

THE IMPLEMENTATION OF A TIME AND ATTENDANCE SYSTEM AT STELLENBOSCH MUNICIPALITY – A CHANGE MANAGEMENT PERSPECTIVE

by

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DECLARATION

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ABSTRACT

Human beings are constantly confronted with change because their current situation is continually being questioned. In order to change the way humans behave, it is necessary to change the mindset of those who will be influenced by new ideas.

Stellenbosch Municipality faces a dilemma because the current management of its employee attendance is having a negative impact on its daily operations – service delivery is becoming an increasingly serious concern because the inability to manage employees' daily attendance results in inefficient and ineffective rendering of services to citizens. This research addresses the question of whether the change from a manual attendance register to a biometric time and attendance system would more effectively ensure the availability of Municipal employees to improve basic service delivery. Moreover, the dilemma Stellenbosch Municipality faces concerns the monitoring of employees on a daily basis, including the availability of an attendance register for audit purposes. A questionnaire was used to examine the situation and obtain responses from employees who make use of both the manual attendance register and the biometric time and attendance device. It was established that the use of the manual attendance register caused certain problems, although it has served a monitoring purpose for more than 30 years. At the time of answering the questionnaire, some respondents requested the implementation of an electronic system with real-time capability to remove any doubt concerning the confirmation of employee attendance. The feedback from the questionnaire confirms:

- the unreliability of a human-dependent employee attendance register;
- that delivery of basic services can only be done on condition of the availability of employees who report for duty; and
- that the use of the manual attendance system creates unrecoverable losses.

The inability of employees to maintain their manual attendance registers led to the recommendation that:

- a mechanised system needs to be implemented to reduce administration procedures and to secure compliance and an unqualified audit.

OPSOMMING

Mense word voortdurend met verandering gekonfronteer omdat hul huidige situasie gedurig bevraagteken word. Ten einde die manier waarop mense optree te verander, is dit nodig om die geestesingesteldheid van diegene wat deur nuwe idees beïnvloed sal word te verander.

Die Munisipaliteit Stellenbosch staan voor 'n dilemma omdat die huidige bestuur van sy werknemerbywoning 'n negatiewe uitwerking op sy daaglikse werksaamhede het – dienslewering word 'n al ernstiger saak weens die onvermoë om werknemers se daaglikse bywoningsresultate by onbekwame en ondoeltreffende lewering van dienste aan dorpsbewoners te bestuur. Hierdie navorsing ondersoek die vraagstuk of die omskakeling van 'n bywoningsregister per hand na 'n biometriese tyd- en bywoningstelsel die beskikbaarheid van munisipale werknemers meer effektief sal verseker om basiese dienslewering te verbeter. Hierbenewens het die dilemma van die Munisipaliteit Stellenbosch te doen met die daaglikse monitering van werknemers, waaronder die beskikbaarheid van 'n bywoningsregister vir ouditeringsdoeleindes. 'n Vraelys is gebruik om die situasie te ondersoek en reaksies te verkry van werknemers wat van die bywoningsregister per hand sowel as die biometriese tyd- en bywoningsinstrument gebruik maak. Daar is vasgestel dat die bywoningsregister per hand sekere probleme veroorsaak het, hoewel dit langer as 30 jaar 'n moniteringsdoel gedien het. Met die beantwoording van die vraelys het party respondente die implementering van 'n elektroniese stelsel met intydse vermoë versoek om enige twyfel omtrent die bevestiging van werknemerbywoning te verwyder. Die terugvoering van die vraelys bevestig:

- die onbetroubaarheid van 'n menslik afhanklike werknemerbywoningsregister;
- dat lewering van basiese dienste slegs kan plaasvind op voorwaarde van die beskikbaarheid van werknemers wat vir diens aanmeld; en
- dat die gebruik van die bywoningstelsel per hand onverhaalbare verliese skep.

Die onvermoë van werknemers om hul bywoningsregisters per hand by te hou het gelei tot die aanbeveling dat:

- 'n gemeganiseerde stelsel geïmplementeer moet word om administratiewe prosedures te verminder; en om 'n ongekwalfiseerde ouditering te verseker.

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List of Acronyms and Abbreviations

AG	Auditor General
ANC	African National Congress
ATM	Automated teller machine
AWOL	Absence without leave
BCEA	Basic Conditions of Employment Act
CTS	Carpal tunnel syndrome
FAR	False accept rate
FRR	False reject rate
FTIR	Frustrated total internal reflection
HANIS	Home Affairs National Identification System
IDP	Integrated Development Plan
IMATU	Independent Municipal & Allied Trade Union
LLF	Local Labour Forum
MAYCO	Mayoral Committee
MCA	Main collective agreement
MCOD	Multicultural organisational development
MIS	Management information system
MFMA	Municipal Finance Management Act
MM	Municipal Manager
PEST	Political, economic, social and technological
PIN	Private identification number
POE	Power over Ethernet
PSO	Public Service Organisations
RSI	Repetitive stress disorder
SALGA	South African Local Government Organisation
SAMWU	South African Municipal Workers Union
SAPS	South African Police Services
SASSA	South African Social Services Agency
SWOT	Strengths, weaknesses, opportunities and threats
TQM	Total Quality Management
USB	Universal service bus
VOIP	Voice over internet protocol

CHAPTER 1

THE IMPLEMENTATION OF A TIME AND ATTENDANCE SYSTEM AT STELLENBOSCH MUNICIPALITY - A CHANGE MANAGEMENT PERSPECTIVE

1.1 Background

Local government is dynamic and bound by change to improve its services. The need for change has placed an enormous demand on the operations of the South African Government. The examination of the change concept is essential towards realising what gradual improvements have to be introduced by public service organisations (PSO) to comply with their service delivery mandate. Demands for innovation are made on a daily basis in order to serve South African communities with efficiency. Improvement strategies are imperative to the ruling African National Congress (ANC), who is poised to create a lasting legacy as proof that the struggle for freedom was worthwhile.

Change creates uncertainty within the lives of employees especially if it implies the monitoring of employee attendance during the rendering of basic services. In order to eliminate uncertainty, change within the corporate culture requires a logical and systematic approach to succeed (Bellingham, 2001:1). The introduction of a biometric time and attendance system will investigate the possibility of accurately establishing the attendance of every employee of Stellenbosch Municipality. The researcher explores these uncertainties to comprehend the dynamics of change.

Municipalities exist in every town and city within the borders of South Africa (RSA, 1998:18). They operate independently in their spheres as local, district and metropolitan municipalities. The Provincial Department of Local Government and Traditional Affairs, exercises an overseer's role to ascertain if the mandate of municipalities is being carried out with regard to the delivery of sustainable basic services, such as water and electricity provision (RSA, 2000:181). In view of the aforementioned services, the Constitution of the Republic of South Africa, 1996 (No. 108 of 1996) places the emphasis on the importance of every municipality to budget sufficiently with regard to adequate services (RSA, 2006:13). Cranston (1984:181)

describes the delivery of basic services as part of government's social contract. The natural right to rule has been figuratively transferred by citizens to councillors to effect the best alternatives that could enhance the lives of South Africans. Democratic elections ensure that citizens complete a secret ballot when electing suitable candidates from the community to oversee the governing of their specific town or district (RSA, 1998:95).

In order to ensure the delivery of basic services, councillors, - as in the case of Stellenbosch Municipality - may execute their political authority via the executive mayoral system. It is important that councillors are able to provide proof of interventions that are in favour of fellow citizens' needs. Citizens require that their tax contributions will be utilized effectively. The availability of employees is an important mechanism to execute the wishes of the people - in addition to managing the quantity and quality of the services (RSA, 1997:15).

The implementation of a biometric time and attendance system is one method to address the management of employees, to confirm attendance and ensures the effective delivery of services. This study focuses on the change from a manual attendance register to a biometric time and attendance system. This study investigates the impact of meeting the requirements of legislation by introducing technology as a labour saving method.

1.2 The role of Local Government

The rendering of basic services as mentioned in the Constitution (1996) can only be executed with the availability of employees (RSA, 2003:87). A municipality, by means of its operational staff, provides the public with services in order to carry out the mandate as indicated in the Constitution (RSA, 1996; Cranston, 1984:181). Stellenbosch Municipality is required to execute the service delivery mandate by monitoring the commencement and conclusion of shifts for each employee on a daily basis. To be able to deliver a prompt service, the Municipality needs to know who reports for duty to carry out the assigned tasks according to the Bill of Rights, entrenched in the Constitution (1996). Moreover, it is necessary that all labour

related expenses incurred during the delivery of services, meet the requirements of the Bill of Rights and that relevant data needs to be accurately captured (RSA, 2003: 21; 2003: 87-88).

In order to accomplish the mandate of the Constitution, Government has been divided into three spheres namely, National, Provincial and Local Governments (RSA, 1996: xvi). National Government consists of the Legislative, Executive and Judicial authorities. The Provincial Government structure includes the Provincial Legislative and -Executive authorities which enforce the laws of National Government, including those promulgated at provincial level. Municipalities reside within the local government sphere and report on an annual basis by means of an independent Auditor General (AG) report to the Provincial Minister of Local Government and Housing (RSA, 1998:226). Firstly, the AG's report focuses on all areas of expenses, including salaries. The AG report on employee attendance and remuneration is used as control mechanism to determine if expenses regarding salaries can be justified. Auditing by the AG has two areas of assessment to cover before an exemption on the operations of a municipality is considered, namely:

- employee salaries; and
- financial expenses of budgets cover the rest.

Improper control over expenses may result in a qualified audit which will be an indication to Provincial Government that a municipality is unable to spend taxpayers' money in a responsible manner. Qualification by the AG can lead to the loss of independence whereby a municipality can be placed under administration until the proper control mechanisms are established to the satisfaction of the Provincial Government.

1.2.1 Council and the Integrated Development Plan (IDP)

The Local Government: Municipal Structures Act, 1998 (No. 117 of 1998) (RSA, 1998:26) makes provision for elected councillors in council to guide senior managers towards achieving the goals as indicated in the Integrated Development Plan (IDP) (RSA, 1998:25-26; RSA, 2000:23-37). Senior managers are assessed on

a quarterly basis in relation to their ability to reach the needs as identified within the IDP. In order to reach these targets of the IDP, check and control measures have to be in place to secure employee attendance at the workplace. Councillors, on the other hand, are ordained with the authority to administer bylaws towards the attainment of national, provincial, and municipal goals (RSA, 1996:90). This includes the approval of a leave policy to secure the availability of employees on a regular basis (Langeveldt, 2008). Moreover, council representatives serving on the mayoral committee (MAYCO) portray the role of the employer at municipal level and have the delegation to appoint directors for a five year term (RSA, 2000:170,176) after consulting with the Municipal Manager (MM) – they are also known as Section 57 employees, according to the Local Government: Municipal Systems Act, 2000 (No. 32 of 2000). Councillors of the MAYCO may participate actively - limited to the level of the MM and directors - at strategic management level of the municipal structure by overseeing portfolio positions in every directorate of Stellenbosch Municipality (RSA, 1996:93). Employee attendance and the execution of municipal responsibilities are interdependent because the rendering of a basic service cannot function without the presence of employees to execute the operational duties. Directors within the municipal council are responsible for the strategic planning and operational execution of duties. They are responsible to appoint their immediate subordinates bearing in mind their accountability to the employer.

1.2.2 The Municipal Manager (MM)

The MM is the accounting officer in the evaluation of service standards within a municipality and every profit or loss is to his/her direct responsibility (RSA, 2003:71; Craythorne, 2006:271). Improper control over employee attendance is considered by the AG as fruitless and wasteful expenditure; therefore attendance registers act as proof that employees have indeed reported for duty. The MM is expected to act in the best interest of the municipality with regard to all financial affairs (Craythorne, 2006:271). The MM is the custodian of the performance management system for all directors and the MAYCO determines the MM's and directors' achievement by means of a performance scorecard. The performance criterion of these cards serves as benchmark and requires action that confirms improvement on previous successes. Additional remuneration will be paid to the MM and directors if the

minimum agreed requirements are met (RSA; 2000:159). According to Craythorne (2006:273) human resource management and salary expenditure are considered as the most important elements in a directors' performance agreement. The evaluation of the aforementioned performance elements are done constantly to ensure ongoing improvement. The IDP is utilised as basis to measure the service standards on the scorecard. IDP's are created to reflect on previous achievements and their purpose is to (RSA, 2000:148):

- Clarify the council's vision on community development;
- Assess and identify access to basic services;
- Prioritize objectives for the IDP which are valid for five years;
- Compile guidelines for basic land use management;
- Create council operational strategies;
- Design disaster management strategies;
- Ensure sound financial management;
- Ensure the availability of clear key performance indicators; and
- Create performance targets.

The MM acts as initiator of the IDP process and arranges community meetings to determine the priorities that have to be tabled for the municipal council's approval. In order to succeed with the IDP strategy, the MM should maintain healthy labour relations with union representatives of the South African Municipal Workers Union (SAMWU) and the Independent Municipal & Allied Trade Union (IMATU). Union representatives receive regular reminders concerning the responsibility of the employer towards employee misconduct - such as absence without leave (AWOL) - and mention is also made of the responsibility to recover any fruitless and wasteful expenditure due to absence. Labour matters of national interest, such as annual increases, are negotiated at national level with the intervention of the South African Local Government Association (SALGA) (RSA, 2007:1). SALGA assists in achieving national objectives whereby they are able to (RSA, 2002/03:318):

- promote sound labour relation practices;
- lend voice to local government; and
- establish the capacity of local government.

The handling of national matters is executed in line with uniform standards for managing performance (RSA, 2003:166). Stellenbosch Municipality has the authority to preside over local labour matters. The AG focuses on correspondence with regard to employee remuneration and the manual employee attendance register, as well as complying with the guidelines of the Municipal Finance Management Act, 2003 (No. 56 of 2003) (MFMA). This is to ensure that employees receive payment for actual work done (RSA, 1996:87; RSA, 2003:298). The MFMA requires that all municipalities report on their income and expenditure for each financial year ending on 30 June (RSA: 2003:76).

