ubuntu</i>
Knowledge Sharing	Pearson Correlation	.702**
	Sig. (2-tailed)	.000
	(N)	134
Employee Motivations	Pearson Correlation	.639**
	Sig. (2-tailed)	.000
	(N)	135
Leadership & Corporate Culture	Pearson Correlation	.713**
	Sig. (2-tailed)	.000
	(N)	140
Information Technology	Pearson Correlation	.353**
	Sig. (2-tailed)	.000
	(N)	141

****.** Correlation is significant at the 0.01 level (2-tailed)

Moreover, somewhat identical relationships are found between *Ubuntu* and the dimensions Employee Motivations and Leadership & Corporate Culture. Only the relationship with Information Technology seems less strong. All correlations are found to be significant. The results are shown in Table 3, which is a simplified overview of the results of the correlation test. Appendix C.1 shows the full matrix with all internal correlations as well.

Following these results, it is also interesting to see the results of the Pearson Correlation test for the Knowledge Sharing mean and the dimensions making up the *Ubuntu* construct. The results, which are again simplified, can be found in Table 4. Again, these results indicate a set of rather positive relationships, which are also significant. The matrix showing the complete results can be found in Appendix C.2.

Table 4 – Correlations between Knowledge Sharing and *Ubuntu* dimensions

		<i>Knowledge Sharing</i>
Ubuntu	Pearson Correlation	.702**
	Sig. (2-tailed)	.000
	(N)	134
Compassion	Pearson Correlation	.497**
	Sig. (2-tailed)	.000
	(N)	160
Solidarity	Pearson Correlation	.497**
	Sig. (2-tailed)	.000
	(N)	159
Survival	Pearson Correlation	.608**
	Sig. (2-tailed)	.000
	(N)	156
Respect & Dignity	Pearson Correlation	.646**
	Sig. (2-tailed)	.000
	(N)	152

****.** Correlation is significant at the 0.01 level (2-tailed).

5.2 Regression

Now that all relationships have been acknowledged, it is time to see whether these relations are actually causal, in a way that changes can be explained. To do this, multiple linear regression models have been used. In this section the results of several regression analyses will be presented. First, a one-on-one regression analyses will be discussed between *Ubuntu* and Knowledge Sharing, which will be followed by analyses between Knowledge Sharing and the individual *Ubuntu* dimensions. After that, the same regression analyses will be done for each individual Knowledge Sharing dimension, to see to what degree they are influenced by the level of *Ubuntu* present in employees.

5.2.1 Knowledge Sharing

The first regression analysis is based on the one-on-one relation between the two central constructs of *Ubuntu* and Knowledge Sharing. Based on the correlation coefficient of .678 we found earlier, this results in an R^2 of .493, which is significant with $F=128.238$. This means that 49% of all variability in the willingness to share knowledge, the dependent variable, can be explained by variance in the presence of *Ubuntu* (For full results see Appendix D.1). The variables used in this regression analysis are the grouped means of each of the four dimensions. It is however also possible to perform a multiple regression analysis in which the *ubuntu* dimensions are entered as four dependent variables, instead of the one total mean score that was used when entering the *ubuntu* variable. This leads to an R^2 of .553, which is significant with $F=45.489$. The R^2 now is exactly 6% more than the score of the *ubuntu* mean. This means that hypotheses 1 is supported.

The next step is to take a look at the variable coefficients to tell how much they contribute to a change in the willingness to share knowledge. These results are presented using the following regression equation:

$$\text{Willingness to share knowledge} = 0.872 + 0.058 \times \text{Compassion} + 0.024 \times \text{Solidarity} \\ + 0.386 \times \text{Survival} + 0.298 \times \text{Respect / Dignity}$$

It is clear that Respect & Dignity and Survival are contributing far more to the willingness to share knowledge than Compassion and Solidarity do. This is also seen in t-scores and significance. While the former are both found to be significant at a level of $p < .05$, Solidarity and Compassion are not significant at all. This means that according to these results hypothesis 3a and 3b are rejected, while hypotheses 3c and 3d are supported according to these numbers. The full results are shown in Appendix D.2. Later on, this study will elaborate on those findings when rebuilding the research model.

Employee Motivations

The first knowledge sharing dimension up for analysis is Employee Motivations. The sole regression analysis with *Ubuntu* shows a R^2 of .409, indicating that 40,9% of variability in Employee Motivations can be explained by the total *Ubuntu* mean. With a significant ($p < .01$) β of .744 (see Appendix D.3), this means that hypothesis 2a is supported. When the *ubuntu* dimensions are entered separately, they explain 52,1% of all variability. Again, not all dimensions contribute for the same amount and moreover not all show significant scores (for complete results see Appendix D.4). The regression equation for this knowledge sharing dimension is:

$$\text{Employee Motivations} = .549 + 0.053 \times \text{Compassion} + 0.317 \times \text{Solidarity} \\ + 0.550 \times \text{Survival} - 0.055 \times \text{Respect / Dignity}$$

This equation shows that only Survival and Solidarity have a positive relation with Employee Motivations and both are significant at $p < .05$ and therefore are giving support to hypotheses 5a and 6a. Respect & Dignity seems to reflect a negative relation towards Employee Motivations, but is not found to be significant. Compassion also shows no significant score in this equation which means that we cannot establish a causal relation between those variables. Therefore the hypotheses 4a and 7a are rejected.

Leadership & Corporate Culture

The second knowledge sharing dimension that will be analyzed is the combined component of Leadership & Corporate Culture. The one-on-one regression analysis with *Ubuntu* results in an R^2 of .508, indicating that 50,8% of variability in Leadership and Corporate Culture scores can be explained by the total *Ubuntu* mean. With a significant ($p < .01$) β of 1.027 (see Appendix D.5), this means that hypothesis 2b is supported. When entered separately, the four *ubuntu* dimensions even make up for 50,2% of explained variability. Also for Leadership, not all *ubuntu* dimensions contribute equally and neither are all of them significant (see Appendix D.6 for full results). The regression equation for this knowledge sharing dimension is:

$$\text{Leadership \& Corporate Culture} = .354 + 0.258 \times \text{Compassion} - 0.169 \times \text{Solidarity} + \\ 0.212 \times \text{Survival} + 0.595 \times \text{Respect / Dignity}$$

The variables Respect & Dignity, Compassion and Solidarity are contributing in a positive direction towards Leadership & Corporate Culture and are also found to be significant at

p<.05. These findings give support to hypotheses 4b, 6b and 7b. Solidarity also has a significant influence on this dimension, but was found to be negatively related, which lead us to reject hypothesis 5b.

Information Technology

The final knowledge sharing variable in the research model is Information Technology. The one-on-one regression analysis with the total *Ubuntu* mean shows an explained variability of only 12,5%, which is quite low, although it is significant. With a significant (p<.01) β of .627 (see Appendix D.7), this means however still that hypothesis 2d is supported. When doing the regression analysis with the four *ubuntu* dimensions as independent variables, this score increases to 20,1%. This low score is also represented in the respective coefficients and significances:

$$\text{Information Technology} = 1.752 - 0.054 \times \text{Compassion} - 0.148 \times \text{Solidarity} + 0.274 \times \text{Survival} + 0.495 \times \text{Respect / Dignity}$$

In this equation, only the variable Respect / Dignity shows a significant score at p<.05, while Survival has a significant score at p<.10. The other variables are in no way close to significance and moreover negatively related (see Appendix D.8 for full results). Therefore hypothesis 6c and 7c is supported, while 4c and 5c are rejected following these results.

Table 5 – Regression analyses results

Dependent Variable	Independent Variable(s)										
	Ubuntu (total mean)				Compassion, Solidarity, Survival & Respect/Dignity						
	R ²	F	β	Constant	R ²	F	Constant	β Compassion	β Solidarity	β Survival	β Respect
Knowledge Sharing	.493	128.238	.780**	.858	.553	45.489	.872	.058	.024	.386**	.298**
Employee Motivations	.409	91.893	.744**	1.233	.521	39.910	.549	.053	.317**	.550**	-.055
Leadership & Corporate Culture	.508	142.358	1.027**	-.250	.645	66.798	.354	.258**	-.169**	.212**	.595**
Information Technology	.125	19.810	.627**	1.308	.201	9.270	1.752	-.054	-.148	.274*	.459**

** . Significant at a 0.05 level

* . Significant at a 0.1 level

Table 5 provides a summary of all relevant regression analyses mentioned above. In all cases, the explained variability of the dependent variables is higher when the four separate *ubuntu* dimensions were used for regression. This is logical because four means provide more detailed information and variance than a single variable does. Also the results show that about forty to fifty percent of the variability in both knowledge sharing and two of its dimensions can be explained by the present level of *ubuntu*. Only the explained change in the scores on Information Technology is not as strong as it is for the other variables. Moreover it is the only knowledge sharing dimension that has only one *ubuntu* dimension that contributes significantly at a 0.05 level to its scores.