The improvement of service delivery is a constant demand from taxpayers in order to receive value for their money. Therefore, Stellenbosch Municipality is required to improve performance and not compromise on quality. Over time a greater demand has developed whereby citizens insist on effective services from municipalities.

1.3 Rationale for study

The taxpayer has the right to dispute the quality and frequency of service delivery. Constant complaints were made that the South African Government services - especially local government - project poor service standards and were not adhering to the Batho Pele Principles as stated in the White Paper on Transforming Public Service Delivery, notice 1459 of 1997 (RSA, 1997:15). The discussion on poor services led to a question posed in Parliament by former President Thabo Mbeki (Mbeki, 2008). He was interested to know "if local government has the capacity to conduct its primary task of service delivery as stated in the White Paper on Transforming Public Service Delivery, notice 1459 of 1997" (RSA, 1996:116; RSA, 1997:15). This question basically led to the commissioning of a National Competency Audit of all local, district and metropolitan municipal employees.

Stellenbosch Municipality is used as a case study. The Time and Attendance Project was planned and initiated in the Ecclesia building at 71 Plein Street, Stellenbosch. A simulation environment was required to test the biometric technology, thus the pilot project was started on the computerised employee time and attendance system on 5

May 2008. The new employee attendance system will allow employees to clock “in” and “out” by scanning their left or right index finger on the biometric scanner. This biometric device will - upon approval by the employer - replace the manual attendance register at a later stage. Its benefits must be cost effective and comply with the needs of the employer, that is, Stellenbosch Municipality, and lastly it has to receive approval as the official time management device. The need for a new system developed because much administration was involved in maintaining a handwritten attendance register. Dr. Len Mortimer, Director: Corporate Services at the time, instructed the Manager: Human Resources, Mr. Johnny Cheminaise to begin sourcing an alternative to the manual attendance register (Cheminaise, 2008).

The initiation of a pilot project led to discussions with the owners of the Ecclesia building. The leasing of this building took place after an agreement between Kirfane Investments and Stellenbosch Municipality (Le Roux, 2009). The occupation of the three storey building came about after the Municipal Council of 2008 decided to expand the micro structure of Stellenbosch Municipality from six to nine directorates with the main goal of refocusing service delivery towards efficiency.

This research focus is on change management and the ability of people to change from a manual attendance register to a biometric time and attendance system. Secondly, employee efficiency is quantified by means of a monitoring device that can prevent irretrievable losses caused by employees who are absent from work but still receive remuneration. Moreover, the biometric devices will address the question of the availability of the workforce on a daily basis. In order to deliver an efficient service, it is imperative to have a clear indication regarding the available workforce which would be able to cope with the day’s tasks and assignments.

1.4 Research question

The Constitution (1996) inculcates a demand for basic values and principles when governing public administration. The search for administrative justice in the monitoring of employee attendance led to the assessment of the following problem:

Does the change to the biometric time and attendance system address the uncertainty of who reported for duty, to ensure that sufficient employees are available to deliver basic services?

1.5 Research objectives

With the abovementioned research question in mind, this study aims to reach the following objectives:

- To explain the theoretical and legislative aspects of change management; time and attendance systems and the efficiency of service delivery;
- To focus on the human behaviour of employees, as well as the improvement of the service delivery mandate through the introduction of employee control mechanisms such as biometric time and attendance systems;
- To compare the manual attendance register and the biometric system in order to identify negative and positive traits;
- To analyse the attitudes of employees working in the Ecclesia building;
- To analyse the effectiveness of a biometric system in order to replace the manual attendance register in the case study by means of the literature study;
- To make recommendations based on employee time and attendance in relation to the service delivery approach at Stellenbosch Municipality.

1.6 Research design

The researcher conducts an applied research technique to address qualitative and quantitative research approaches. Qualitative data is the main source of information when dealing with a case study design. Primary and secondary data analyses lead to a qualitative revelation, including the conditioning of human behaviour when implementing change. The aforementioned qualitative approach is followed to interpret human behaviour in relation to control measures. Human behaviour relates to conditioning of human action towards a new process, e.g. a biometric time and attendance system installed within the workplace and which replaces the manual attendance register (Collins, 1983:314).

The main objective is to provide a quantitative approach to the case study at hand, in this case Stellenbosch Municipality. Also, to answer the first segment of the research question: eliminating the uncertainty of who reported for duty. (Mouton, 2001:149–154). The impact while implementing the biometric time and attendance system is assessed (Neuman, 1997:497; Welman & Kruger, 2001:182). Employees confirm their responsibility and official presence at work by clocking in or out at a designated clocking point. The importance of reporting for duty has a primary function whereby employees will be available to improve service delivery and secondly be remunerated for services rendered. The biometric time and attendance system will confirm that an effective clocking service is in operation while being on duty at Stellenbosch Municipality. Employees are required to render a quality service and guarantee a value for money expenditure. The behavioural conditioning of employees to accept the biometric time and attendance system as the official method to clock "on" and "off" duty is examined against the acknowledgement of the workforce and the legislative compliance of the employer (RSA, 2003:76).

Due to the change management perspective, the researcher examines the humane aspects in accepting this new employee attendance method as beneficial to both employee and employer. The manual attendance register and biometric time and attendance system are analysed against their strengths, weaknesses, opportunities and threats (SWOT). The SWOT analysis will reveal motivations for promoting either the handwritten or biometric employee attendance system as required in the MFMA (RSA, 2003:76). Employee defence mechanisms for not using the electronic clock are identified and analysed against the legislative requirement of the employer. The biometric time and attendance system will be analysed if in the event of audit queries it can ensure that data be available for three years after the resignation of an employee (RSA, 1997:33). Lastly, the researcher compares and differentiates between the human interactions brought about by the two attendance methods.

1.7 Research methodology

A questionnaire was distributed to 250 employees in the Ecclesia and Main buildings who make use of both the manual attendance register and the biometric time and attendance system. The aim was to arrive at an objective change management

analysis and obtain a 70% response from employees who use both abovementioned register and system.

1.8 Overview of chapters

The thesis comprises out of seven chapters. The research question, background and problem statement are highlighted in chapter one. In the same chapter objectives and methodology are also highlighted with a view to answering the research question and the assessment and implementation of a biometric time and attendance system for Stellenbosch Municipality – a change management perspective is introduced, as well as the problems related to employee attendance management at Stellenbosch Municipality. Lastly, the reasons behind the implementation of a biometric time and attendance system are explained.

Chapter two includes a review on related change management literature focussing on strategies to ensure successful change. Moreover, research conducted clarifies change occurrences.

Chapter three focuses on technological traits, researched against their limitations and benefits. The motivations for considering technology as medium for employee attendance management are also discussed.

Chapter four reviews the legal framework relating to change management and the implementing of a biometric time and attendance system to enhance service delivery. The White Paper on Transforming Public Service Delivery, Notice 1459 of 1997, is used to benchmark the service delivery attempts in achieving goals at Stellenbosch Municipality and the advantages and disadvantages of both old and new systems are scrutinised. Other legislation used as benchmarks include:

- Constitution of the Republic of South Africa, 1996 (No. 108 of 1996);
- the Municipal Finance Management Act, 2003 (No. 56 of 2003);
- the Basic Conditions of Employment Act, 1997 (No. 75 of 1997);
- Local Government: Municipal Structures Act, 1998 (No. 117 of 1998);
- the Local Government: Systems Act, 2000 (No. 32 of 2000); and

- and the Collective Agreement between South African Local Government Association (SALGA) as representatives of the employer on Bargaining Council level and labour representatives, namely: the Independent Municipal Allied Trade Union (IMATU) and the South African Municipal Trade Union (SAMWU).

Chapter five focuses on the time and attendance case study of Stellenbosch Municipality in the Ecclesia building and later expansion of the pilot project to the Main building in Plein Street, Stellenbosch. Employees were requested to complete an electronic questionnaire reflecting their experience of both the manual attendance register and the biometric time and attendance system. Empirical data obtained through the questionnaire was analysed against effectiveness and relevant legislation. The presentation and interpretation of results conclude this chapter.

Chapter six evaluates the previous chapters by identifying the positive and negative aspects of the manual attendance register and the time and attendance system that either promotes or restrains service delivery at Stellenbosch Municipality. The literature study in chapter two and three is analysed against the legal requirements of chapter four and the analysis made in chapter five.

Chapter seven deal with a normative approach by describing an ideal situation for the implementation of an alternative time and attendance system. The ideal situation is highlighted to benefit both employee-employer relationships and be mindful of enhancing service delivery at Stellenbosch Municipality. Change aspects and strategies that could have benefited the implementation of an alternative time and attendance system are shared.

CHAPTER 2

A LITERATURE REVIEW OF CHANGE MANAGEMENT WITHIN THE CONTEXT OF NEW TECHNOLOGY TO MONITOR EMPLOYEE TIME AND ATTENDANCE

2.1 Introduction

Change is a human phenomenon that occurs daily within the realm of human development. The search for a better option to enhance people management is sourced daily. In this chapter the researcher will describe and explain change management to monitor employee time and attendance. Organisational change can be described as the responses of organisations to plan for, implement and manage change. The demand for human beings to adapt without notice is consistent in order to ensure survival. Demanding factors such as client excellence are continuously reminding public service organisations to improve or face criticism. Customer satisfaction has become essential to any organisation because the citizens are the recipients of the end product. The public services strikes during 2010, serve as a reminder of customer intolerance against local government administrators. Change is the only consistency within human development and this is mainly due to continued technological interventions. The essence of change will be discussed to shed more light on the change action.

2.2 The essence of change

The essence of change resides in the fact that humans are involved in a learning process while developing their environment to provide in consumer needs. Their constant search for improvement motivates the occurrence of change with the intention of enhancing work processes. Huysemen (2002:30) characterises organisational change as beliefs and value systems that reside within the individual. These beliefs and value systems urge the need for innovation to attain goals as set within the Republic of South Africa (RSA) context. Barker (2007:15) explains that change management is required to manage the humane side of the change process.

Kirkpatrick (1985:30) focuses on the implementers of change whereby ownership has to be claimed against beliefs and value systems in order for change to succeed. Auster *et al.* (2005:5) recognises the ever presence of change. He identifies the ability of human beings to adapt and evolve successfully in terms of the scope, depth and complexity of the organisation to deliver a certain service. Osborne & Brown (2005:5) recognise change in a broader sense by focusing on the growth and development of the organisation through:

- the design of the service as a motivator towards change;
- the structure of public service organisations (PSO);
- the management and administration of the PSO; and /or
- the skills required in managing the public service.

Lewin (1952:173) introduces change in his model as two personalities that can either be for or against development and growth. He differentiates between two forces when referring to change, namely: a satisfactory power on the one side to maintain the status quo of – in this instance - the manual attendance register and another to search for alternatives such as the biometric time and attendance register. According to Cameron & Green (2009:57) the restraining force is also known as learning anxiety due to fear of the unknown. The comfort of the manual attendance register does not allow the option of venturing into an uncertain alternative of time management. On the other hand is a force that wants to introduce change by introducing a biometric time and attendance system. These two forces of change are always present within the force field of Lewin and await opportunities for change. Change has furthermore been qualified by Lewin (1952:173) whereby:

- the satisfaction and driving forces are balanced in a quasi-stationary equilibrium to compete continuously for overall control;
- in order to change, either one of the satisfaction or driving forces need to be strengthened or the other needs to be weakened; and
- change is introduced in the event that the one power succeeds over the other whereby the one alternative is accepted because it poses better benefits than the other.

The essence of change is further explained by analysing the nature of change.

2.3 The nature of change

In order to discuss the nature of change Bellingham (2001:10) highlights the urgency and need towards change. He supports the satisfaction and driving forces statement made by Lewin (1952:173). According to Bellingham (2001:10) opportunities before, during and after change require clarification to validate and identify grounds for any transformation. Beckhard & Harris (1987:98), as well as Bowman & Jarret (1996:215), describe the initiators of change by means of the following model which focus its attention on the area of dissatisfaction of the status quo to objectively eliminate the non-desired alternative as mentioned in Figure 2.1.

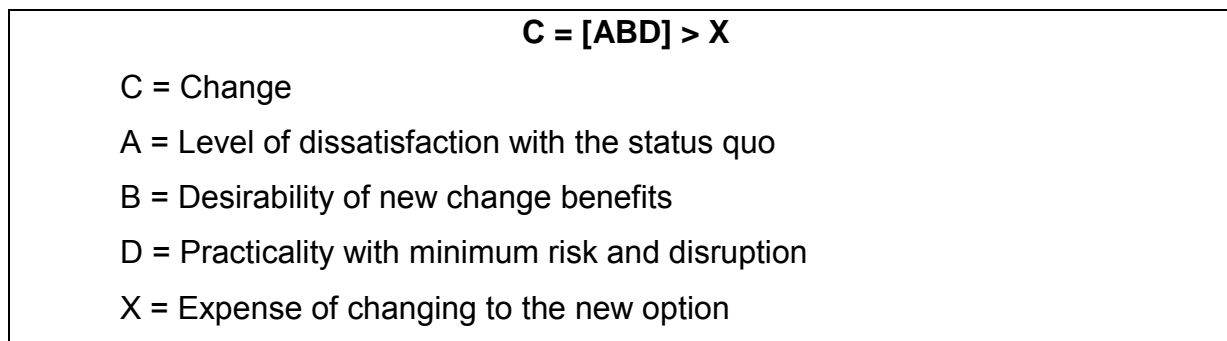


Figure 2.1: Initiator of change model

Source: Beckhard & Harris (1987:98); Bowman & Jarret, (1996:215)

Beckhard & Harris (1987:98) and Bowman & Jarret (1996:215) agree that the abovementioned model can only initiate change (represented by C) with the presence of dissatisfaction (represented by A) in the current status quo. The desire to change as marked by B must be present to receive the new change benefits. Moreover, D has to be present to demand that the process be practical with minimum risk and disruption to expose the organisation to major threats. If the dissatisfaction, desirability and risk are greater than the expense of change, more motivation is gained in favour of change as a value for money alternative. Abrahamson (2004:23) agrees that change will take place as a well calculated decision, depending on what elements are already in motion (represented by X).