5.3 Redesigning the research model

This is the final section of this chapter concerning the analyses of the research model and the hypotheses. The prior findings are used to recreate the research model to improve its predictive strength and value. Basically this means that the value of Information Technology for the model will be re-assessed. Finally, the model will be retested and these results will be compared to those we have found so far using the current model.

In the previous sections the results of this study so far have shown that the correlations between all constructs and dimensions are significantly positive, but this is not the case for all regression analyses. Some dimensions do possess some predictive strengths, while other do not seem to contribute to the variability of the dependent variables in any way. Considering all findings, the value of Information Technology is open for reconsideration in this model. Next we will discuss the role of this dimension and the changes that occur if it were to be deleted from the model.

5.3.1 Information Technology

As has already been mentioned before in this paper, full scale use of Information Technology is still not an option for most Tanzanian organizations. Due to disruptions in the electricity net and internet connections, computers and data warehouses are not operative for several hours a day. This is a serious problem which prevents organizations from investing in IT infrastructure. Moreover not every employee in Tanzania is used to working with a computer, and neither are they aware of all options and possibilities of the internet. Also it has to be noted that computer software in Kiswahili is scarce, so most programs are in English. Although this is the second language of Tanzania, definitely not everyone is able to use it in the workplace. All these things could well have had any effect on the answering of questions about the use of IT to share knowledge. Therefore it does not seem unreasonable to see what happens if Information Technology were to be deleted from the model.

Table 6 – Correlations between Knowledge Sharing and *Ubuntu* dimensions (Information Technology excluded)

		<i>Knowledge Sharing</i>
Ubuntu	Pearson Correlation	.821**
	Sig. (2-tailed)	.000
	(N)	132
Compassion	Pearson Correlation	.596**
	Sig. (2-tailed)	.000
	(N)	157
Solidarity	Pearson Correlation	.597**
	Sig. (2-tailed)	.000
	(N)	155
Survival	Pearson Correlation	.706**
	Sig. (2-tailed)	.000
	(N)	153
Respect / Dignity	Pearson Correlation	.716**
	Sig. (2-tailed)	.000
	(N)	150

****.** Significant at the 0.01 level

First the correlation between the *Ubuntu* mean and the Knowledge Sharing mean will be computed again. When IT was still included in the Knowledge Sharing scale, the Pearson correlation test score was .702. Excluding of IT leads to a Pearson score of .821, which is a substantial difference. Table 6 shows the results of the Pearson Correlation test with *ubuntu* and its four dimensions. When compared to Table 4 it becomes clear that all correlations show higher scores with the Knowledge Sharing mean now that IT is omitted from it.

Next another regression analysis will be made to see if there is any difference in the total of explained variability of the model now that IT is no longer part of the Knowledge Sharing mean. These results are presented in Table 7 which can be compared to the upper row of Table 5. The complete results can be found in Appendix E. The R^2 for the total *ubuntu* mean is now .674, which means that 67.4% of the total variability in Knowledge Sharing using two dimensions can be explained by *ubuntu*. When using the four separate *ubuntu* dimensions, this percentage even rises to 71,8%, which is very high. It is also a lot more than the 55,3% that was explained when IT was still included in the knowledge sharing mean. Moreover the results now show that the Compassion dimension is also significant at a level of $p < .10$, which was not the case in the first test results. Also one should bear in mind the findings in the first phase of this study that showed that IT had a far smaller correlation with *ubuntu* than the other knowledge sharing dimensions. Together these are all clear indications that the research model will do a better job of predicting knowledge sharing behavior when IT is omitted as one of its dimensions.

**Table 7 – Regression analyses results
(Information Technology excluded)**

Dependent Variable	Independent Variable(s)										
	Ubuntu (total mean)				Compassion, Solidarity, Survival & Respect/ Dignity						
	R ²	F	β	Constant	R ²	F	Constant	β Compassion	β Solidarity	β Survival	β Respect
Knowledge Sharing	.674	272.904	.878**	.521	.718	93.494	.471	.104*	.070	.417**	.285**

** . Significant at a 0.05 level

*. Significant at a 0.1 level

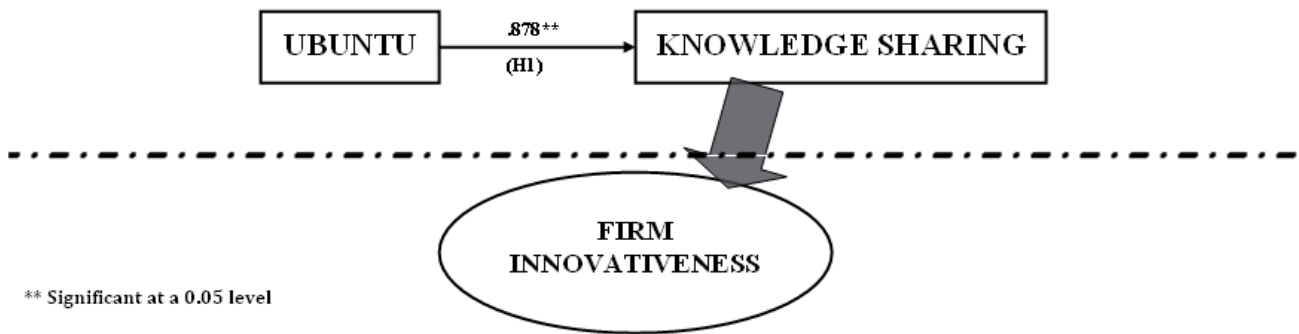
Research model

Figures 1, 2 and 3 provide a three-layered overview of the final research model for this study. A completely integrated model can be found in Appendix F. Because of its complexity however, it has been separated into three layers, which give an overview of the general relationship between knowledge sharing and *ubuntu* as well as a deepened explanation using both constructs' dimensions.

The first part of the model, shown in Figure 1, presents the direct relationship between the presence of *ubuntu* and the willingness to share knowledge. The significant score of .878 that was found in the study indicates that hypothesis 1 is supported. This means that a collectivistic organizational culture such as *ubuntu* encourages knowledge sharing, which is consistent with the findings of Wolfe and Loraas (2008). This is also an indication that the assumptions of Mbigi (1997) about the competitive strength of local African cultures could be true. Although merely a first sign, these findings suggest that the intrinsic values that are

present in people living in collectivistic societies can be very important in all organizational processes which are related to the sharing of knowledge and information.

Figure 1 – Research Model (layer 1)
Main relationship between Ubuntu and Knowledge Sharing

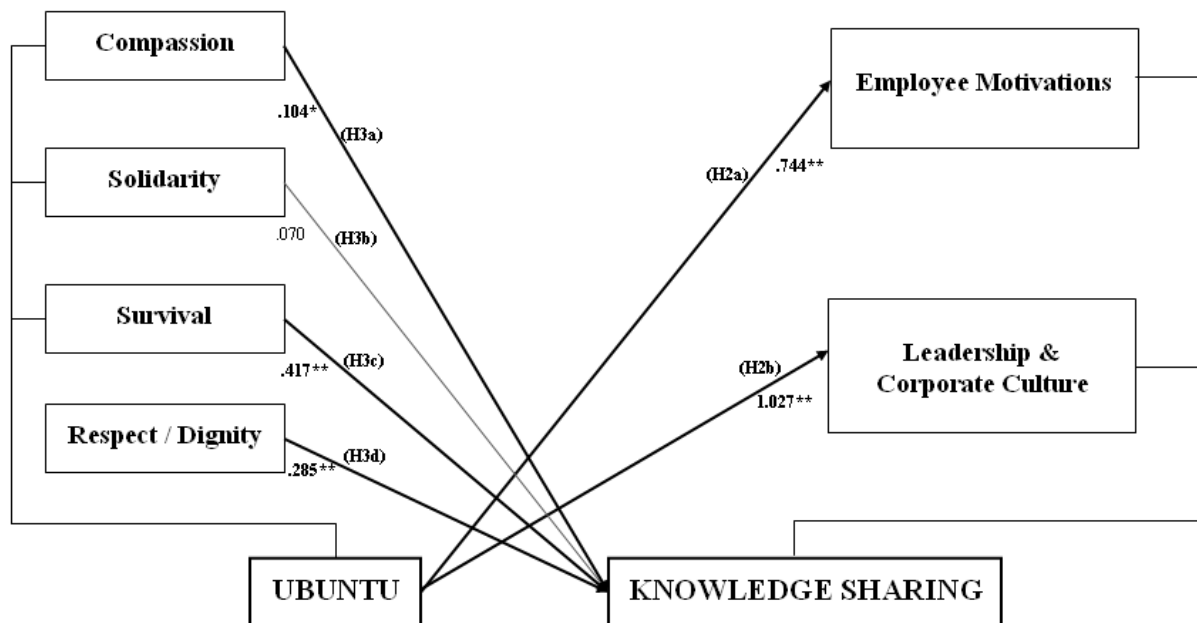


The second layer of this model digs deeper into the relation found above. Figure 2 shows how the individual dimensions of *ubuntu* influence knowledge sharing. Also this figure shows how the general concept of *ubuntu* affects the individual dimensions of knowledge sharing. The dimension of Information Technology has been removed, as has been discussed in the former section. This means that hypotheses 2c has been removed from the model as well. The thick black arrows correspond with significant β coefficients between the constructs and dimensions. In section 5.2 it was already noted that the presence of *ubuntu* was able to explain about forty to fifty percent of all variability in these three knowledge sharing dimensions. The model endorses these positive relationships and shows clearly that hypotheses 2a and 2b are supported by the results of this study. This means that the communal values of *ubuntu* in general positively influence the personal motivations of employees to share their knowledge and ideas. Moreover it gives way to leadership styles and a corporate culture that support openness, trust and sharing within organizations.