The presence of dissatisfaction is identified as the initiator of the change suggestion because it brings along the desire for an alternative.

2.3.1 Recombination map of change

Abrahamson (2004:25) found elements in the recombination map of change which is present in the form of people, networks, culture, processes and structure as illustrated in Figure 2.2.

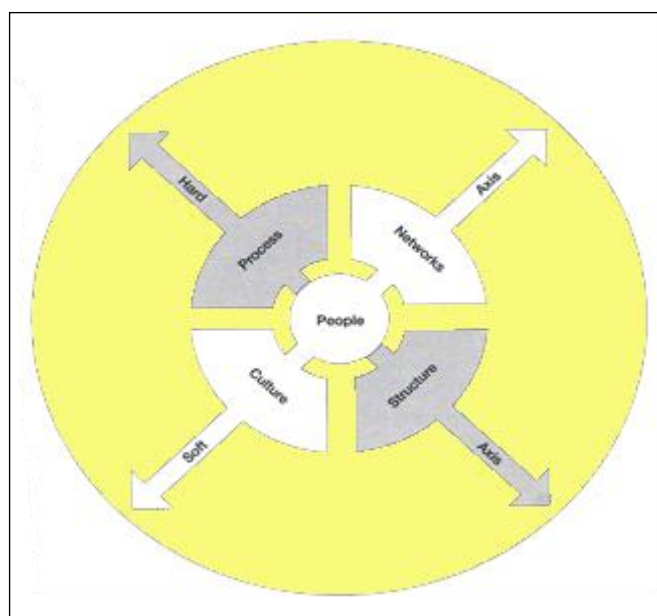


Figure 2.2: Recombination map

Source: Abrahamson (2004:25)

Abrahamson (2004:25) firstly identified people as the creators of networks to exchange information, favours, resources and gossip through an informal communication system. The complexity of demeanour and networks can be simplified with the introduction to counselling and coaching as a medium term solution (Abrahamson, 2004:45). According to Abrahamson (2004:46), no amount of knowledge, skills, demeanour and network can be used to change the attitude, values and traits of an individual who is unwilling to change.

Secondly, the culture of the organisation is identified as the custodian of values, norms and informal roles. Thirdly, processes represent all the ongoing activities of

production, services and distribution. Abrahamson (2004:25) is of the opinion that process represents acquisition and contract of employment within the organisation. Lastly, structure refers to the departments, lines of formal communication, reporting, employment and controls over effective and efficient operations.

According to Abrahamson (2004:25) creative recombination relies on the use of the existing organisation resources to enhance change. Change is motivated by the importance of survival and the benefit of a feasible alternative to manage knowledge effectively. Figure 2.2 represents a map of recombination divided along a “hard” and a “soft” axis in the centre of the figure, indicating that overlapping takes place in an organisation where creative recombination can be utilised to allow transformation. The *process* axis represents a “hard” organisational recombinant axis because it is directly under the control of management which is fused together by a bureaucratic structure (The “hard axis” has been shaded in a grey colour). He furthermore states that change relies on secure measurement, evaluation of tasks and reward systems to reinforce processes.

The *network and culture* axis’s represent the humane components as a “soft” entity because they are not bound by management and tend to combine without formalised boundaries (The “soft axis” is transparent). Networks rely on the informal distribution of information and contribute towards the creation of ties that strengthen working relationships. Culture, on the other hand, allows employees to link with internal and external role-players in an informal manner during and after the change process. Culture will be explained in detail in Section 2.8. The alternative re-using, redeploying or recombination of people as the centre of the change process, ensures the existence of culture, networks, structures and processes.

Abrahamson (2004:25) proposes the discovery of all the existing and useful elements within the organisation, as a cost effective option to build and maintain institutional memory in addition to saving money, as well as allowing recombination to be a realistic option. He suggests that to move from a manual employee attendance register to a biometric time and attendance register requires clarity and discovery of already available recombinants (Abrahamson, 2004:25). Reporting for

duty on a daily basis at a particular venue can be described as an already available recombinant process.

The request for change only develops with the identification of problems that are not in line with the plan as indicated in the organisation's vision and mission. It became apparent that problems develop first and then the quest for a solution follows (Abrahamson, 2004:28). The latter is called a means-end approach because a method will be devised to reach a pre-determined goal. In the case of Stellenbosch Municipality, problems are experienced with people management because of the recording of employee attendance. Understanding change requires an insight into systems thinking as a mechanism to connect the cause to the effect that initiated a review on the use of the manual attendance register.

2.4 Patterns of structured change

Systems' thinking, according to Jones & Brazzel (2006:105), investigates the event of patterns that occurred, including why these patterns surfaced. Systems' thinking is clarified in Figure 2.3.

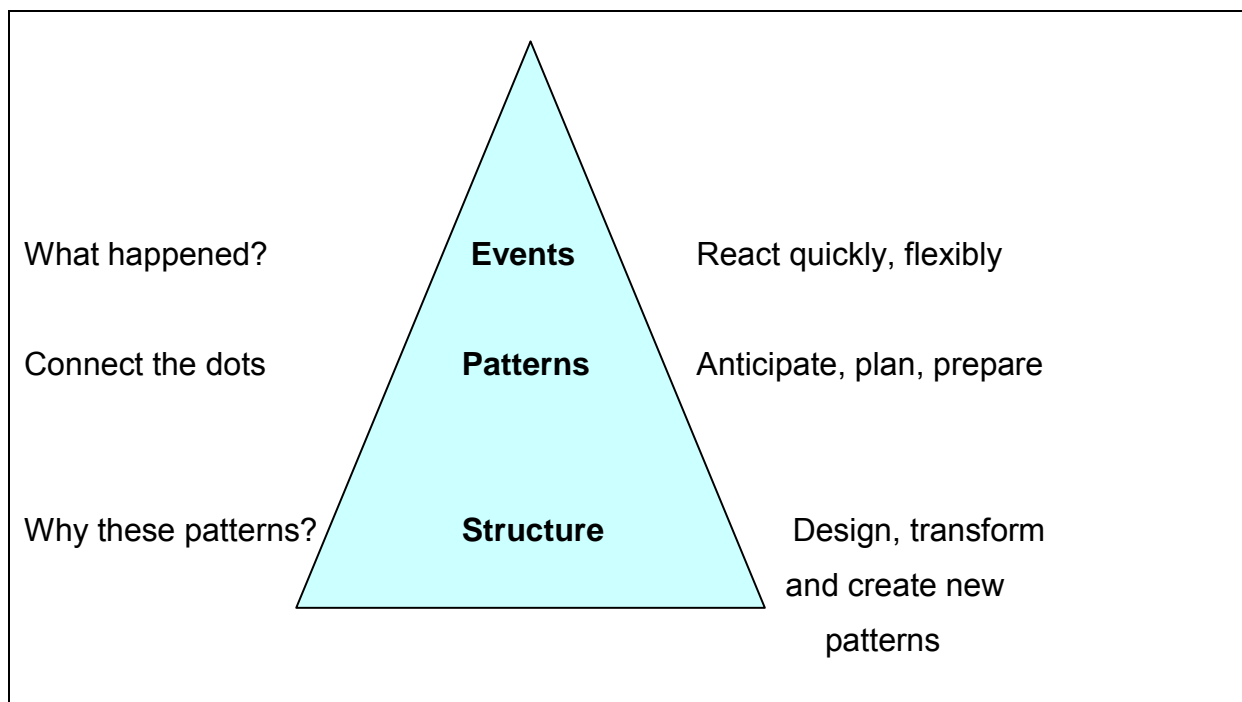


Figure 2.3: Levels of systems thinking

Source: Jones & Brazzel (2006:105)

The levels of systems thinking in Figure 2.3 illustrate events as a single occurrence. The investigation of events reveals a repetition of activities that requires swift and fast responses to introduce a result. If the supervision of employee attendance weakens, an event will be established, as a result of the gradual relaxing of employee management controls. An event with its continuous repetition brings forth a pattern (Jones & Brazzel, 2006:105). A pattern may be created in the absence of employees within the workplace. Secondly, patterns caused by events require anticipation, planning and preparation for the realisation of change over a period of time. Patterns have the ability to change the occurrence of future events, especially if the response is required within a time of crisis. Patterns, on the other hand, provide for the exposure and the creation of structural answers that can be relevant to addressing long term solutions. The refusal and reluctance of employees to comply with the completion of the manual attendance register, can strengthen the motivation behind the implementation of the biometric time and attendance system or encourage employees to provide their co-operation in the completion of the manual attendance register. Structure authorises the design and creation of new patterns that are applicable for a set time-frame. The manual attendance register was used for more than 30 years and started off as an event, secondly as a pattern and lastly a recognised structured method to record employee attendance.

2.4.1 Adaption of events, patterns and structures

Structural change is multifaceted, requiring more time to develop than a pattern. However, it is inclusive and of long-term value. Systems thinking allows for the analysis of all three levels of events, patterns and structure. More time is given to interrogate the options in order to arrive at a well calculated action. Jones & Brazzel (2006:106) divided systems thinking into two categories namely, closed and open systems thinking. They acknowledge that open or closed systems thinking exists due to relationships with its external environment. Differences between open and closed systems thinking are clarified by means of Table 2.1.

Table 2.1: Closed and open systems thinking

	Closed System	Open System
Leadership Style	Directive	Collaborative
Decision-making	Hierarchically determined	Where problem and information reside
Conflict management	Eliminate or suppress	Engage and use as information
Managing arena	Within supervisory unit	Within and at the supervisory unit boundary

Source: Jones & Brazzel (2006:106)

Jones & Brazzel (2006:106) describe a closed-systems-thinking organisation to be self reliant with strict directives and no connection to the outside world. Focus is fixed on the hierarchy and enforced by means of internal dynamics such as organisational charts, division between labour, supervisor-subordinate relations, policies, procedures, controls and stability. Conflict is illuminated as soon as it develops and the suppression of future threats is ensured. The existence of technology is of lesser value because it is not directly impacting on the existence of the closed organisation. Management operations lie within a minority and not in the broader working corps. Change cannot be identified in closed organisations and relies strongly on word of mouth to create a legacy. No room is available for creative thoughts, including suggesting a more amicable option that could enhance efficiency.

Open-systems-thinking organisations are based on external relationships without the rigid emphasis that is present in a closed systems thinking organisation. More focus is placed on flexibility and adaptability. Local government, as a public entity fits into an open-systems-thinking organisation because of its service traits, as well as its mandate to secure public information. Decision-making is placed in the area where the problem develops because more information on the problem will be available at ground level than in management. The openness of an organisation, including the provision of information to leadership, enhances objective decisions. The dynamics inside an open-systems-thinking organisation allows easier change, because of the flexibility of the internal structure. Change within an open-systems-thinking

organisation will develop effectively if the idea is to re-use, redeploy and recombine the existing elements into a new arrangement. Abrahamson (2004:29) suggests that the correct implementation is through trust and co-operation.

2.5 The stages of change

The introduction of change can be an intimidating experience if the employees involved are not acquainted with the change process. In order to illuminate the threat of the unknown, change needs to be illustrated in a simple approach that can be understood by the least educated employee. Bowman & Jarret, (1996:216) and Cameron & Green (2009:111) agree on the three-step model of change as identified by Lewin (1952), namely unfreezing, move and refreezing in Figure 2.4.

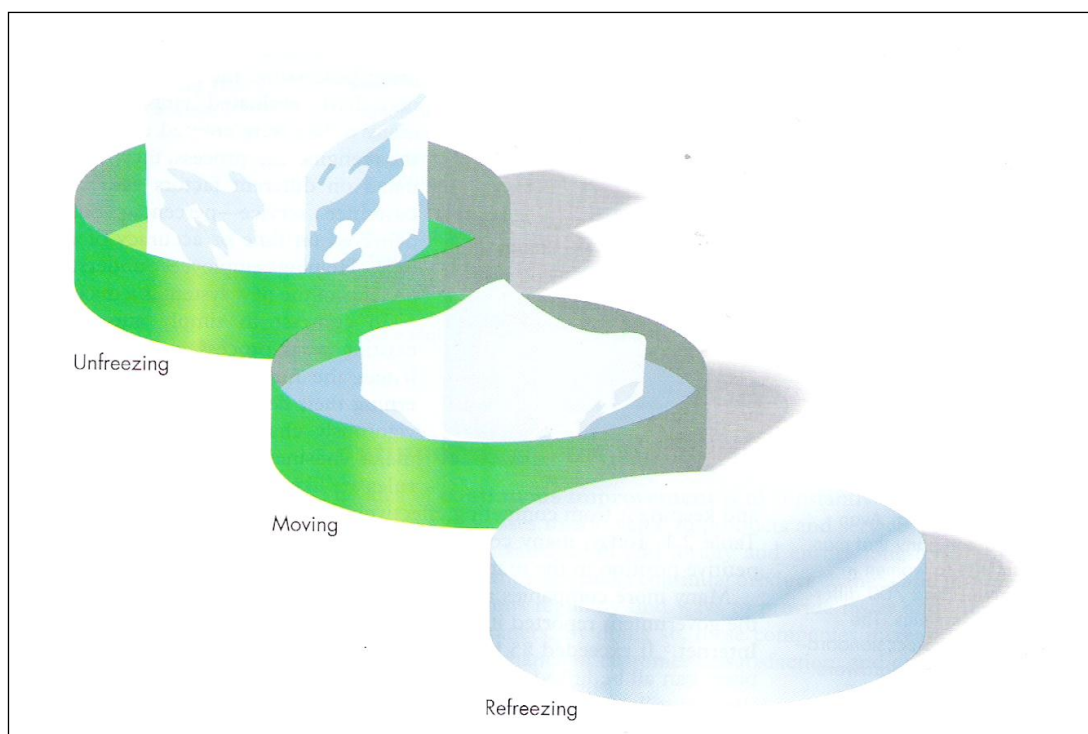


Figure 2.4: Graphical explanation on the stages of change

Source: Cameron & Green (2009:111)

Bowman & Jarret (1996:216) and Cameron & Green (2009:111), agree with Lewin (1952:173) in identifying *unfreezing* as the first stage in the change process. Unfreezing can be described as the action to move away from the old ideas and consider a different approach. The old ideas can be difficult to unfreeze because

they have become a norm as they were accepted as standard practice over the years. The *move* stage involves putting into place a new structure, procedure or behaviour. The introduction of a new way of thought will require more help from the initiators of change because a mindshift needs to be undertaken whereby the affected employees have to be active participants in the change process. *Freezing* will solidify the new idea into a workable option. Change occurs when an alternative to the new refrozen state is found - change repeats itself through unfreezing, moving and refreezing. Hayes (2007:3) found the presence of a non-constant rate of change that relates closely to the idea of Bowman & Jarret (1996:216) and Cameron & Green (2009:111) which found that unfreezing needs to be initiated in order for change to begin.

2.6 The rate of change

Change is bound by underlying emotions, reactions and behaviour as clarified by Hunt & Buzan (1999:169) in their transitional curve. The aforementioned transitional curve is explained by Hunt & Buzan (1999:170-172) to indicate the relationship between the level and time within the transition to accept a new idea.

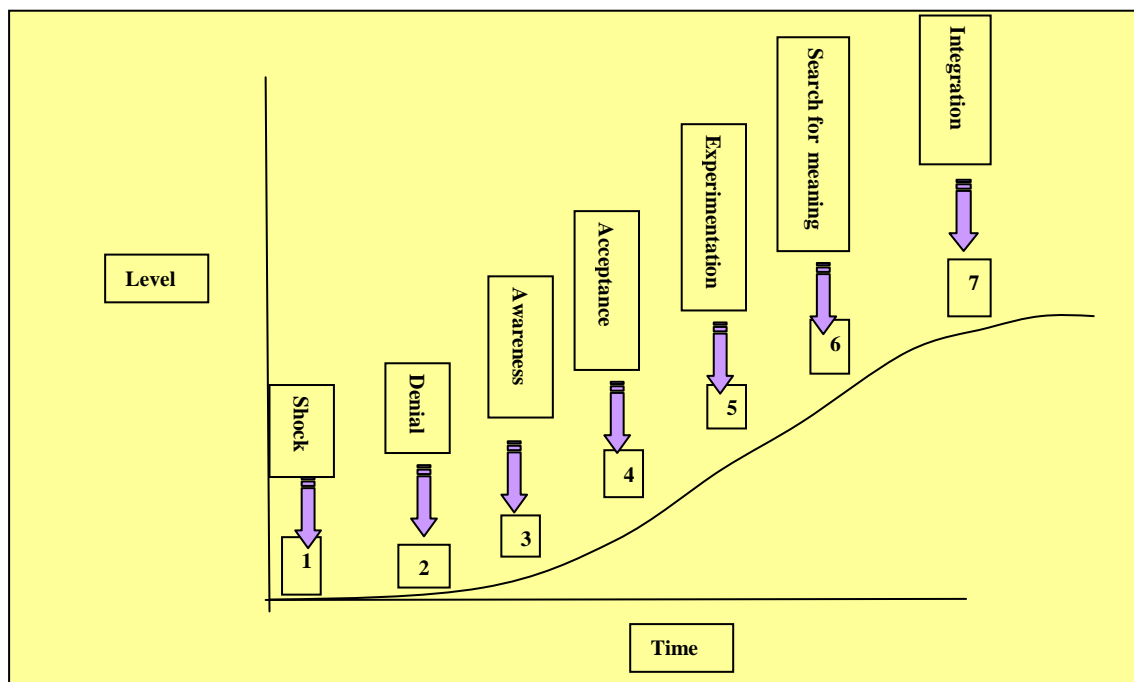


Figure 2.5: The rate of change

Source: Hayes (2007:3)

Hunt & Buzan (1999:170-172) explain that the introduction *stage 1* is filled with mixed reactions towards change. Conflict against the content of the employee's initial job description begins to surface. Reactions of insubordination are common to the extent where subordinates question authority. Emotions are at a high and negativity against the newly initiated transformation with no ability to reason clearly becomes evident. The appearance of fear becomes visible and is characterised by tension towards colleagues in the workplace. *Stage 2* brings a revelation of denial towards the old and the new ideas. Employees tend to recall the success of the old idea and how it has worked in the past without any problems. Two factions of thought are created by promoting both the new and old ideas. A typical behaviour of denial is portrayed by displaying rude behaviour towards the change agents because they are labelled as the reason for change. *Stages 3* promotes awareness of the new idea and results in frustration and confusion (Hunt & Buzan, 1999:170). A lack of purpose is experienced, resulting in depression. An employee in constant denial loses her/his purpose and importance within the organisation. Depression tends to bring forth emotional breakdowns and employees lose themselves in the process. *Stage 4* introduces acceptance to the new idea and willingness to venture onto new terrain. As an indication of reaction, the reluctant employees accept the idea and tend to ask for assistance to alleviate the transition towards this new idea. A forgiving nature develops whereby the participants of the change process will let go of the past and express willingness to build on the future. Relief and less stress surface, allowing a relaxed working environment filled with optimism. Experimentation and testing take place in *stage 5* and the willingness to learn is revealed. Learning difficulties create conflict as excitement dampens any indifference against the new change idea. *Stage 6* sets the stage for direction. Room is created to evaluate the amount of change that took place. Discussions about the new change emerge in a relaxed and productive work environment. Employees find themselves in a controlled setting after the change. *Stage 7* completes the change process whereby thoughts, feelings and actions are focused to allow the new idea. The development and growth of the organisation is set as a priority (Hunt & Buzan, 1999:172).

Cameron & Green (2009:14) added to the argument of Hunt & Buzan (1999:172) whereby change is a learning experience to acquire new knowledge which leads to

behavioural alteration. They added that time, as well as 'psychological space', is required during the thinking process to ensure successful change (Cameron & Green, 2009:15). A further contributor towards the growth of the organisation is based on how employees reveal their attitudes, opinions and beliefs (Blake *et. al.*, 1989:60). Culture originates from traditions, precedents and long-established practices that were used to solve problems. Cultural characteristics can influence the transitional curve in creating barriers to influence the rate of change (Hayes, 2007:6). Further clarification can be obtained by researching the characteristics of individuals in the people map as explained by Abrahamson (2004:44).

2.7 People map

Culture can be explained by investigating the people map as described by Abrahamson (2004:44) in an effort to analyse the adjustment towards the change process.

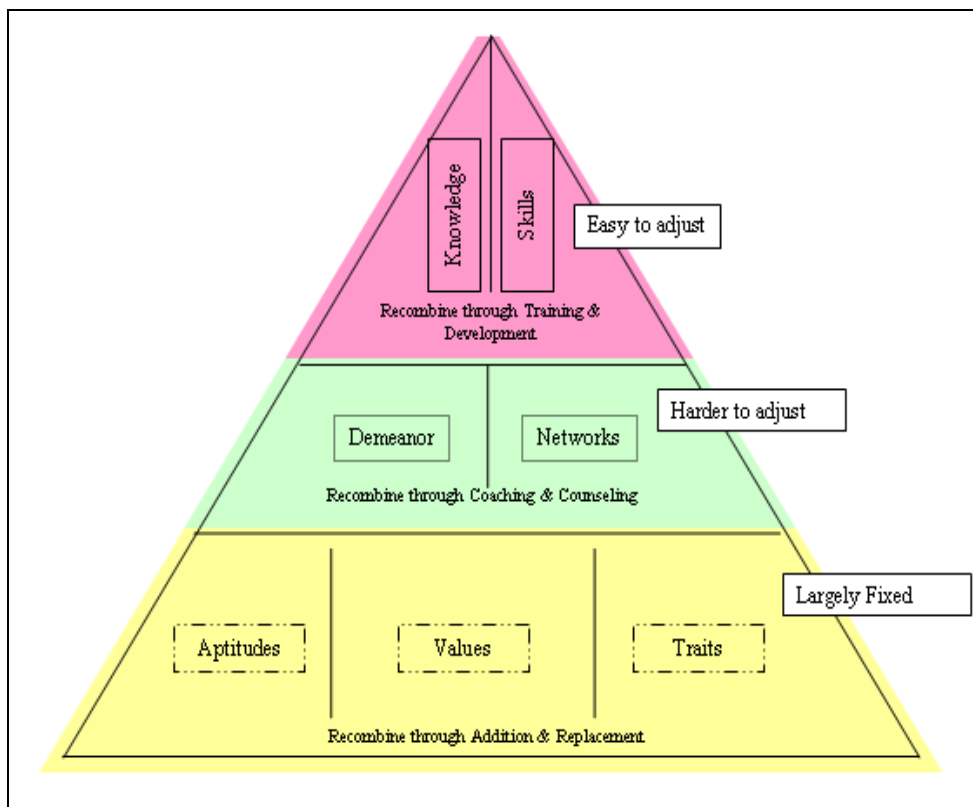


Figure 2.6: The people map

Source: Abrahamson (2004:44)

The people map, as explained by Abrahamson (2004:44), clarifies the characteristics of individuals and discloses human diversity. Abrahamson (2004:44) classified characteristics into three groups, namely easy, hard to adjust and fixed. Firstly, knowledge and skills appear at the top of the pyramid and can be easily adjusted. Knowledge, as described by Abrahamson (2004:45), is the cognitive capacity that can be utilised by an individual to absorb new data. Skills refer to the application of cognitive knowledge in order to complete a task successfully. Knowledge and skills can be obtained by the application of training and development. The second level, namely demeanour and networks, are more difficult to adjust than knowledge and skills. The bottom of the pyramid consists of people recombinants in the form of aptitudes, values and traits which take longer to alter due to their fixed status (Abrahamson, 2004:46). The absence of recombinants allows space for addition and replacement in order to bring about change.

In order to use the characteristics of people towards the change idea, it is imperative to find these means-to-end re-combinations as identified by Abrahamson (2004:48) to enhance change. It becomes clear that the people map can alter the physical element of characteristics, but it is hampered by emotional qualities that are formed over the years. Emotional traits will take longer to heal than physical characteristics due to their abstract nature. The pace at which the adjustment of characteristics takes place, relates back to the culture of the beholder and therefore it is necessary to classify these characteristics at the point of behaviour.

Culture has the ability to form smaller groups of resistance, especially when “safety needs” are threatened by change. Against this background it is important to understand cultures in their groups to facilitate change. The culture differentiation occurs due to various reference frameworks against which decisions are benchmarked. The effects of culture can be seen whereby union representative groups promote the collective grouping of individual situations. In the case of Stellenbosch Municipality collective arguments may develop against a new way of reporting for duty. Hayes (2007:15) classified organisational culture into the following groups, namely the Eiffel tower, role, guided missile and incubator culture groups.

2.8 Culture and the change process

Table 2.2: Types of cultures

Culture types	Centre at	Action
Eiffel tower culture	One person	Majority needs to comply
Role Culture	Structure & Bureaucracy	Defined, against change
Guided missile culture	Equality	Adapt to change
Incubator culture	Quality and personal	Creativity, loyalty centred

Source: Hayes (2007:15)

The Eiffel tower culture is explained by Hayes (2007:15) in Table 2.2 as a group that is being dictated to by one person. Direction is set by the one individual and the majority must follow. No room is available to differ from the cultural leader and change is not allowed unless instructed by the leader. The role culture places its emphasis on the structure and bureaucracy of the organisation. A high level of rule formulation and regulation is present. A practical application towards change is considered, but it is difficult to accept due to the aforementioned rules. The guided missile culture exists within the equality of the team and personal objectives are not important. Change adaption exists with a high level of focus on the tasks at hand. Lastly, the incubator culture focuses on quality and personal orientation with high levels of creativity. Loyalty is directed towards the profession and not the organisation.

Hayes (2007:15) identified the culture groups, Eiffel tower and Role model as having an inward focus whereas the guided missile and incubator culture groups focus on the objective at hand. In order to reach the plight of the community, it is best to have the perspective of the guided missile and incubator cultural groups. Employees who report for duty at the required time can be identified as demonstrating their dedication to the employer.

An objective perspective can be used to reach goals because it provides protection in reaching an assessment outcome which can be justified alongside a clear cut criterion. Osborne & Brown (2005:82) suggest that in the event of securing the success of change the following needs to be taken into account, namely:

- a clear strategic vision needs to be portrayed;
- commitment from managers in their endeavours;
- leadership must be of symbolic quality and not artificial;
- support structures must be directed at the goal at hand;
- leaders must be committed to the change idea;
- disrupters of the change ideal must be identified and removed and
- constant communication must be in place with key stakeholders, especially with labour representatives.

Organisational culture can be described by means of dimensions and may include the urgency to address total quality management (TQM) in achieving goals of satisfying the community through service delivery (Osborne & Brown, 2005:83). Employees are reminded of their purpose to enhance the service quality in the benefit of the customer (Craythorne, 2006:308). The *basis of truth* demands that proof needs to be provided in order to accept the urgency for change. The time spent on efforts to address the concerns of the Auditor General (AG) after their previous annual audit can be considered as an attempt to institute change. Threats concerning stability or change have to be clarified. *Motivation* is required to allow restoration from within the organisation and translate it into a sustainable attendance recording procedure. The *question on stability versus change* needs to be discussed on an employee-employer platform to secure mutual understanding. Change agents play an important role in the attempts to initiate a change process.

2.8.1 Change agents

The need for change agents is as essential as the change process itself because the presence of role players working towards a transition determines the extent of success (Jones & Brazzel, 2006:147-148). Different *frameworks of job satisfaction* exist by means of those who are task driven in serving the social context, including healthy work relationships. Change agents can be considered as those employees who operate to the benefit of the organisation prior to and after the change process (Jones & Brazzel, 2006:147-148). *Co-operation* merges employees into groups of efficiency to promote teamwork for greater outcomes. Ideas are cultivated in either *tight control or relaxed management* styles. Different views on decision-making are

allowed during discussions with change agents. The span of control is a cultural entity and impacts on how allocated assignments are undertaken. *Orientation* can be used by change agents to focus on the in and outside of the organisation.