On the other hand Figure 2 shows that three out of the four dimensions of *ubuntu* make valuable contributions to knowledge sharing. As shown, compassion, the feeling of collective survival and mutual respect and dignity are found to create a positive attitude towards sharing. This means that hypotheses 3a, 3c and 3d are supported. Compassion is about caring for others and helping them if they need it. The wellbeing and opinions of co-workers are highly valued and to understand the life and situation of others, sharing of information and ideas is a logical result. Survival has to do with sacrificing one's own goals for the benefit of the group and therefore it is also important to provide information to others in order to succeed together (Poovan et al., 2006). The dimension of respect and dignity is about respecting the opinions and ideas of others. Therefore it is important to communicate a lot and learn about each other and this encourages knowledge sharing as well. However no support was found for hypothesis 3b, which stated that a spirit of solidarity also would have a positive influence on knowledge sharing. Although it was expected that feelings of togetherness and the subordination of individual goals should increase the willingness to share knowledge, no evidence for this was found in this study. Maybe knowledge does not

account for the personal needs people are willing to give up for the good of the community or team, as solidarity spirit in *ubuntu* describes. The exact reasons why this result was found however, do not fall within the scope of this study, but do clearly pose an interesting question for further research on *ubuntu*.

Figure 2 – Research Model (layer 2)
Underlying relationships between Ubuntu dimensions and Knowledge Sharing & knowledge sharing dimensions and Ubuntu



** . Significant at a 0.05 level.
 * . Significant at a 0.10 level.

The final part of this section will even go one step further than we have gone so far. Figure 3 displays the third layer of the research model, depicting all relationships between the separate dimensions of both *ubuntu* and knowledge sharing. Because of the deletion of Information Technology, the hypotheses 4c, 5c, 6c and 7c have also been removed from this study and the model. Again the thick black arrows represent the hypothesized relations that are found to be significant. To begin with, compassion was found to have a positive impact on the more strategic motivations of employees to share knowledge. A significant positive relation with Leadership & Corporate Culture has been established and this gives support to hypothesis 4b. We can therefore assume that people who feel the intrinsic urge to help others and care about their wellbeing favor an organizational culture that supports knowledge sharing. The compassion dimension also contains a natural respect for persons with other religions or customs and this characteristic could well instigate a preference for a culture that fosters expressing ideas and mutual faith about each others intentions. It does however not bring about any positive changes in the personal employee motivations that are concerned with knowledge sharing. Although it seemed logical that feelings of compassion influence the

personal environment and motivations of people, no significant positive relationship can be established based on the results of this study. Hypothesis 4a is therefore rejected.

Solidarity was the only dimension of *ubuntu* that showed no significant influence on the willingness to share knowledge. The third layer of analysis clearly presents some interesting results for explaining this, as solidarity has a significant relationship with both Employee Motivations and Leadership & Corporate Culture. The latter however was negative, which means that A stronger solidarity spirit decreases the preference for an organization that supports knowledge sharing. On the other hand, a positive relation exists towards personal employee motivations for knowledge sharing. This means that hypothesis 5a is supported, while 5b has to be rejected. A possible explanation could be that the feelings of togetherness and building of strong relations are somewhat limited to the direct community or closely related co-workers and teams. A protective intuition that is a part of *ubuntu* could be expressed within this dimension and urges employees keep information from people they do not feel related to. In such a situation employees would share information if they feel like it, but would not be too enthusiastic about an organizational culture and leadership style that is focused on sharing all information. This resembles a form of defensive behavior Lin et al. (2009) discussed, but at a group level instead of the individual level. This is however only one suggestion and further research is prompted to find a sound explanation

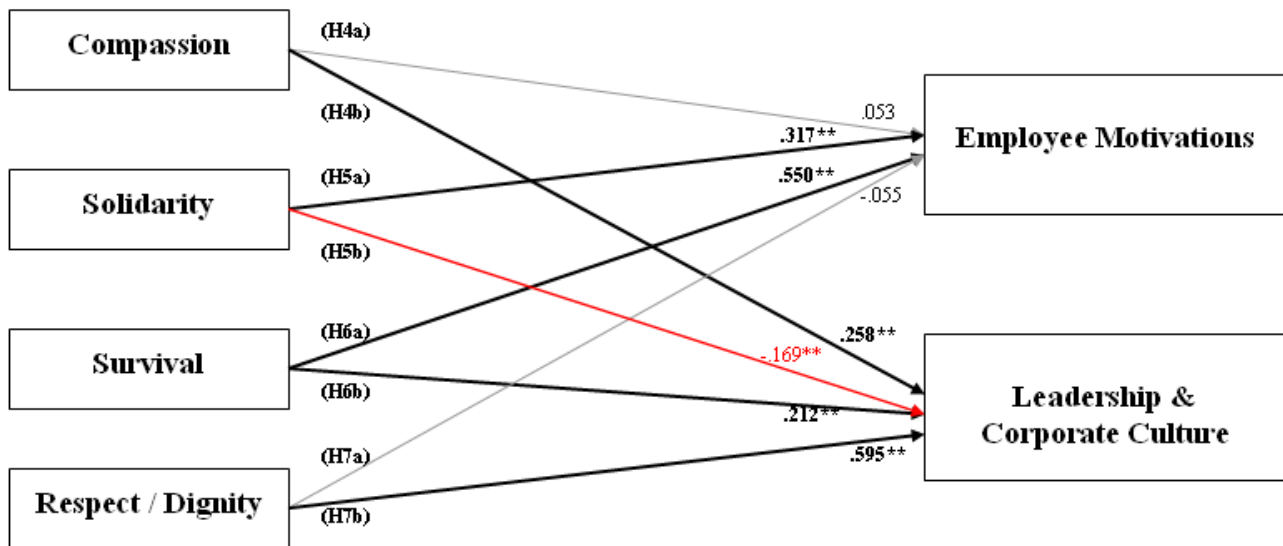
Survival is the only dimension that displays positive significant relations with both knowledge sharing dimensions, which leads us to accept hypotheses 6a and 6b. Survival seems to be the most strategic dimension of *ubuntu*, in a way that it requires some effort and a more considerate decision making process as opposed to the other dimensions which are somewhat more intuitive and learned. Important aspects are interdependence, striving after mutual goals and the believe that help offered now will be returned later as everyone needs each other to get optimal results. This seems to fit perfectly with the stimulating conditions knowledge sharing organizations provide and the reciprocal faith that is part of the personal motivations for sharing. According to this study it is therefore a strong predictor of knowledge sharing.

Finally, the dimension of respect & dignity shows a very strong and positive influence on the organizational features of knowledge sharing motives, which supports hypothesis 7b. Employees scoring high on this dimension seem to feel very comfortable in an environment that supports knowledge sharing. This seems obvious as in *ubuntu* communities there is a high sense of equality and respect for others, their opinions and in general for family, elders and leaders. A corporate culture that is open and focused on learning from each other fits with the respect people have for others. Hypothesis 7a however is rejected. The personal motivations for sharing knowledge that are identified in this study apparently are not significantly influenced by motives of respect.

These results show that most hypotheses are met (Table 8 provides a conclusive summary of all hypotheses). Survival is the only *ubuntu* component which contributes significantly to both knowledge sharing dimensions. The other three *ubuntu* dimensions only positively support one out of the two. None of the knowledge sharing aspects is significantly influenced by all *ubuntu* dimensions, although Leadership & Corporate Culture has a significant tie with all. The negative relation between Solidarity and Leadership & Corporate Culture is very interesting as it might well display a form of collective defensiveness. The overall *ubuntu* mean is however contributing to knowledge sharing as a construct as it is to

both separate knowledge sharing dimensions, which supports the central hypothesis of this study that there exists a causal relation between those concepts.