Jones & Brazzel (2006:147-148) found that the identification of change agents plays a role in understanding cultures when working towards a change idea. Different expectations exist for members of the organisation and culture has to be examined within its reference framework.

Three change agents have been identified, namely:

- the internal change team;
- external multicultural organisational development (MCOD) practitioner; and
- management.

The internal team has the most organisational memory and needs to take a leading role by hiring the consultant, developing a draft change plan or sorting through the guidance from outside sources. In order for the internal team to be efficient they need to:

- be of manageable size with an understanding of the change need;
- accept this new process as part of their job;
- be the voice of all constituencies;
- be opinion leaders that receive trust from their peers; and
- committed to the organisation's goals.

Secondly, the external MCOD provides an outside prospective to the change process. They will be required to:

- provide assessment instruments;
- collect sensitive data that is imperative for the understanding of the cause and effect;
- be a buffer between leadership members of the change team;

- facilitate team building among team members; and
- build internal capacity.

2.8.2 Leadership

Leadership is required to lead the organisation as a whole. They are also the custodians of organisational policies that were drafted and accepted by all employees. Their main responsibility will be to secure the existence of the organisation by remaining involved in the fair treatment of employees while introducing new changes. The effective combination of these three change agents within the MCOB process will install guarantees towards the success of the change process. In order to understand change in its unique way, the researcher investigates the structure and operations that exist within an organisation.

Human interaction is one of the essential components in the change process and cannot be left out of the equation when the outcome is going to affect the same individuals excluded from the consultation process. Organisational activity is bound by time and due to this time constraint a comprehensive investigation needs to be done by identifying the types of change.

2.9 The types of change

Change occurs because of various reasons. The driving force behind change will determine the urgency and frequency of the transformation activity (Osborne & Brown, 2005:12). The following will explain change against its clarification, types, complexity and cost.

2.9.1 The clarification of change

Change can be clarified as a sensitive process within local government because it affects the same people that must deliver services to the community of high quality. Moreover, change creates results in a chain reaction that can seep through to the community either in a negative or positive manner. Extensive investigation through the analysis of political, economic, social and technological (PEST) factors can

determine the level of change that occurs within the organisation of a PSO (Osborne & Brown, 2005:12). The local government environment is a political PSO and will experience dynamic change because of the independent management of each town or city. Osborne & Brown (2005:13-19) identified technological factors as requirements for change.

Change is a major factor in the provision and management of public services. A proactive approach needs to be taken when it comes to change, irrespective of whether it is developmental by nature. Robbins & Barnwell (2002:348) highlight revolutionary and evolutionary change by way of Table 2.3.

Table 2.3: Contrasts between evolutionary and revolutionary organisational change

Evolutionary change	Revolutionary change
Evolution	Revolution
Maintain equilibrium	Seek a new equilibrium
Change individual parts of the organisation	Transform entire organisation
Optimise existing structure and management	Generate new structure and management
Incrementally change existing production technology	Adapt radically new production technology
Improve existing products	Introduce new products

Source: Robbins & Barnwell (2002:348)

Robbins & Barnwell (2002:348) explain revolutionary change as those amendments that modify the nature of the organisation. These adjustments can demand traumatic procedures with radical results pointing to new patterns of thinking. Evolutionary change, on the other hand, relates to minor changes. The time and attendance system has been established as a practical example of such a minor change (Robbins & Barnwell, 2002:348). The latter has been done in response to circumstantial events that necessitated change due to the absence of any control over employee attendance recording. The change types need to be interpreted

against the classification scheme used for organisations. The tendency is to use evolutionary and revolutionary change as measure in relation to the change process. Robbins & Barnwell, (2002:351) revealed the following classification scheme for organisations to understand the change process.

Table 2.4: Change classification

Magnitude of change	REVOLUTIONARY	<u>Systemic</u> <ul style="list-style-type: none"> • Introduction of a major new technology • Privatisation or deregulation • Entry into major new market 	<u>Chaotic</u> <ul style="list-style-type: none"> • Failure of major supplier • Unanticipated hostile takeover • Terrorist attack
	EVOLUTIONARY	<u>Adaptive</u> <ul style="list-style-type: none"> • Updating computer systems • Change in distribution methods; modifications to existing services 	<u>Transitory</u> <ul style="list-style-type: none"> • Sudden strike • Major change in commodity prices • Loss of critical skills
		PLANNED	UNPLANNED
		Anticipation of change	

Source: Robbins & Barnwell (2002:351)

Robbins & Barnwell (2002:349) classify revolutionary change in two groups that act either systematic or chaotic. Systematic change refers to planning that is accurate with no margin for error due to the operating cost of the project. Chaotic change can be classified as occurrences that happened due to unforeseen situations. Because no provision has been made for the unforeseen situations, great losses may be experienced by an organisation using chaotic change as an alternative. Evolutionary change on the other hand can be seen as an adaptive approach that is focused on the interest of employees and the organisation. Robbins & Barnwell (2002:351) describe adaptive change as normal change to improve services. Transitory change is seen as unforeseen, but on a less aggressive level than chaotic change. Planned

change refers to the availability of ample time for planning and implementation as an answer to the change dilemma (Robbins & Barnwell, 2002:349). Robbins & Barnwell (2002:351) point out that change rolled out according to a project plan, has the benefit of an integrated control measure, which can secure the rate of success. The feasibility of implementing change can be measured by the organisation against an allocated budget avoiding disruptions in productivity. Unplanned change has the tendency to encourage haphazard decisions without planning. Vague explanations are given to motivate change and the majority of the employees do not see the purpose of change as explained. Such change option is chaotic and filled with disruption. Time for planning is absent and the result is financial collapse. Management reverts to crisis management as a tool to obtain stability (Robbins & Barnwell, 2002:351). Planned and unplanned change is being influenced by complexity and cost.

2.9.2 The complexity of change

The implementation of change is complex because it can be motivated by anticipation, re-action or crisis. The complexity of change appears parallel to the revolutionary change classification because its operations may be unplanned and chaotic. The introduction of a biometric time and attendance system can be classified according to the complexity of change as a re-actionary attempt to solve a people management problem. Black & Gregersen (2003:180) motivated their complexity idea by way of Figure 2.7.

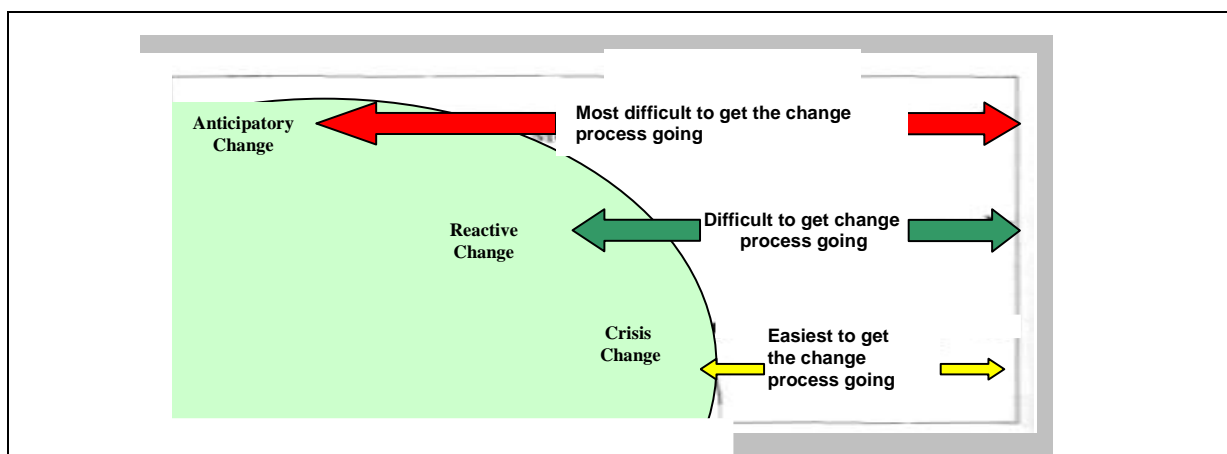


Figure 2.7: The complexity of change

Source: Black & Gregersen (2003:180)

Black & Gregersen (2003:180) describe anticipatory change in Figure 2.7 as the most difficult to initiate because no urgency exists to complete the project. The introduction of the biometric time and attendance pilot project can be described as an example of anticipatory change because there was no haste to address the lack in control over attendance reporting by employees. Moreover, it is more difficult to start since the reasons for the change required detailed projections and theories to convince employees on the necessity to comply with legislation. The implementation of reactive change is less difficult than anticipatory change because it requires compliance in retaliation to occurrences that threaten the operations of the organisation. Change within a crisis is the easiest to start because the urgency is more pressing than the previous two change methods. The demand for change will in a short period of time be incited by compliance with legislation. While captured within a crisis mode, it would be easier to substantiate the need to comply as the pressure is more intense but without objectivity. Crisis change leads to the occurrence of unplanned actions and unintentional expenditure.

2.9.3 The cost of change

The urgency for change to a new way of operating, such as the time and attendance system, is influenced by the cost factor. Black & Gregersen (2003:180) investigated the influence of cost *versus* time.

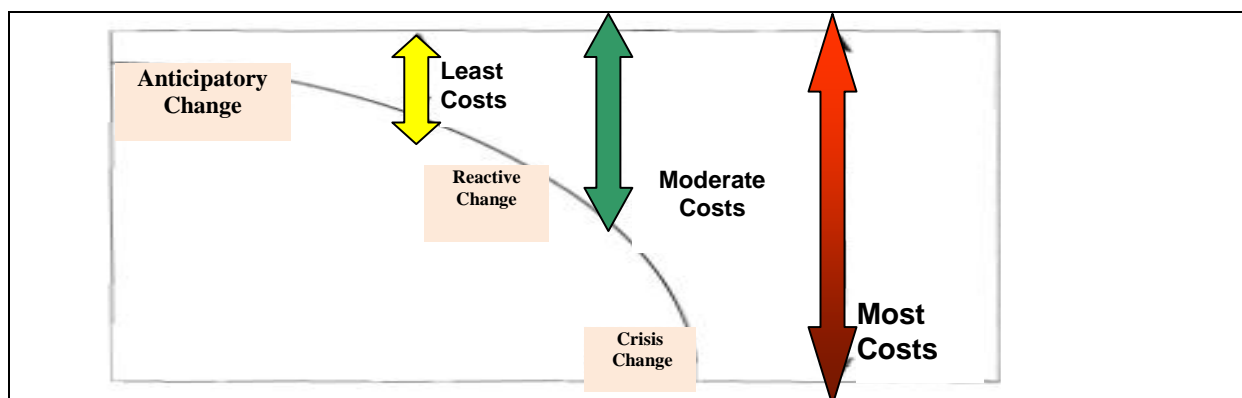


Figure 2.8: The cost of change

Source: Black & Gregersen (2003:180)

Black & Gregersen (2003:180) found that the cost of change is influenced by time. The cost of anticipatory, re-active and crisis change will differ due to the impact of time on the process. Anticipatory change has been found to be the cheapest because the least amount of pressure is applied. If the implementation of the time and attendance system was addressed with anticipation, costing per biometric scanner console would have been less. Creativity is possible because stress has been minimized. Reactive change has a moderate cost factor compared to the anticipatory option. Crisis change, on the other hand, requires quick responses to solve the problem (Black & Gregersen, 2003:180). The latter does not consider cost because change is compulsory and without inspiration. Lastly, crisis change will be ignoring the fact that municipalities do not have funds up front. Municipalities are dependent on a cash flow projection to secure the availability of funds per month.

2.10 Effects of change

The introduction of change is bound by the dynamics and boundaries of organisations (Jones & Brazzel, 2006:107). Change occurs under the direction of stages within its present, transition and future state. According to Jones & Brazzel (2006:107) the cycles of repetition during the change process create harmony within the internal and external environment.

The *present state* represents the here-and-now situation within the organisation's structure, processes and people (Jones & Brazzel, 2006:107). Stability, tranquillity or comfort dampens the interest in change because the incumbents are content with the status quo. The dynamics of change occurs within set boundaries.

2.10.1 Boundaries within the dynamics of change

The implementation of change occurs within an environment of physical or undetectable barriers created by people in the form of policy or common law. Boundaries, according to Jones & Brazzel (2006:108), represent barriers that can either allow an easy transition or ensure resistance to the change process.

Organisational boundaries are found in three groups, namely tight, optimum or loose boundaries. Tight boundaries can contain “thick” boundary limits restraining the movement of contents in either direction, while a “thin” boundary allows easy access in both directions as if they are non-existent (Jones & Brazzel, 2006:108). A community service organisation such as Stellenbosch Municipality has a “loose” boundary because they do not appear to have a division between them and their clients. The absence of a boundary is synonymous of a community service organisation such as Stellenbosch Municipality because they manage public information. Public information is free and community members have unlimited access thereto. The presence or absence of boundaries creates conditions for the encouragement of change. Organisational boundaries can be found within elements such as organisational units, goals, roles, processes, authority, time and conflict – as explained in Table 2.5.