Figure 3 – Research Model (layer 3)
Underlying relationships between Ubuntu dimensions and Knowledge Sharing dimensions



** Significant at a 0.05 level

Table 8 – Summary of results

Hypothesis	Hypothesized path	Path coefficient	Results
H1	Ubuntu → Knowledge Sharing	.878**	Supported
H2a	Ubuntu → Employee Motivations	.744**	Supported
H2b	Ubuntu → Leadership & Corp. Culture	1.027**	Supported
H3a	Compassion → Knowledge Sharing	.104*	Supported
H3b	Solidarity → Knowledge Sharing	.070	Rejected
H3c	Survival → Knowledge Sharing	.417**	Supported
H3d	Respect & Dignity → Knowledge Sharing	.285**	Supported
H4a	Compassion → Employee Motivations	.053	Rejected
H4b	Compassion → Leadership & Corp. Culture	.258**	Supported
H5a	Solidarity → Employee Motivations	.317**	Supported
H5b	Solidarity → Leadership & Corp. Culture	-.169**	Rejected
H6a	Survival → Employee Motivations	.550**	Supported
H6b	Survival → Leadership & Corp. Culture	.212**	Supported
H7a	Respect & Dignity → Employee Motivations	-.055	Rejected
H7b	Respect & Dignity → Leadership & Corp. Culture	.595**	Supported

** Significant at a 0.05 level

* Significant at a 0.10 level

6 Discussion

6.1 Discussion of findings

First of all this study has shown that the presence of *ubuntu* can be identified within organizations. For proper measurement however, the existing scale that was used had to be arranged to fit the context of this study. The main objective of this study however was to find out if a causal relation existed between the presence of *ubuntu* and the willingness to share knowledge. This was done in the light of Mbigi's (1995) statement that African organizations need to use their own cultural strength to innovate. A significant positive relationship between the two concepts has been established. The results of this study show about seventy percent of all variability in the willingness to share knowledge within an organization can be explained by the dimensions underlying *ubuntu*. This actually is quite a considerable amount, indicating that Karsten and Illa (2005) were right with their assumptions about this relation. Knowledge sharing is very much dependent on social interactions and these results clearly prove this yet again. However it has to be noted that the dimension of Solidarity does not show to submit a significant contribution to the overall willingness to share knowledge. This could indicate that the solidarity spirit that creates togetherness within groups also brings along a sort of defensive system, which protects the community or team from others who are not part of it. In that case, employees will share knowledge within their teams, but are hesitant when it comes to sharing with others within the same organization. This result could form the focus of a follow up research.

This study also found that *ubuntu* is able to predict variability in the dimensions underlying knowledge sharing: Employee motivations and Leadership & Corporate culture. These findings enhance the idea that *ubuntu* is present within human beings and influence their actions and motives in daily life. This assumption is actually reinforced by the fairly lower amount of variability of the use of IT that is explained by *ubuntu* and the fact that the research model becomes stronger when this dimension is deleted from analysis. However, we already argued that not all organizations are fully making use of IT applications to store and/or share knowledge. This may have influenced the study and therefore it was excluded from the final research model.

Finally the results revealed an interesting set of causal relations, underlying the main effects, between the four dimensions of *ubuntu* and the two remaining factors of knowledge sharing. The personal motivations of employees are triggered by survival and solidarity, dimensions which are all about getting the optimal result, for all individuals concerned, by pursuing community goals and working together. Compassion and respect reflect values of humanness which affect how people treat others. These are strong and important factors that actually define how we act and see the world as human beings. In a communal culture such as *ubuntu* these dimensions form the cornerstones of existence. People scoring high on valuing these attributes, do also favor an organization that supports and encourages knowledge sharing. Also the survival dimension, which has been labeled as strategic, shows a strong positive relation towards an organizational focus on knowledge sharing. Very interesting is the significant negative influence solidarity spirit has on this dimension. As discussed before, one can only make assumptions about the reason for this relation. But if a sort of protective system is in place, concerning closely related persons such as family members and direct colleagues, is it worth examining this in further detail. At least the results

show that although the *ubuntu* dimensions seem to be very much alike, significant differences do exist between them when exploring relationships with other constructs.

6.2 Implications

The results of this study show that a strong relationship exists between the concept of *ubuntu* and the willingness to share knowledge within an organization. This confirms the assumption that the social values and communalistic viewpoint that form the core of *ubuntu* have a positive influence on knowledge sharing behavior. This means that African organizations should be able to create a sharing culture with a large flow of information, experiences and data. It is crucial however to build an organization that sticks closely to African society and its cultural values (Mangaliso, 2001). Considering the importance of sharing for firm innovativeness, these results support Mbigi's (1997) ideas about the intrinsic power of African culture. Managers working in Africa with African employees could therefore use these results to organize their companies around these cultural values to create an atmosphere in which people feel they are respected and listened to. They should consider to build on the intrinsic humanness of their employees when considering systems of hierarchy or rewards. Moreover, managers working in Africa should renounce the terms human capital or resources to begin with, as these do not value people in a way that resembles the African ideas about human beings.

The findings of this study can however also be valuable to managers working in organizations in other parts of the world. As literature has shown, a lot of managers around the world find it difficult to get their employees to start sharing knowledge with each other. Although the *ubuntu* values are probably less present in Western or Asian people, as a management concept for shaping organizational culture they provide some interesting possibilities. This study shows that people are more often prepared to share knowledge when they respect each other. Also it seems to help if employees have the feeling that mutual goals are actually coinciding with their individual goals. Moreover, an organizational culture that encourages helping each other, will increase the willingness to share. This leads to the assumption that Western organizations could also learn from their African counterparts about how to handle employees and shaping a culture in which the goal of the community is superior to individual results. This supports the assumptions done by van der Colff (2003). This entails however an enormous change of view when thinking about goals, corporate culture and treating employees. But if such an approach improves knowledge sharing, innovative opportunities arise as Liao (2006) has pointed out.

6.3 Limitations and directions for further research

This study has a number of limitations. First, it has a geographical limitation, because it is restricted to companies located in two cities in Tanzania. Results may therefore not be generalizable for the entire African context. As a result, this study should be replicated in other African countries and cities. What is more, the tool measuring *ubuntu* has only been used in Tanzania. Not only should it be tested in other countries in Africa as well, but it would be really valuable to do the same kind of research in Europe, The United States or Asia. Only then an actual comparison can be made between the presence of *ubuntu* in people from different parts of the world, which could prove its actual existence. Also further research could dig deeper into the definitions of the four *ubuntu* dimensions. This study showed that

survival did not contribute significantly to knowledge sharing, while the other three dimensions did. Moreover, the factor analysis of the original scales suggested to rearrange the items within the scales and some items were deleted from further research. Further research is needed to improve the measurement tool to identify *ubuntu* and check for the best arrangement of the items within the dimensions of *ubuntu*. Also, another arrangement of questions within the questionnaire is advised, because the grouping of questions that were printed on the same page in the factor analysis could indicate a form of respondent bias. The second limitation lies in the dimensions used for measuring knowledge sharing. Maybe other variables and dimensions could have been used to measure this concept as well. The amount of literature on the topic is extensive, so other scales could be tried within this framework. This scale, made by Asian academics, presented some small problems and one item needed to be deleted to get the scales right. Moreover, two dimensions that previously were identified as separate ended up together in this study. A tool measuring knowledge sharing within an African context would be interesting for future research. The third limitation is the fact that the ideas of knowledge sharing and innovation used in this study are still derived from non-African literature. Therefore measurement of these concepts could be inaccurate for the African context, because they might be out of fit with the cultural setting. More extensive research using and developing these African values would be appropriate in future research in this field. Finally, the author himself is Dutch, which enables the possibility of a certain Western bias.

7 Conclusions

The objective of this study was to find out if a positive relation could be found between the constructs of *ubuntu* and knowledge sharing. The results show that more than sixty percent of all variability in the willingness to share knowledge, could be explained by the presence of *ubuntu*. Also, a significant relation was established between *ubuntu* and the two knowledge sharing dimensions that were used in the final research model of this study. Knowledge sharing is a social activity and this study showed that the values underlying *ubuntu* are identified as quite solid predictors of the willingness to share.

This study is one of the first to use the recently developed *ubuntu* measurement scale to check for causal relations with other business concepts. Although a rearrangement of the items was needed to fit the context of this study, the first results look promising and feed the idea that this African philosophy is indeed able to contribute to the innovativeness of African organizations exploiting local cultural traits. African managers should not be afraid to use these and combine them along with what they have learned to be effective in their organizations. Moreover, foreigners working in Africa should respect these values and learn about them to understand the motivations and values of their co-workers and employees. But the key is to treat human beings as human beings and not as assets or numbers, because such an inhumane point of view, will never succeed in African society.

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Appendix A -- Initial list of research scales and items

Measurement items

UBUNTU

Survival

- I rely on my co-workers for support when things at work or at home are not going well
- Relatives of my co-workers should have an advantage over outsiders in competing for job openings
- The organization encourages teamwork
- I have to work closely with others to do my job well
- The organization has well-being of its employees as a major objective
- The organization and its employees are like a family and its members
- My family is always welcome to visit the organization
- Many of my family members work in the organization

Solidarity

- When a co-worker gets a promotion and I am not, I'm happy for him/her
- My co-worker is someone who I inform about my personal life
- My co-workers and I get together outside of work time
- I feel I am really part of the team
- I enjoy, above all else, to work as part of a team
- I am willing to give up personal needs for the good of the team
- I always put the interest of the whole team before my own interest
- In the organization all decisions are made by the leader
- The organization provides equal opportunities for all
- In the organization ceremonies and personnel parties are organized

Compassion

- My co-workers are friendly and helpful
- I care about the well-being of my co-workers
- I see myself as an active listener towards my co-workers
- I take the time to greet my co-workers
- I have confidence and trust in the team
- A crisis in the team will always be solved in a harmonious way
- Long discussions take place in team meetings
- All opinions have a fair hearing and consideration
- I value sharing what I have with my family
- The organization prevents loss of jobs, even in difficult times

Respect / Dignity

- I respect the religion of my co-workers
- I respect the customs and beliefs of my co-workers
- I believe that older co-workers have more knowledge and skills than younger co-workers
- I have the right to say no to the team
- I have the freedom to take my own approach

- In the organization all the employees are equal
- Different ethnic groups work in harmony
- Dialogue is an important means in organizational life
- There is open communication in the organization
- The organization provides all employees open access to all information
- The organization encourages diversity in opinions

KNOWLEDGE SHARING

Corporate Culture

- I communicate with co-workers through informal meetings within my organization
- In the organization employees have reciprocal faith in the behaviors and intentions of co-workers
- In the organization high participation is expected in sharing knowledge and ideas.
- The organization views employee training as an investment rather than an expense.
- I will receive increased promotion opportunities in return for my knowledge sharing

Employee Motivations

- When I share knowledge with co-workers, I believe that my future requests for knowledge will be answered by them
- I enjoy helping others by sharing my knowledge
- I am confident in my ability to provide knowledge other people in the organization find valuable
- When I share my knowledge with co-workers the people I work with respect me

Leadership

- Top management provides a clear organizational vision and goals to employees
- Top management clearly supports the role of knowledge sharing
- Encouraging knowledge sharing with co-workers is important component of organizational policy
- In the organization employees are encouraged to suggest ideas for new opportunities

Information Technology

- My organization uses technology infrastructure that allows employees to share knowledge with other people inside/outside the organization
- In my organization employees make extensive use of electronic storage (such as databases and data warehouses) to access corporate knowledge
- In my organization employees use knowledge networks (email, intranet, etc.) to communicate with co-workers

Appendix B – Results of recumputing all research scales

B.1a – Eigenvalues for initial *ubuntu* scale

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
1	9,298	23,840	23,840	9,298	23,840
2	3,221	8,258	32,099	3,221	8,258
3	2,289	5,870	37,969	2,289	5,870
4	2,007	5,146	43,114	2,007	5,146
5	1,701	4,360	47,475	1,701	4,360
6	1,416	3,630	51,104		
7	1,341	3,437	54,542		
8	1,196	3,068	57,609		
9	1,126	2,886	60,495		
10	1,114	2,856	63,352		
11	1,051	2,694	66,046		
12	,984	2,522	68,568		
13	,897	2,301	70,868		
14	,831	2,130	72,998		
15	,769	1,971	74,969		
16	,720	1,845	76,814		
17	,687	1,761	78,575		
18	,668	1,712	80,287		
19	,612	1,570	81,857		
20	,575	1,475	83,332		
21	,559	1,433	84,765		
22	,537	1,378	86,143		
23	,498	1,278	87,421		
24	,480	1,232	88,653		
25	,454	1,164	89,817		
26	,432	1,109	90,926		
27	,388	,995	91,921		
28	,385	,988	92,909		
29	,356	,913	93,822		
30	,330	,846	94,668		
31	,316	,810	95,478		
32	,285	,731	96,209		
33	,262	,671	96,880		
34	,249	,639	97,519		
35	,240	,616	98,135		
36	,224	,573	98,708		
37	,187	,479	99,188		
38	,176	,452	99,639		
39	,141	,361	100,000		

Extraction Method: Principal Component Analysis.

Component	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings		
	Cumulative %	Total	% of Variance	Cumulative %
1	23,840	5,851	15,004	15,004
2	32,099	4,887	12,531	27,535
3	37,969	2,704	6,933	34,467
4	43,114	2,676	6,860	41,328
5	47,475	2,397	6,147	47,475

B.1b – Rotated Component Matrix initial *ubuntu* scale

Rotated Component Matrix^a

	Component				
	1	2	3	4	5
"I value sharing what I have with my family" (Compassion)		,367		,471	
"My co-workers are friendly and helpful" (Compassion)	,220	,276			,536
"I care about the well-being of my co-workers" (Compassion)		,674			,253
"I see myself as an active listener towards my co-workers" (Compassion)	,368	,472	,200		
"I take time to greet my co-workers" (Compassion)		,445	,508		
"I have confidence and trust in the team" (Compassion)	,316	,333		,435	
"A crisis in the team will always be solved in a harmonious way" (Compassion)		,406		,343	
"Long discussions take place in team meetings" (Compassion)					,495
"All opinions have a fair hearing and consideration" (Compassion)	,229	,253		,206	,486
"The organization prevents loss of jobs, even in difficult times" (Compassion)	,575				,231
"Dialogue is an important means in organizational life" (Respect/Dignity)		,677			
"I respect the religion of my co-workers" (Respect/Dignity)		,756			
"I respect the customs and beliefs of my co-workers" (Respect/Dignity)	,258	,703			,210
"I believe that older co-workers have more knowledge and skills than younger co-workers" (Respect/Dignity)					,669
"I have the right to say no to the team" (Respect/Dignity)	,254	,482			
"I have the freedom to take my own approach" (Respect/Dignity)	,307	,247			,386
"In the organization all the employees are equal" (Respect/Dignity)	,676	,251			,252
"Different ethnic groups work in harmony" (Respect/Dignity)	,585	,245			,277
"There is open communication in the organization" (Respect/Dignity)	,747				
"The organization provides all employees open access to all information" (Respect/Dignity)	,702		,300		
"The organization encourages diversity in opinions" (Respect/Dignity)	,773				
"When a co-worker gets a promotion and I am not, I am happy for him/her" (Solidarity)		,399			
"My co-worker is someone who I inform about my personal life" (Solidarity)			,659		
"My co-workers and I get together outside of work time" (Solidarity)		,221	,578		
"I feel that I am really part of the team" (Solidarity)				,793	
"I enjoy, above all else, to work as part of a team" (Solidarity)		,485		,227	

"I am willing to give up personal needs for the good of the team" (Solidarity)		,516	,337		-,227
"I always put the interest of the whole team before my own interest" (Solidarity)	,258	,467			
"In the organization all decisions are made by the leader" (Solidarity)	,335				-,370
"The organization provides equal opportunities for all" (Solidarity)	,757				,217
"In the organization ceremonies and personnel parties are organized" (Solidarity)	,547		,277		
"I rely on my co-workers when things at home or at work are not going well" (Survival)			,669		
"Relatives of my co-workers should have an advantage over outsiders in competing for job openings" (Survival)			,589		
"The organization encourages teamwork" (Survival)	,299			,759	
"I have to work closely with others to do my job well" (Survival)		,434		,547	
"The organization has well-being of its employees as a major objective" (Survival)	,660			,239	,256
"The organization and its employees are like a family and its members" (Survival)	,655		,250	,294	
"My family is always welcome to visit the organization" (Survival)	,539		,449		
"Many of my family members work in the organization" (Survival)		-,449	,342		,321

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

NB. For reasons of simplification all scores below 0.2 have been omitted from this table.

B.2a – Eigenvalues for new *ubuntu* scale

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8,801	26,669	26,669	8,801	26,669	26,669	4,991	15,124	15,124
2	2,882	8,734	35,402	2,882	8,734	35,402	3,839	11,634	26,759
3	1,910	5,789	41,191	1,910	5,789	41,191	3,358	10,175	36,934
4	1,670	5,062	46,253	1,670	5,062	46,253	3,075	9,319	46,253
5	1,411	4,277	50,530						
6	1,344	4,074	54,604						
7	1,277	3,868	58,473						
8	1,135	3,438	61,911						
9	1,020	3,091	65,002						
10	,964	2,920	67,922						
11	,872	2,642	70,564						
12	,820	2,484	73,048						
13	,748	2,268	75,316						
14	,711	2,153	77,469						
15	,682	2,066	79,536						
16	,602	1,825	81,360						
17	,562	1,704	83,064						
18	,542	1,642	84,706						
19	,516	1,562	86,268						
20	,505	1,531	87,799						
21	,476	1,443	89,242						
22	,443	1,343	90,585						
23	,404	1,224	91,809						
24	,390	1,181	92,989						
25	,347	1,051	94,040						
26	,325	,984	95,024						
27	,300	,909	95,934						
28	,284	,860	96,793						
29	,262	,795	97,588						
30	,248	,750	98,338						
31	,214	,648	98,987						
32	,186	,564	99,551						
33	,148	,449	100,000						

Extraction Method: Principal Component Analysis.