Table 2.5: Organisational boundaries

Organisational Boundaries	Tight	Optimum	Loose
Goals	Clear, permanent	Clear, current	Unclear, conflicting
Roles	Well defined, constructive	Well defined, adaptable	ill defined, conflicting
Authority	Clear, centralized, autocratic	Clear, located where information resides	Unclear, diffuse, conflicting
Information	Clear, propaganda	Clear, factual, reliable	Unclear, rumours, unreliable
Human energy	Low, channelled, underused	High energy , highly used	High or low, overused
Time horizon	Long-term, multiyear	Medium-term, years, months	Short-term, months, days, hours
Conflict	Suppressed	Managed	Eruptive

Source: Jones & Brazzel (2006:109)

The option to change the presence of tight boundaries is difficult, whereas loose boundaries may indicate an already changed environment. Jones & Brazzel (2006:109) are of the opinion that optimum boundaries have ideal open-system conditions. The appearance of municipalities is loose boundary in nature due to its

political environment. Goals, roles, authority, information, human energy, time horizon and conflict can be unstable within a political environment because of the independent operation of municipalities. Municipalities are semi-state organisations with the authority to exist and secure compliance with legislation. The uncertainty of not answering directly to National Government because of municipal elections creates a threat to change within their own ranks at any point in time. The administrative side of an organisation such as Stellenbosch Municipality remains stable, organised and focused depending on the strategy that has been set for the five year period within the IDP. The opposite can also be true whereby political interference micro manages the operational side of the municipality. The classification of an organisation according to the boundary conditions will often have enough characteristics in one category to lean either towards a tight or loose boundary state. Motivation to initiate change requires that tight boundaries should be loosened or loose boundaries tightened - to ensure change (Jones & Brazzel, 2006:110). Employees find themselves inside a loose boundary when using the manual attendance register because it allows for their presence to be disputed on a particular day. The process of change has an impact on the individual, irrespective of whether it occurs within a tight or loose environment (Jones & Brazzel, 2006:110). The latter believe that behaviour is readily displayed by the morale of employees. If employees perceive change negatively a low morale is displayed - alternatively a positive morale is present if the benefits are encouraging.

2.10.2 Change and its effects on people

The introduction of change increases or diminishes the self-esteem of employees within an organisation (Jones & Brazzel, 2006:110). A seven-step cycle explains the effects on people during the change process in Figure 2.9.

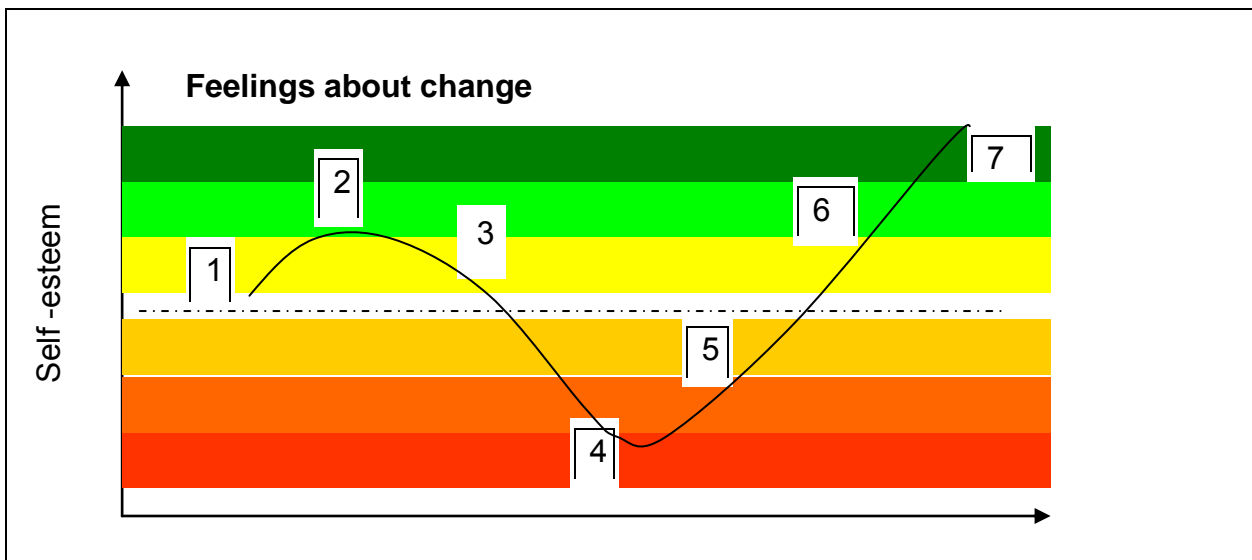


Figure 2.9: People and change

Source: Jones & Brazzel (2006:109)

Jones & Brazzel (2006:110) describe step one in Figure 2.9 with no effects present after the change process has been introduced – the perforated line acts as a place holder of a positive self esteem. Step 2 indicates the immunity against the effects of change and creates a false positive in their self-esteem. The realisation of loss in step 3 creates a dip in the self-esteem. The dip continues until step 4 and crosses the perforated line as an indication of movement away from the positive self-esteem. At the point below the perforated line people accept their losses and depart from their old ways. Step 5 introduces a stage of acceptance of the new idea. The level of self-esteem rises as confidence grows when the feelings of change moves from step to step 6. Step 6 provides reflection into the previous process and the new way of operating. Step 7 introduces acceptance to reality and individuals understand that they have changed. The success of acceptance can be directed back to the employee's change of attitude.

Blake *et. al.* (1989:182) identified the past as the main deterrent towards developmental change because the human element has been neglected by the influence of previous change processes. The past is filled with perceptions and misinterpretations; however, it can be utilised to benefit the transformation process. Blake *et. al.* (1989:182) mentioned that if the feelings behind change are well

explored, analysed and positively addressed, a smoother transition can be established. The unpleasant effects of the past can be erased by the positive benefits of future prospects in favour of both the employee and employer reducing the resistance to change.

2.10.3 Resistance to change

Organisations constantly battle to survive and resistance to the change idea encourages panic. Tushman & Anderson (2004:30) describe change as shaping the competitive edge of the organisation to maintain an operational meaning. Survival can be experienced within the daily tasks whereby new ideas are required to keep the organisation open in its quest for service delivery. Resistance can be identified by signs within the organisation in the form of effective, behavioural and cognitive components (Palmer *et al.*, 2009:161). Cognitive responses represent the thinking processes while behavioural responses have two alternatives, namely active and passive reactions. Active responses are symptomatic in being critical, fault finding, ridiculing, fearing, blaming, accusing, sabotaging, intimidating, manipulating, distorting facts, undermining, starting rumours and arguing (Palmer *et al.*, 2009:161). Passive responses include verbal agreements without compliance, failing to implement change, procrastination, being lethargic, ignorance and withholding information (Palmer *et al.*, 2009:162). Due to the insecurities that are brought forward by change, resistance will always be present. It is important to investigate those reasons behind resistance. Palmer *et al.* (2009:169) found that people resist change because of its dislike and discomfort. Fear, according to Hunt & Buzan (1999:167), became the main barrier because people do not acknowledge the existence of change and use sarcasm and refusal as a tool. Palmer *et al.* (2009:172-173) classify the extensions of fear as ridicule, loss of security, loss of status, and not being able to fit in along with the inability to do a new job.

Fear can be managed by applying the situational approach whereby employees receive (Palmer *et al.*, 2009:172-173):

- education and communication opportunities;
- participation and involvement are motivated;

- facilitation and support are imbedded;
- negotiation and buy in are reached;
- management of employees in key roles; and
- offering explicit and implicit coercion as last resort to reclaim the organisation from disaster.

2.11 Conclusion

In order for any organisation to move forward, work relationships need to be constructed on the basis of trust, which is beneficial to both parties. Greater understanding of change and a commitment to one common goal need to be achieved by change agents and ultimately the employees affected by the change process. Change is not a once-off project that produces immediate results. Consideration must be given to the essence of change over and above the human factors during the change process. The participants within the change process need to understand the motivations behind changes implemented, as well as the desirability of the new benefits for the organisation and employees. A further element that needs to be explored is the involvement of employees, who normally have a minimal say with regard to the making of decisions. It is important that employees realise their role within organisational development. Past events and the purpose they served at the time need to be acknowledged. Although patterns were created within a structure, employees need to know that these customary practices of maintaining a manual attendance register cause problems that need to be addressed. Change is a process and if employees are informed about the steps taken in the development of new processes, they will be more relaxed; time should also be available for them to be informed about the new alternative. All employees will realise their contribution towards ensuring the success of the change.

People are threatened by accelerated change and experience it negatively as intimidation derived from an ulterior motive. The strategic methods to induce change are available to all, but it depends on the initiators of change if they would like to use the advice given. Further research will be done on the technological motivations for the need to change the manual time and attendance system.

CHAPTER 3

A LITERATURE REVIEW OF TECHNOLOGY TO MONITOR EMPLOYEE TIME AND ATTENDANCE

3.1 Introduction

Additional help is needed to compliment the medium and long term memory of human aptitude. The organisations in the world have come to the conclusion that they cannot rely on human interventions alone because the lack of technological advancement will threaten the existence of any organisation. Due to the intervention of computerised applications technology has become the ultimate tool to replace hardcopy processes. This chapter explains technology, types of data, technology types, and methods of verification, biometrics, risks and benefits, as well as the operational use of biometrics.

3.2 The technology concept

Technology refers to the information, equipment, techniques and processes required to transform inputs into outputs (Robbins & Barnwell, 2002:200). Information technology has developed into being a tool towards benchmarking service deliver on a year to year basis. Technological changes can therefore be classified as well organised efforts to improve service delivery (Osborne & Brown, 2005:13-19).

Tushman & Anderson (2004:36) claim that in order to improve services, change has to start with cycles of discontinuity. The limit within the new technology should be emphasised greater than the previous to serve as a motivation for change. The motivation of Tushman & Anderson (2004:36) is a confirmation of the existence of fear within organisations as identified by Stair & Reynolds (2001:2). Technological development is focused on human friendly alternatives that are better than the current development. Motivation is therefore tabled towards a favourable option as opposed to the present, including the promise of future benefits that can outlast the current mode of operation. The unlimited boundaries of the new technology, poses a

threat to the outdated results of the current technology, meaning that the use of the manual attendance register is deemed redundant. Bellingham (2001:2-3) mentions that change has to be examined against demands such as:

- compliance from legislation;
- customer satisfaction - required and overdue;
- rapid response - necessary to meet the needs of all clients;
- flexibility - necessary to evolve with technology without pressing conventional concepts; and
- collaboration of data resources - required to improve the abilities of independent local government departments.

Technology as explained in Table 3.1 is dependent on different types of data in order to be used as a tool towards effective public service deliverance.

Table 3.1: Types of data

Data	Represented by
Alphanumeric data	Numbers, letters and characters
Image data	Graphic images and pictures
Audio data	Sound, noise or tones
Video data	Moving images or pictures

Source: Stair & Reynolds, (2001:5)

Stair & Reynolds (2001:5) classified the data in Table 3.1 into four categories of processing. Computers do not visualize images and sound in the same manner as humans (Stair & Reynolds, 2001:5). They need to code and decode data in order to arrive at the correct logical arrangement. The coding and decoding takes place by means of two binary numbers, namely 0's and 1's. Stair & Reynolds (2001:5) indicate that alphanumeric data is classified as numbers, letters and characters. Image data is classified as pictures and graphic images. Audio data is a selection of sound, noise or tones. Video data is a selection of moving images and pictures (Stair & Reynolds, 2001:5). The biometric time and attendance system makes use of alphanumeric and image data in order to conduct its processes.

3.2.1 Technology types

Technological factors can be divided into hard technology, which focuses on structures and equipment, whereas soft technology refers the management of operational processes to deliver services of excellence (Osborne & Brown, 2005:13-19). Soft technology can be described as:

- the administration of public services;
- the use of management information systems in the monitoring of employee attendance;
- tool applications for service users, e.g. real time monitoring by supervisors through user interfaces; and
- the analysis of public service information by hosting websites for local government.

3.2.2 Technology, accuracy and application of technological advancement

The verification of identities has become an important component in the conduction of organisational activities. Private, as well as government organisations, rely on the availability of technology to confirm positive identification. The utilization of technology has advanced into various alternatives to verify or establish the identity of employees within the workplace. The operation of biometrics relies on the correct identification of the employee who reports for duty by means of scanning his or her finger on a biometric console. In order to do this, it is important to have a secure registration process in place that eliminates the opportunity to allow a breach in data integrity. Data can be explained as raw facts and will become information if they are arranged into a meaningful manner (Stair & Reynolds, 2001:4). Data integrity refers to the amount of security that is present to ensure that it is free of human intervention.

Stair & Reynolds (2001:7) identified the following accuracies within technological development which makes it more effective than manual record keeping:

- all the important information can be submitted within one report;

- valuable information is economical to produce;
- information is flexible and purpose fit;
- reliable information can be dependable in making major decisions;
- relevant information on basic trends provided in one report will be to the benefit of the decision-maker;
- simplification of information for quicker decision-making is possible;
- timely information is delivered without any exceptions;
- information verification is of utmost important in reaching a check and control environment; and
- information accessibility by authorised users ensures data integrity.

An effective management information system (MIS) with data integrity in place allows for the correct decision at the correct time. A MIS can be clarified as a collection of people, procedures, software, databases and devices for proper management (Stair & Reynolds, 2001:22). Similar to the MIS is the recombination map with characteristics such as people, networks, culture, processes and structures as mentioned in Chapter 2. These characteristics can be grouped into three action techniques, namely cloning, customization and translation in order to address the technological need of Stellenbosch Municipality (Abrahamson, 2004:29). Each action technique requires a different type of implementation process, including the knowledge to implement change.

- Cloning

Cloning refers to the use of compatible software in a new work environment to monitor employee attendance (Abrahamson, 2004:29). The software does not need to be changed because the essential purpose is exactly the same. An exact copy has the benefit of being tested at another venue, eliminating development problems at a new site of installation. Savings in the development and testing of software will be made due to the cloning alternative. Cloning is limited to software whereas people on the recombination map cannot be cloned. However, skills and knowledge have a degree of clone ability because they exist on the “soft” axis – together with people and culture (Abrahamson, 2004:30). Cloning is possible by receiving demonstrations

of skills and ensures successful knowledge transfer. Social networks, on the other hand, bind people across networks and appear on the “hard” axis to duplicate the level of trust and co-operation. Processes and structures cannot be cloned because they exist on the “hard” axis. The inability to clone will require change agents to modify certain recombinants to bring about change. The availability of cloning allows for the possibility of customization.

- Customizing

Customization is a process of altering different sections of an organisation in order to bring about change (Abrahamson, 2004:31). Stellenbosch Municipality renders services during the day but will require the altering of the biometric software for services delivered on a 24 hour basis, e.g. fire services. Morta (2009) mentions that fire services render a 24 hour shift starting every third day for ten days per month in three shifts. The calculation of shifts and overtime are done on an eight hour per day formula for the majority of employees at Stellenbosch Municipality. Employees within the fire prevention fraternity require a different formula when calculating working hours. The need for technical knowledge on fire prevention differs from any other municipal operation because the demand for rescue is not bound by time. Due to the individual operation of municipalities, the services rendered can differ from town to town. Therefore, the formula to calculate a fireman’s shift will differ from any other service worker. Software needs to be altered to include a 24 hour shift option for use in the fire department. The importance of the “*know-why*” will ensure change to move from an unknown (point A) to a known (point B) destination (Abrahamson, 2004:31). Challenging customization is required because change agents need to “*know what*” shifts will be captured for fire services and for that matter for every other department within Stellenbosch Municipality. The differentiation in shift options for every employee needs to be known to ensure the context in which change will be introduced. Alternatively, translation can be used as a means to introduce change.

- Translating

During the change process certain recombinants do not allow any cloning or customization. Due to their incompatibility, a process of translation will be required to ensure successful change (Abrahamson, 2004:32). Translation, according to Abrahamson (2004:32), is a process of using a current application with a modification to address a unique situation. Translation will require a complete understanding, remodelling and application inside a new environment. Stellenbosch Municipality grants one extra leave day per year to all permanent employees, referred to as religious leave. In order for the application within the time and attendance system to understand such a leave option that does not deduce from the normal leave credits, will require translation. This will require time for development and trial to ensure the successful development of the new software. Translation can require two options of understanding from the recombinant, namely “know-who” referring to who knows what, why and when about this specific recombinant. Secondly, “who-knows-who” poses the question: who knows the people with the correct know-what, know-when and know-why with respect to a specific recombinant (Abrahamson, 2004:34).

Concerns have been identified due to the development of technology namely (Stair & Reynolds, 2001:572):

- crime opportunities have been created through illegal internet access, data alteration and industrial sabotage;
- privacy became a new priority due to phishing, internet piracy;
- information came under threat due to daily e-mail usage; and
- occupational stress, such as repetitive stress injury (RSI) due to working with computer keyboards and carpal tunnel syndrome (CTS) in the wrists of office administrators became known illnesses.

3.3 Methods of verification

Verification can be traced back to China during the 14th century where babies palm and foot prints were taken to identify them from one another (Biometric history, 2005). Different people management methods have been scrutinized to establish their operational effectiveness in the verification dilemma. Technology has developed three methods to verify identity, namely (Ratha *et al.*, 2009:1):

- a) possession;
- b) knowledge; and
- c) biometrics.

Possession is a physical conveyor of authorisation. The individual with the attendance register in his or her possession has access to record attendance at any time, irrespective if the recordings have been confirmed correct or not. Free access to the attendance registers does not control the verification of recordings made. Secondly, a password and a username to access a computer is an example of a knowledge-based method of identification. The individual in possession of the username and password has access to login to a computer and view information. A combination of the first two methods can also be used whereby an automated teller machine (ATM) card is considered as possession, but requires knowledge of the password to access the account that is registered at a financial institution. Thirdly, biometrics is the science of identifying or verifying a person based on physiological or behavioural characteristics which include fingerprints and facial images.

The two authorisation methods, possession and knowledge rely on the assumption that the authorised person is present. The last option of biometrics has built-in security that the presenter of the fingerprint is the applicable individual. Denial that an action was carried out is prevented because possession and knowledge are checked, as well as linked to an individual's identity. The probability that possession and knowledge switch owners is possible and creates suspicion. Biometrics, on the other hand, is based on confirming the identity of the individual beyond reasonable

doubt. Moreover, biometric technology is automated to illuminate the need for confirmation and guarantees the presence of the person in question.

Ratha *et al.* (2009:2) have tabled the following identification methods:

Table 3.2: Identification methods

Method	Examples	Comments	Risk factor
What you know	User identification, password, private identification number (PIN)	Forgotten, Shared, Passwords are easy to guess	High
What you have	Bank cards, badges, magnetic discs, metal keys	Lost, Stolen, Can be duplicated	High to very high
What you are	Fingerprint, Face recognition, Iris & retinal patterns, Hand geometry	Non-reputable authentication	Low

Source: Ratha *et al.* (2009:2)

Ratha *et al.* (2009:2) made a clear distinction that the category “what you know” is none other than knowledge. Knowledge has a high risk grading because of the caution required to remember and keep the access codes safe. “What you have” represents a combination of the knowledge and possession and is graded high to very high because of the extent of loss that can be experienced. Human characteristics represent “what you are” with a low risk because physiological traits cannot be replicated and provide surety when confirming presence.

3.4 Surety of biometrics

Every new type of technology is viewed with doubt by a new user. Biometrics can be explained as a field of science that uses computer technology to identify people,

based on physical or behavioural characteristics, such as fingerprints and voice scans. "Bio" in the name refers to the living physiological traits that are measured, while "metrics" refers to the quantitative analysis that provides a positive identification of a unique individual (IBG Privacy Initiative, 2010). Often it is judged at face value with the limitation that it can malfunction. Biometrics did not evade this type of complaint because the development was established by a human with human limitations and flaws.

Biometrics can be clarified by, identification, verification and time. Identification and verification are positioned in contrast to one another whereby identification is also known as 1: N matching - a process whereby one fingerprint obtained from a biometric scan is compared against a database of templates to determine the correct template. This process can also confirm if any of the prints exist within the database (Ratha *et al.*, 2009:2). Identification uses a biometric device to determine the corresponding person from a database containing many identities, or decides if a particular individual is enrolled or not. Authentication, also known as 1:1 matching or identity verification, takes place whereby the system verifies the biometric input of one scanned fingerprint against a single biometric record (Ratha *et al.* (2009:2). The system will correspond by a "Yes" if the scanned print matches a saved template on the server or a "No" if it does not match. During registration a unique identifier will engage to determine if the new enrolment has been previously captured. Time is recognised as a factor that impedes on all development within the technological domain. Biometrics is not being affected by behavioural characteristics such as state of health or the passage of time (Ratha *et al.*, 2009:2). Biometrics is dependent on the physical characteristics on the fingertips of every human being.

3.5 Application characteristics of biometrics

Passwords and request for access are found to be the first point of breach in the verification of identity. Irrespective of the access point, it can be replaced with a biometric device. The application of a biometric device to allow access or identification, has different sets of requirements because they must conduct different operations. The biometric device can be classified by the following characteristics in Table 3.3.

Table: 3.3: Characteristics of biometric devices

Characteristics	Function
Attended vs. Unattended	Ability to function without or with human interaction
Overt vs. Covert	Ability to operate without user consent and capture input
Co-operative vs. Non-co-operative	Ability to allow user friendly access and use
Scalable vs. Non-scalable	Ability of database to increase in size or not
Acceptable vs. Non-acceptable	Ability to impose acceptable timeframes during operations versus delays due to communication with the computer sever

Source: Ratha *et al.* (2009:2).

Ratha *et al.* (2009:2) identified the characteristics of biometric devices in relation to their operational ability. Unsupervised operation has been declared at a higher level of processing while biometric devices - with the requirement of supervision - are regarded at a lower standard because an employee needs to be present to validate the decisions of the biometric device. Overt operations are regarded as a lower standard, demanding feedback from a central point while covert operations by biometrics devices receive higher value since they can operate without user consent. The co-operative operation of biometrics allows for user friendly interventions while using biometric devices. Non-co-operative processes on the other hand are set to a specific function without an option to choose alternatives. Ratha *et al.* (2009:2) considered the scalability of a biometric database as another functionality of importance while logging attendance data against the inability to expand a database. The acceptability of timeframes that is in line with the operational requirements of the employer is measured because of the communication time with the computer server.

The characteristics of the biometric time and attendance system used within Stellenbosch Municipality correspond with the ability to:

- work unattended;

- operate overtly because the user must interact individually;
- allow co-operation by means of colour coded buttons to assist employees when selecting the correct clocking option;
- scale the database automatically; and
- allow acceptable operating timeframes by saving clocking data on the console and transfer can be done later in the event of power outages.

3.6 The identification of biometrics

Biometrics use six major identification or verification operations, namely (Ratha *et al.* (2009:6): (i) fingerprint, (ii) iris, (iii) hand geometry, (iv) face recognition, (v) speaker identification and (vi) recognition.

i. Fingerprints

Fingerprints are the most commonly used biometric method. The development of fingerprint technology has developed and become indispensable in biometric time and attendance use, identification, access control and computer user log in. Fingerprint recognition is based on four types of technology, namely (Ratha *et al.*, 2009:5):

- a) Frustrated total internal reflection (FTIR) as the oldest “live scan” method. A camera with infrared ability views the reflected signal from the prism as the finger touches a side of the prism. An image size of 1 inch x 1 inch is converted to a 500 dots per inch (dpi) image using a charged coupled device (CCD) or complementary metal oxide semiconductor (CMOS) processor camera (Stair & Reynolds, 2001:105; Ratha *et al.*, 2009:5).
- b) CMOS capacitance focuses on the appearance of ridges and valleys of the fingerprint to create different impressions. A finger needs to touch the CMOS chip guard to reveal the image of the ridges and valleys (Stair & Reynolds, 2001:105; Ratha *et al.*, 2009:5).
- c) Thermal measurements occur by means of pyro-electric material in the sensor which measures temperature changes as the finger is swiped over

the sensor to produce an image. The person who makes use of the biometric device needs to be alive due to the operation of live scan technology which measures temperature. Constant measurements of fingerprint quality are obtained to verify the best possible image against the sample template. The skin elasticity of a living person allows that the biometric scanner obtains a detailed image sample (Stair & Reynolds, 2001:565).

- d) Ultrasonic beams scan over the fingerprint surface to measure the ridge depth from the reflected signal. Due to the size of the images more time will be required to process the data rich scans (Stair & Reynolds, 2001:105; Ratha *et al.*, 2009:5).

ii. *Iris*

Iris verification is the latest type of biometric and has proven to be accurate and stable. Every person has a rich texture within the iris and distinguishes one person from another. The texture for this type of scanning is obtained from the pupil and sclera which form the iris. The recognition between iris and retinal recognition are different because the latter has a greater level of complexity than iris identification. The level of complexity in iris scanning will influence the cost to operate and maintain the scanning system (Stair & Reynolds, 2001:105; Ratha *et al.*, 2009:5).

iii. *Hand geometry*

Hand geometry is a user friendly biometric whereby the characteristics of the hand are measured and transferred onto a template. This system has limitations because it compares characteristics such as lines within the palm of the hand that may be similar to another person's. This availability of similar hand characteristics projects a high false accept rate (FAR) allowing a high level of false acceptances and a high false reject rate (FRR) which will reject a high number of correct scans during the operational stage (Stair & Reynolds, 2001:105; Ratha *et al.*, 2009:5).

iv. *Face recognition*

Face recognition can be clarified as an ancient biometric which is used by everyone on earth. The natural appearance of the face makes it more acceptable to identify individuals at face value than biometrics because recognition takes place without any electronic device. The limitation of face recognition lies in the existence of people with identical facial characteristics, such as identical twins. This limitation in face recognition, as a dependable identification method, lies within physical and image changes (Ratha *et al.*, 2009:6). Physical changes include aging, personal appearances such as make-up, glasses, facial hair, hairstyle and disguise. Image change is brought forward by light variation, camera variation and the compression of images that alter the appearance of the face. Images with 600 dots per inch (dpi) and 1000 dpi compression experience a change in appearance whereby the 1000 dpi image appears to be smoother because more “dpi” is used to complete the detail of the image. Images with a higher “dpi” count appear to be more detailed and allow more data for interpretation over a longer period because more information needs to be processed (Ratha *et al.*, 2009:6).

v. *Speaker identification*

Speaker identification relies on the reception of sound from the person who requests access. Sound has little security measures and can be substituted with little or no effort. The brain is the most sophisticated part of the body allowing the ability for voice manipulation in order to gain access during the speaker identification process.

vi. *Signature verification*

Signatures represent the oldest method of authorisation whereby the signature of the individual in question allows permission towards an instruction or agreement. The manual attendance register was based on this technology and employees signed the attendance register to confirm attendance. Signature verification is considered as the oldest biometric which requires a handwriting expert to distinguish the originality of a written document. The international use of signatures as an authorisation

tool emphasises the importance of having technology available to equip signatures with security measures.

3.7 Operational existence of biometrics

The increased threat posed by identification violations has motivated organisations to invest in means of information protection and cost cutting. The oldest history of modern biometrics dates back to 1973 at the University of Georgia and is confirmation that positive identification can build confidence in the use of technology (Computer Business Review, 1998). Specialized hardware and software have been acquired to prevent loss of data (Stair & Reynolds, 2001:565). Organisations have started to introduce biometrics as a measure to establish identification in access control and biometric time and attendance.

The following international biometric operations are in place to ensure positive identification and employee attendance monitoring:

- Idematrix AG, based in Zurich, signed a multi-million rand agreement with Sagem Sécurité as the leading biometric supplier. This venture will allow identification and access for 100 million people at 60 000 locations with the use of two million biometric readers (Ideco, 2009);
- Dunkin' Donuts, McDonalds, the Hilton hotels and the United States Marine Corps purchased and installed 150 000 biometric devices to monitor the attendance of employees at their various units in America (USA) divisions (Redorbit, 2008);
- The city managements of New York, Chicago and Pittsburgh in the USA introduced biometric technology to save on salary expenditure for all their employees (Redorbit, 2008); and
- Identix Inc. won the biggest bank contract for biometric security with the Bank of Central Asia in Jakarta, Indonesia, to replace numeric passwords for

employees at 500 branches with biometric devices worth \$8 million (O'Sullivan, 1997).