B.2b – Parallel Analysis results for new *ubuntu* scale

Eigenvalue #	Random Eigenvalue	Standard Dev
1	1,8472	,0630
2	1,7374	,0466
3	1,6493	,0403
4	1,5710	,0350
5	1,5085	,0384
6	1,4422	,0301
7	1,3889	,0311

B.2c – Rotated Component Matrix new *ubuntu* scale

Rotated Component Matrix^a

	Component			
	1	2	3	4
"The organization provides all employees open access to all information"	,742			
"The organization encourages diversity in opinions"	,735			
"The organization and its employees are like a family and its members"	,716			
"There is open communication in the organization"	,707			
"The organization provides equal opportunities for all"	,693	,394		
"In the organization all the employees are equal"	,610	,475		
"The organization has well-being of its employees as a major objective"	,608	,380		
"My family is always welcome to visit the organization"	,596			
"In the organization ceremonies and personnel parties are organized"	,570			
"Different ethnic groups work in harmony"	,520	,434		
"I respect the customs and beliefs of my co-workers"		,622		,369
"All opinions have a fair hearing and consideration"		,593		
"My co-workers are friendly and helpful"		,591		
"I care about the well-being of my co-workers"		,563		,396
"I respect the religion of my co-workers"		,542		,356
"I have the freedom to take my own approach"		,496		
"Long discussions take place in team meetings"		,466		
"When a co-worker gets a promotion and I am not, I am happy for him/her"		,378		
"I feel that I am really part of the team"			,733	
"The organization encourages teamwork"			,722	
"I have to work closely with others to do my job well"			,643	
"I value sharing what I have with my family"			,559	
"I have confidence and trust in the team"		,368	,476	
"Dialogue is an important means in organizational life"		,356	,402	
"A crisis in the team will always be solved in a harmonious way"			,390	
"I enjoy, above all else, to work as part of a team"			,363	
"I take time to greet my co-workers"				,679
"I am willing to give up personal needs for the good of the team"				,654
"My co-workers and I get together outside of work time"				,542
"My co-worker is someone who I inform about my personal life"				,443
"I see myself as an active listener towards my co-workers"				,432
"I always put the interest of the whole team before my own interest"				,396
"I have the right to say no to the team"				,385

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

NB. For reasons of simplification all scores below 0.35 have been omitted from this table.

B.2d – New arrangement of items for *ubuntu* scales

Measurement items

UBUNTU (Cronbach's alpha = .916)

Compassion (Cronbach's alpha = .726)

- My co-workers are friendly and helpful
- I care about the well-being of my co-workers
- I respect the customs and beliefs of my co-workers
- I respect the religion of my co-workers
- All opinions have a fair hearing and consideration
- Long discussions take place in team meetings
- When a co-worker gets a promotion and I am not, I'm happy for him/her
- I have the freedom to take my own approach

Solidarity (Cronbach's alpha = .705)

- I am willing to give up personal needs for the good of the team
- I always put the interest of the whole team before my own interest
- I see myself as an active listener towards my co-workers
- I take the time to greet my co-workers
- My co-worker is someone who I inform about my personal life
- My co-workers and I get together outside of work time
- I have the right to say no to the team

Survival (Cronbach's alpha = .785)

- The organization encourages teamwork
- I have to work closely with others to do my job well
- I have confidence and trust in the team
- A crisis in the team will always be solved in a harmonious way
- I value sharing what I have with my family
- Dialogue is an important means in organizational life
- I feel I am really part of the team
- I enjoy, above all else, to work as part of a team

Respect / Dignity (Cronbach's alpha = .777)

- In the organization all the employees are equal
- The organization encourages diversity in opinions
- Different ethnic groups work in harmony
- There is open communication in the organization
- The organization provides all employees open access to all information
- The organization provides equal opportunities for all
- In the organization ceremonies and personnel parties are organized
- The organization has well-being of its employees as a major objective
- The organization and its employees are like a family and its members
- My family is always welcome to visit the organization

Changed items

Item	Original scale	New Scale	Explanation
I respect the customs and beliefs of my co-workers.	Respect / Dignity	Compassion	<p>The respect that is portrayed in this item is about understanding and appreciating how others live their lives. As the dimension of respect in this context seems to be more about equality and family, this question now falls into the more personal category of compassion.</p> <p>Idem</p> <p>This has to do with respect, but also with providing others the freedom to work on their own wellbeing. There is respect for the ideas of others, but it is triggered by a feeling of wanting others do to good. Compassion is about feeling for others and their wellbeing. This item can definitely be treated as an example of this.</p>
I respect the religion of my co-workers.	Respect / Dignity	Compassion	
I have the freedom to take my own approach.	Respect / Dignity	Compassion	
When a co-worker gets a promotion and I am not, I'm happy for him/her.	Solidarity	Compassion	
I take time to greet my co-workers.	Compassion	Solidarity	<p>As Sigger et al. (2010) already stated, taking time for other people is an important part of the solidarity spirit. It is therefore no problem to fit it in here.</p> <p>As the item above, it seems this one has been interpreted as taking time for others as well. It has not been specified to personal matters and in this general meaning, it fits the friendliness associated with solidarity (Poovan et al., 2006).</p> <p>To ensure a feeling of togetherness everyone should be able to express their opinions. For team dynamics to thrive, one must be able to disagree sometimes, which fits the solidarity dimension.</p>
I see myself as an active listener towards my co-workers.	Compassion	Solidarity	
I have the right to say no to the team.	Respect / Dignity	Solidarity	
I feel that I am really part of the team.	Solidarity	Survival	<p>While solidarity is about togetherness and feeling the emotional and social importance of working together, survival seems more strategic. The community or team is the easiest way to "survive" so it is important to be part of it.</p> <p>Idem</p> <p>Maybe compassion creates more trust, but trust in the team is a crucial part of its survival as an entity (Poovan et al., 2006). Therefore it fits best within this dimension.</p> <p>Sharing of wages and food with members of kin who are not working or otherwise able to take care of themselves is a characteristic of survival according to Poovan et al. (2006).</p> <p>This seems logical, as a crisis disrupts the team effectiveness and therefore hinders its chances of survival.</p> <p>Dialogue can be seen as a communicative tool vital for pooling resources to improve team performance (Poovan et al., 2006). In this study it seems dialogue has been treated from this strategic point of view instead of one of respect for all opinions.</p>
I enjoy, above all else, to work as part of a team.	Solidarity	Survival	
I have confidence and trust in the team.	Compassion	Survival	
I value sharing what I have with my family.	Compassion	Survival	
A crisis in the team will always be solved in a harmonious way.	Compassion	Survival	
Dialogue is an important means in organizational life.	Respect / Dignity	Survival	
The organization and its employees are like a family and its members.	Survival	Respect / Dignity	<p>Family is very important and highly respected in <i>ubuntu</i> communities (Poovan et al. 2006). Although aimed at survival, these kind of questions therefore could well trigger a respectful response, explaining its presence in this dimension.</p>

My family is always welcome to visit the organization.	Survival	Respect / Dignity	It would be very disrespectful if family members would not be welcome. Matter of respect, no doubt about it.
The organization has the well-being of its employees as a major objective.	Survival	Respect / Dignity	The thing about this item is that it asks employees to answer how they think their companies are working. It seems normal that they expect them to act out of respect for everyone and therefore wants the best for all employees. Maybe if only managers would have been interviewed, the survival aspect would have prevailed.
The organization provides equal opportunities for all.	Solidarity	Respect / Dignity	As several other items show that have been attributed to this dimension, equality is a key concept of respect and dignity in <i>ubuntu</i> communities. It seems obvious to place this item here as well.
In the organization ceremonies and personnel parties are organized.	Solidarity	Respect / Dignity	This item is about the respect an organization has for its employees. Although Sigger et al (2010) pose that these ceremonies and parties concern solidarity because they promote a sense of belonging. Respondents however may not have treated this item in this spiritual way. They see it as an organization respecting the needs and acknowledging the contributions of its employees.

Deleted items

Item	Original Scale	Reason
I rely on my co-workers when things at home or at work are not going well.	Survival	Item did not load on any of the four main components.
Relatives of my co-workers should have an advantage over outsiders in competing for job openings.	Survival	Item did not load on any of the four main components.
Many of my family members work in the organization.	Survival	Item did not load on any of the four main components.
I believe that older co-workers have more knowledge and skills than younger co-workers.	Respect / Dignity	Item did not load on any of the four main components.
In the organization all decisions are made by the leader.	Solidarity	Factor Analysis showed this item to be part of Compassion, for which no proper explanation could be given and was therefore deleted.
The organization prevents loss of jobs, even in difficult times.	Compassion	Item did not load properly on any of the four main components. Eventually turned up in the Respect factor and was therefore also deleted, as this item theoretically would fit better in any of other three factors.

B.3a – Eigenvalues for initial knowledge sharing scale

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,400	31,763	31,763	5,400	31,763	31,763	3,892	22,897	22,897
2	1,904	11,200	42,962	1,904	11,200	42,962	2,395	14,087	36,983
3	1,313	7,726	50,688	1,313	7,726	50,688	1,845	10,853	47,837
4	1,081	6,361	57,050	1,081	6,361	57,050	1,566	9,213	57,050
5	,964	5,671	62,721						
6	,926	5,448	68,168						
7	,761	4,476	72,645						
8	,700	4,118	76,763						
9	,602	3,544	80,306						
10	,554	3,259	83,565						
11	,546	3,212	86,777						
12	,451	2,650	89,427						
13	,429	2,524	91,952						
14	,403	2,368	94,320						
15	,370	2,177	96,497						
16	,334	1,965	98,462						
17	,262	1,538	100,000						

Extraction Method: Principal Component Analysis.

B.3b – Rotated Component Matrix for initial knowledge sharing scale

Rotated Component Matrix^a

	Component			
	1	2	3	4
"I enjoy helping others by sharing my knowledge" (Employee Motivations)			,782	
"I am confident in my ability to provide knowledge other people in the organization find valuable" (Employee Motivations)			,779	
"When I share knowledge with co-workers, I believe that my future requests for knowledge will be answered by them" (Employee motivations)			,347	,657
"When I share my knowledge with co-workers the people I work with respect me" (Employee Motivations)			,524	,434
"I communicate with co-workers through informal meetings within my organization" (Corporate Culture)	,259			,592
"In the organization employees have reciprocal faith in the behaviors and intentions of co-workers" (Corporate Culture)	,694			

"In the organization high participation is expected in sharing knowledge and ideas" (Corporate Culture)	,706		,256	
"The organization views employee training as an investment rather than an expense"(Corporate Culture)	,674	,337		
"I will receive increased promotion opportunities in return for my knowledge sharing" (Corporate Culture)	,566			,201
"Top management provides a clear organizational vision and goals to employees" (Leadership)	,726	,273		
"Top management clearly supports the role of knowledge sharing" (Leadership)	,744	,350		
"Encouraging knowledge sharing with co-workers is an important component of organizational policy" (Leadership)	,524	,346	,248	
"In the organization employees are encouraged to suggest ideas for new opportunities" (Leadership)	,661	,395		
"My organization uses technology infrastructure that allows employees to share knowledge with other people inside/outside the organization (Information Technology)	,330	,713		
"In my organization employees make extensive use of electronic storage (such as databases and data warehouses) to access corporate knowledge"(Information technology)		,769		
"In my organization employees use knowledge networks (email, intranet, etc.) to communicate with co-workers" (Information technology)	,236	,729		

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

NB. For reasons of simplification all scores below 0.2 have been omitted from this table.

B.4a – Eigenvalues for new knowledge sharing scale

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,209	34,729	34,729	5,209	34,729	34,729	3,748	24,984	24,984
2	1,746	11,640	46,369	1,746	11,640	46,369	2,465	16,435	41,419
3	1,306	8,704	55,072	1,306	8,704	55,072	2,048	13,653	55,072
4	1,020	6,798	61,870						
5	,841	5,605	67,475						
6	,772	5,149	72,624						
7	,639	4,259	76,882						
8	,581	3,876	80,758						
9	,560	3,736	84,493						
10	,468	3,120	87,614						
11	,446	2,976	90,590						
12	,416	2,772	93,362						
13	,377	2,513	95,875						
14	,346	2,307	98,182						
15	,273	1,818	100,000						

Extraction Method: Principal Component Analysis.

B.4b – Parallel Analysis results for new knowledge sharing scale

Eigenvalue #	Random Eigenvalue	Standard Dev
1	1,4953	,0604
2	1,3765	,0467
3	1,2899	,0402
4	1,2216	,0350
5	1,1570	,0293

B.4c – Rotated Component Matrix new knowledge sharing scale

Rotated Component Matrix ^a			
	Component		
	1	2	3
"Top management clearly supports the role of knowledge sharing" (Leadership)	,758		
"Top management provides a clear organizational vision and goals to employees" (Leadership)	,750		
"The organization views employee training as an investment rather than an expense"(Corporate Culture)	,697		
"In the organization employees are encouraged to suggest ideas for new opportunities" (Leadership)	,679	,388	
"In the organization employees have reciprocal faith in the behaviors and intentions of co-workers" (Corporate Culture)	,665		
"In the organization high participation is expected in sharing knowledge and ideas" (Corporate Culture)	,655		
"I will receive increased promotion opportunities in return for my knowledge sharing" (Corporate Culture)	,565		
"Encouraging knowledge sharing with co-workers is an important component of organizational policy" (Leadership)	,507	,377	
"In my organization employees use knowledge networks (email, intranet, etc.) to communicate with co-workers" (Information technology)		,767	
"In my organization employees make extensive use of electronic storage (such as databases and data warehouses) to access corporate knowledge"(Information technology)		,737	
"My organization uses technology infrastructure that allows employees to share knowledge with other people inside/outside the organization (Information Technology)		,716	
"When I share my knowledge with co-workers the people I work with respect me" (Employee Motivations)			,723
"I enjoy helping others by sharing my knowledge" (Employee Motivations)			,698
"When I share knowledge with co-workers, I believe that my future requests for knowledge will be answered by them" (Employee motivations)			,693
"I am confident in my ability to provide knowledge other people in the organization find valuable" (Employee Motivations)			,605

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

NB. For reasons of simplification all scores below 0.35 have been omitted from this table.

B.4d – New arrangement of items for knowledge sharing scales

KNOWLEDGE SHARING (Cronbach’s alpha = .859)

Employee Motivations (Cronbach’s alpha = .639)

- When I share knowledge with co-workers, I believe that my future requests for knowledge will be answered by them
- I enjoy helping others by sharing my knowledge
- I am confident in my ability to provide knowledge other people in the organization find valuable
- When I share my knowledge with co-workers the people I work with respect me

Leadership & Corporate Culture (Cronbach’s alpha = .859)

- In the organization employees have reciprocal faith in the behaviors and intentions of co-workers
- In the organization high participation is expected in sharing knowledge and ideas.
- The organization views employee training as an investment rather than an expense.
- I will receive increased promotion opportunities in return for my knowledge sharing
- Top management provides a clear organizational vision and goals to employees
- Top management clearly supports the role of knowledge sharing
- Encouraging knowledge sharing with co-workers is important component of organizational policy
- In the organization employees are encouraged to suggest ideas for new opportunities

Information Technology (Cronbach’s alpha = .762)

- My organization uses technology infrastructure that allows employees to share knowledge with other people inside/outside the organization
- In my organization employees make extensive use of electronic storage (such as databases and data warehouses) to access corporate knowledge
- In my organization employees use knowledge networks (email, intranet, etc.) to communicate with co-workers

Deleted items

Item	Original Scale	Reason
I communicate with co-workers through informal meetings within my organization.	Corporate Culture	Item did not load on the Leadership & Corporate Culture scale, while all other items measuring knowledge sharing fell into their expected dimensions. Also it disrupted the Employee Motivations scale, which is now as it should be.

Appendix C -- Complete Pearson Correlation Results

C.1 – Correlations between *Ubuntu* and Knowledge Sharing dimensions

		Ubuntu	Knowledge Sharing	Employee Motivation	Leadership and Corporate Culture	Information Technology
Ubuntu	Pearson Correlation	1,000	,702**	,639**	,713**	,353**
	Sig. (2-tailed)		,000	,000	,000	,000
	N	141	134	135	140	141
Knowledge Sharing	Pearson Correlation	,702**	1,000	,625**	,810**	,826**
	Sig. (2-tailed)	,000		,000	,000	,000
	N	134	169	169	169	169
Employee Motivation	Pearson Correlation	,639**	,625**	1,000	,322**	,239**
	Sig. (2-tailed)	,000	,000		,000	,001
	N	135	169	190	170	182
Leadership and Corporate Culture	Pearson Correlation	,713**	,810**	,322**	1,000	,526**
	Sig. (2-tailed)	,000	,000	,000		,000
	N	140	169	170	181	180
Information Technology	Pearson Correlation	,353**	,826**	,239**	,526**	1,000
	Sig. (2-tailed)	,000	,000	,001	,000	
	N	141	169	182	180	193

** . Correlation is significant at the 0.01 level (2-tailed).

C.2 – Correlations between Knowledge Sharing and *Ubuntu* dimensions

		Knowledge Sharing	Ubuntu	Compassion	Solidarity	Survival	Respect & Dignity
Knowledge Sharing	Pearson Correlation	1,000	,702**	,497**	,497**	,608**	,646**
	Sig. (2-tailed)		,000	,000	,000	,000	,000
	N	169	134	160	159	156	152
Ubuntu	Pearson Correlation	,702**	1,000	,815**	,837**	,765**	,808**
	Sig. (2-tailed)	,000		,000	,000	,000	,000
	N	134	141	141	141	141	141
Compassion	Pearson Correlation	,497**	,815**	1,000	,532**	,553**	,501**
	Sig. (2-tailed)	,000	,000		,000	,000	,000
	N	160	141	185	174	168	159
Solidarity	Pearson Correlation	,497**	,837**	,532**	1,000	,527**	,554**
	Sig. (2-tailed)	,000	,000	,000		,000	,000
	N	159	141	174	180	164	154
Survival	Pearson Correlation	,608**	,765**	,553**	,527**	1,000	,432**
	Sig. (2-tailed)	,000	,000	,000	,000		,000
	N	156	141	168	164	175	152
Respec & tDignity	Pearson Correlation	,646**	,808**	,501**	,554**	,432**	1,000
	Sig. (2-tailed)	,000	,000	,000	,000	,000	
	N	152	141	159	154	152	169

** . Correlation is significant at the 0.01 level (2-tailed).

Appendix D -- Complete results of all regression analyses

D.1a – Model Summary Regression analysis Knowledge Sharing & *Ubuntu*

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,702 ^a	,493	,489	,36268

a. Predictors: (Constant), Ubuntu

D.1b – ANOVA Results Knowledge Sharing & *Ubuntu*

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16,868	1	16,868	128,238	,000 ^a
	Residual	17,363	132	,132		
	Total	34,231	133			

a. Predictors: (Constant), Ubuntu

b. Dependent Variable: Knowledge Sharing

D.1c – Regression coefficients for Knowledge Sharing & *Ubuntu*

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,858	,272		3,154	,002
	NewUbuntu	,780	,069	,702	11,324	,000

a. Dependent Variable: Knowledge Sharing

D.2a – Model Summary Regression analysis Knowledge Sharing & *Ubuntu* dimensions

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,744 ^a	,553	,541	,34372

a. Predictors: (Constant), Respect & Dignity, Survival, Compassion, Solidarity

D.2b – ANOVA Results Knowledge Sharing & *Ubuntu* dimensions

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21,497	4	5,374	45,489	,000 ^a
	Residual	17,367	147	,118		
	Total	38,864	151			

a. Predictors: (Constant), Respect & Dignity, Survival, Compassion, Solidarity

b. Dependent Variable: Knowledge Sharing

D.2c – Regression coefficients for Knowledge Sharing & *Ubuntu* dimensions

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,872	,281		3,106	,002
	Compassion	,058	,076	,055	,762	,447
	Solidarity	,024	,069	,026	,352	,725
	Survival	,386	,073	,372	5,282	,000
	Respect & Dignity	,298	,047	,444	6,378	,000

a. Dependent Variable: Knowledge Sharing

D.3a – Model Summary Regression analysis Employee Motivations & Ubuntu

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,639 ^a	,409	,404	,41054

a. Predictors: (Constant), Ubuntu

D.3b – ANOVA Results Employee Motivations & Ubuntu

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15,488	1	15,488	91,893	,000 ^a
	Residual	22,416	133	,169		
	Total	37,903	134			

a. Predictors: (Constant), Ubuntu

b. Dependent Variable: Employee Motivation

D.3c – Regression coefficients for Employee Motivations & Ubuntu

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,233	,307		4,017	,000
	Ubuntu	,744	,078	,639	9,586	,000

a. Dependent Variable: Employee Motivation

D.4a – Model Summary Regression analysis Employee Motivations & *Ubuntu* dimensions

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,722 ^a	,521	,508	,37322

a. Predictors: (Constant), Respect / Dignity, Survival, Compassion, Solidarity

D.4b – ANOVA Results Employee Motivations & *Ubuntu* dimensions

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22,236	4	5,559	39,910	,000 ^a
	Residual	20,476	147	,139		
	Total	42,712	151			

a. Predictors: (Constant), Respect / Dignity, Survival, Compassion, Solidarity

b. Dependent Variable: Employee Motivation

D.4c – Regression coefficients for Employee Motivations & *Ubuntu* dimensions

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,549	,305		1,801	,074
	Compassion	,053	,082	,049	,648	,518
	Solidarity	,317	,075	,324	4,251	,000
	Survival	,550	,079	,506	6,935	,000
	Respect & Dignity	-,055	,051	-,077	-1,075	,284

a. Dependent Variable: Employee Motivation

D.5a – Model Summary Regression analysis Leadership & Corporate Culture and *Ubuntu*

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,713 ^a	,508	,504	,46367

a. Predictors: (Constant), *Ubuntu*

D.5b – ANOVA Results Leadership & Corporate Culture and *Ubuntu*

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30,605	1	30,605	142,358	,000 ^a
	Residual	29,668	138	,215		
	Total	60,273	139			

a. Predictors: (Constant), *Ubuntu*

b. Dependent Variable: Leadership & Culture

D.5c – Regression coefficients for Leadership & Corporate Culture and *Ubuntu*

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,250	,340		-,734	,464
	<i>Ubuntu</i>	1,027	,086	,713	11,931	,000

a. Dependent Variable: Leadership & Culture

D.6a – Model Summary Regression analysis Leadership & Corporate Culture and *Ubuntu* dimensions

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,803 ^a	,645	,635	,39759

a. Predictors: (Constant), Respect / Dignity, Survival, Compassion, Solidarity

D.6b – ANOVA Results Leadership & Corporate Culture and *Ubuntu* dimensions

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42,238	4	10,560	66,798	,000 ^a
	Residual	23,238	147	,158		
	Total	65,476	151			

a. Predictors: (Constant), Respect / Dignity, Survival, Compassion, Solidarity

b. Dependent Variable: Leadership & Culture

D.6c – Regression coefficients for Leadership & Corporate Culture and *Ubuntu* dimensions

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,354	,325		1,089	,278
	Compassion	,258	,088	,190	2,940	,004
	Solidarity	-,169	,079	-,140	-2,134	,034
	Survival	,212	,085	,158	2,511	,013
	Respect / Dignity	,595	,054	,683	11,014	,000

a. Dependent Variable: Leadership & Culture

D.7a – Model Summary Regression analysis Information Technology & Ubuntu

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,353 ^a	,125	,118	,76145

a. Predictors: (Constant), Ubuntu

D.7b – ANOVA Results Information Technology & Ubuntu

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11,486	1	11,486	19,810	,000 ^a
	Residual	80,593	139	,580		
	Total	92,079	140			

a. Predictors: (Constant), Ubuntu

b. Dependent Variable: Information Technology

D.7c – Regression coefficients for Information Technology & Ubuntu

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,308	,557		2,349	,020
	Ubuntu	,627	,141	,353	4,451	,000

a. Dependent Variable: Information Technology

D.8a – Model Summary Regression analysis Information Technology & Ubuntu dimensions

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,449 ^a	,201	,180	,73452

a. Predictors: (Constant), Respect / Dignity, Survival, Compassion, Solidarity

D.8b – ANOVA Results Information Technology & Ubuntu dimensions

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20,005	4	5,001	9,270	,000 ^a
	Residual	79,309	147	,540		
	Total	99,314	151			

a. Predictors: (Constant), Respect / Dignity, Survival, Compassion, Solidarity

b. Dependent Variable: Information Technology

D.8c – Regression coefficients for Information Technology & Ubuntu dimensions

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1,752	,600		2,919	,004
	Compassion	-,054	,162	-,032	-,334	,739
	Solidarity	-,148	,147	-,099	-1,009	,315
	Survival	,274	,156	,165	1,752	,082
	Respect / Dignity	,459	,100	,428	4,600	,000

a. Dependent Variable: Information Technology

Appendix E -- Complete Regression Analysis results for Knowledge Sharing; Information Technology excluded from analysis

E.1a – Model Summary Regression analysis Knowledge Sharing (ex. Inf. Tech.) & Ubuntu

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,821 ^a	,674	,672	,27991

a. Predictors: (Constant), Ubuntu

E.1b – ANOVA Results Knowledge Sharing (ex. Inf. Tech.) & Ubuntu

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21,381	1	21,381	272,904	,000 ^a
	Residual	10,342	132	,078		
	Total	31,723	133			

a. Predictors: (Constant), Ubuntu

b. Dependent Variable: Knowledge Sharing without Inf. Tech.

E.1c – Regression coefficients for Knowledge Sharing (ex. Inf. Tech.) & Ubuntu

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,521	,210		2,480	,014
	Ubuntu	,878	,053	,821	16,520	,000

a. Dependent Variable: Knowledge Sharing without Inf. Tech.

E.2a – Model Summary Regression analysis Knowledge Sharing (ex. Inf. Tech.) & Ubuntu dimensions

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,847 ^a	,718	,710	,26293

a. Predictors: (Constant), Respect / Dignity, Survival, Compassion, Solidarity

E.2b – ANOVA Results Knowledge Sharing (ex. Inf. Tech.) & Ubuntu dimensions

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25,854	4	6,464	93,494	,000 ^a
	Residual	10,163	147	,069		
	Total	36,017	151			

a. Predictors: (Constant), Respect / Dignity, Survival, Compassion, Solidarity

b. Dependent Variable: Knowledge Sharing without Inf. Tech.

E.2c – Regression coefficients for Knowledge Sharing (ex. Inf. Tech.) & Ubuntu dimensions

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,471	,215		2,192	,030
	Compassion	,104	,058	,103	1,783	,077
	Solidarity	,070	,053	,078	1,337	,183
	Survival	,417	,056	,418	7,460	,000
	Respect & Dignity	,285	,036	,441	7,972	,000

a. Dependent Variable: Knowledge Sharing without Inf. Tech.

Appendix F -- Complete integrated research model