The following biometric operations exist inside the borders of South Africa to ensure positive identification and employee attendance monitoring:

- The Department of Correctional Services (DCS) has introduced information technology as a security measure by appointing Sondolo-IT to conduct the security surveillance of employees and inmates by installing biometric time and attendance as well as access scanners at all major centres (FAIR, 2005);
- The South African Social Services Agency (SASSA) has introduced Sagem™ biometrics in the payout terminals to service 13.8 million people, with 9,3 million people receiving child support and 2,5 million old age grants (Computer Business Review, 2007);
- The South African Police Services (SAPS) introduced a national AFIS system during September 2002 to identify suspects by means of a Sagem™ handheld biometric device connected to the Criminal Record Centre in Pretoria (Hi-Tech Security Solutions, 2008);
- The National Department of Home Affairs is in the process of rolling out a Sagem™ biometric system through the Home Affairs National Identification System (HANIS) to issue new identity cards and passports as well as assisting with the identification of foreigners in its Customs Division (Computer Business Review, 2007; Hi-Tech Security Solutions, 2008);
- Eskom Holdings Limited, the South African energy supplier agreed to the pre-testing of high level identification and access security at the Koeberg nuclear power plant. This is South Africa's only uranium water pressurized nuclear plant which was used to assess the data integrity of Sagem™ biometric technology as claimed by the Ideco group – contracted biometric solutions provider to the SAPS (Computer Business Review, 2007; Hi-Tech Security Solutions, 2008);

- Nedcor assisted with the pre-testing of Sagem™ biometric technology at their head offices for the Ideco group (Hi-Tech Security Solutions, 2008);
- Capitec Bank Holdings Limited with a client base of 2,5 million commenced with biometric identification of all its clients and bank consultants to prevent identity fraud and was rated as the best investment for a five year period with reputable operational measures in place (Peacock, 2010:1); and
- Cape Town Metropolitan, Overstrand and George local Municipalities and Eden District Municipality are using Sagem™ biometric technology for employee time and attendance on a daily basis (Stewart, 2008).

The international and national use of biometrics in different workplaces for identification and employee attendance has led to research of the benefits and risks that may be present in the manual and biometric attendance registers.

3.8 Comparison, benefits and risks of biometric and manual attendance recording

The question on the benefits and risks has led to a comparison between the two options of employee attendance monitoring as seen in Table 3.4.

Table 3.4: Comparison: Attendance recording methods

	Manual attendance register	Time and attendance system
Access required with a password	No security measures in place.	Fingerprint acts as password to report for duty against the correct employee name.
Register content security	If lost or destroyed employee has to complete a new register for the financial year with no proof to use as basis.	Protected by backup procedures on a daily basis.
Responsibility of information captured	100% responsibility with the employee to maintain the register on a daily basis. The legal responsibility to have one available upon request of the AG resides with the employer (RSA, 2000:216).	50% responsibility resides with the employee whereby he/she needs to clock "in" or "out". The employer is responsible for the other 50% by safeguarding data.
Frequency	No time frames determined although it needs to be maintained daily.	At the start and end of each day clocking must be registered by the employee.
Interaction	Yes, upon request of the supervisor.	Not required when clocking in or out unless approval is granted to start later or leave earlier. Interaction takes place with the availability of attendance reports as basis.
Accessibility or availability	The register is available if and when required by the employee.	Yes
Reporting and inspection to management	Yes, upon request by supervisor.	Yes, available daily.
Backup	No	Yes
Operations	Manual.	Automatic with manual adjustment of time if an employee forgot to clock in or out.
Presence	Employee needs to be present in order to update register. Update can take place at a later date without any control measures present.	Employee is required to be present to update the attendance register.
Scalability	Limited to the amount of pages in the register.	Yes, unlimited space available dependent on computer server.

Source: Compiled by author (2010)

On the matter of access, it was found that the possession of the manual attendance is not secured by any password while the biometric time and attendance system utilizes a fingerprint to obtain access to the attendance register database. The manual attendance register does not have any security measures in place to prevent

the register from getting lost or destroyed, while the biometric attendance system is protected by daily backups. The responsibility to register attendance in the manual attendance register is the responsibility of the employee. The responsibility to clock on the biometric scanner resides with the employee and the employer will be responsible to maintain the captured data on a daily basis. No completion frequency of the manual attendance register exists allowing opportunity to inflate the operational time worked by the employee, while the biometric attendance register conducts real time capturing according to the synchronised time on the computer server.

Interaction with employees and supervisors takes place with both attendance systems as evidence with the manual attendance register upon request and the biometric reports on a daily basis. The biometric attendance reports are utilised as the basis for interaction with subordinates. The accessibility of readily available attendance data as captured within the manual attendance register has not been determined because this function has been decentralised to the relevant directorates. The accessibility of biometric attendance reports at any given time has been confirmed with the backups made on the computer server. Reporting and inspection of both attendance methods takes place whereby the manual attendance register is obtained upon request and the biometric attendance reports *via* the Human Resources Department. The standard of all manual attendance recordings takes place in writing while the biometric attendance system is computerised with an option of inserting data due to unforeseen circumstances such as courses outside the parameters of the Stellenbosch Municipality. The completion of the manual attendance register allows that the attendance data be captured on a later date, or in advance, while the biometric attendance system will require the employee to be present to scan “in” or “out”. The scalability of attendance data in the manual attendance register is limited to the amount of pages in the register while the biometric system has unlimited space with the option to expand hard drive space.

3.8.1 Benefits and risks of a manual attendance system

The absence of technology led to the usage of manual employee attendance records to substantiate proof of attendance. The analysing of the benefits and risks of the manual attendance register can be tables as follows (See Table 3.5).

Table 3.5: Benefits and risks of the manual attendance register

Benefits	Risks
<ul style="list-style-type: none"> • It was used as the best alternative prior to the development of biometrics; • 100% human interaction present between the register and the employee 	<ul style="list-style-type: none"> • Limited reporting on results; • No verification exist on captured times; • Register is easy to destroy; • No protection against theft; and • Time consuming task when it needs to be replaced

Source: Compiled by author (2010)

The manual attendance register was the best alternative prior to the discovery of biometric technology to manage employee attendance. Interactions between supervisors and subordinates took place on a daily basis and promoted a healthy working environment. The following has been identified with the use of the manual attendance register, namely that:

- There is no confirmation if the data was captured on time or if it was verified and signed by the supervisor;
- The register is easy to destroy and there is also a high risk it of getting lost. It will be a time consuming task to replace a lost manual attendance register; and
- No back-up data exist of commencing and ending times.

The next section will research the advantages and disadvantages of the biometric time and attendance register.

3.8.2 Benefits and risks of the biometric time and attendance system

The benefits and risks of biometric time and attendance systems are identified to confirm the feasibility of the employee monitoring system (See Table 3.6).

Table 3.6: Benefits and risks of the biometric time and attendance system

Benefits	Risks
<ul style="list-style-type: none"> • Assist with the positive identification of individuals; • Illuminate biased human observation because biometric standards will apply to everyone; • Enhance privacy with no room for impersonation; • Allows integration of national departments in the improvement of services; • Unsupervised operation; • Savings will be made; • Because the time for reporting on or of duty has been limited to seconds; • Data capturing is in real time; • Stand-alone operation possible during power failure; • Various reports can be extracted for analysis; • Hardware can be adapted to address weather conditions; • Operates on standard network lines, voice over internet protocol (VOIP); • Updates daily to ensure data 	<ul style="list-style-type: none"> • Dependant on electricity or battery power; • The accuracy of biometric readings can increase false confidence in human ability; • Biometric is not 100% foolproof because equipment can malfunction and an allowance for 1% inaccuracy can be fatal; • Biometric identifications are only as fair as the intentions behind them; and • Claims can be made that biometrics violate privacy.

integrity; and

- Savings in salary expenditure will be certain.

Source: Zalman (2008)

The biometric time and attendance system has more advantages than disadvantages – in contrast to the manual attendance register. Biometric devices can assist with the positive identification of individuals and act without any discrimination. The verification standards are applicable to all persons who scan for attendance and no room will be allowed for impersonation (Zalman, 2008). Biometric systems function without any supervision and the time for roll call has been eliminated. The development of biometric technology grants access to a variety of employee attendance reports which outweigh disadvantages. The “in” and “out” clocking data are captured in real time with no scope for compromising clocking times. The biometric time and attendance system operates as a stand-alone device during power failure. Various reports can be extracted and analysed to determine employee trends. The biometric technology operates on a voice over internet protocol (VOIP) network saving additional cost in cabling and connection to the server. Savings on the salary budget will be possible because the working times of employees will be correct.

The following risks were found within the biometric time and attendance system, namely that it operates with electricity and will require back-up batteries during power failure. Zalman (2008) is of the opinion that the accuracy of biometric technology can decrease the confidence in human aptitude. Humans can develop a lack of confidence. Electronic equipment can malfunction and the allowance of 1% failure during a breakdown can have fatal results. Biometric identifications may violate privacy.

The probe into the benefits and risks of both the manual and biometric time and attendance systems prompted an operational discovery of biometric systems.

3.9 Operational use of biometric time and attendance system

The biometric time and attendance system utilises fingerprints on a scanning device to establish the identity of the individual as captured within the database and log an entry which will indicate the start or end of a working day (Supervision, 2008:15).

3.9.1 Clocking on the biometric scanning device

Clocking on the biometric scanning device does not require any skills and can be used by any persons irrespective of their education level. Figure 3.1 demonstrates the use of a MX 500 biometric clocking device which is capable of employee attendance recording and granting access.



Figure 3.1: The biometric clocking device

Source: Supervision. (2008:2)

Registered employees will be able to place their fingers on the scanner to obtain a split second response in reporting "on" or "off" duty or allow access to buildings through the same device. In the event that a match for the fingerprint is found, within the fingerprint database, it will provide a response for clocking "on" or "off" duty depending on the option of green (on duty) or a yellow (off duty) button chosen before the scan. While employees are reporting "on" or "off" duty, the scanning

device will cross reference the employees scanned imprint against the templates of the translated true minutia points of fingerprints on the database. The fingerprint on the scanning device is coded and then compared against already stored templates that were captured against an employee's name during registration. According to Stewart (2008) the process of verification takes place in less than 0,8 seconds in relation to a database of 50 000 employee templates – meaning that the current staff complement of 1300 employees of Stellenbosch Municipality will be able to use the device and receive responses in less than 0,1 seconds whether an identifiable print has been obtained or not.

Supervision (2008:13) claims that the transfer of fingerprint templates from one computer to another is not possible because of the coded algorithms. The algorithms cannot be decoded back to their fingerprint state due to the installation of a licensed universal service bus (USB) dongle on the desktop computer that assists with the communication to the computer server. The retrieval of data from the server can only take place with the coded templates of the fingerprint data on the clocking device. The transfer of the saved templates can only be made possible with the use of the licensed dongle because it is registered as the only licensed device that can communicate with the computer server. Coded fingerprint templates are saved on the biometric device and assist in the event of a connection failure due a power surge or during a switchover to auxiliary power. Every computer activity and programme relies on the presence of algorithms and the presence of a dongle provides additional protection to safeguard the source code from external security breaches.

3.9.2 Fingerprint scanning

The operation of the biometric system relies on the availability of prints on the first segment of the employees' fingers. According to Supervision (2008:12), the electronic time and attendance system works with biometric technology identifying up to 200 true minutia points on one fingertip. A true minutia point is shaped where ridge lines split or end on the finger tip as indicated in Figure 3.2.

The difference in true minutia points contributes to the fact that every person has a unique fingerprint.

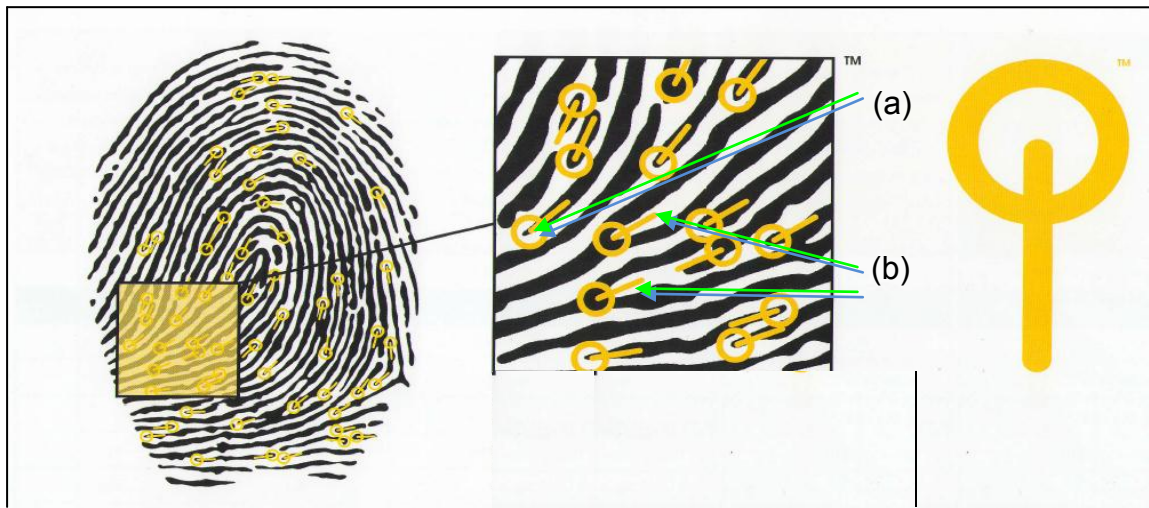


Figure 3.2: True minutia points

Source: Supervision (2008:13)

Figure 3.2 represents a simulation of a scanned fingerprint while being analysed by a biometric device. Point (a) identifies where a ridge ends whereby the line just stops without connecting with another line. Point (b) indicates the presence of a ridge that splits into two lines and continues further. The ridges, ending either in an end or a split, are creating a unique pattern that can be analysed through computerised calculations also known as algorithms. Cormen *et al.*, (2001:5) define algorithms as a sequence of calculations that transforms the input of the scanned fingerprints into values. It is impossible to store fingerprints because computers cannot comprehend the meaning of such graphics. The value of identified ridges and ends creates a unique code of binary numbers (Supervision, 2008:13; Eck, 2009:18). Computers use binary numbers as a machine language to understand the aforementioned code. There are only two binary numbers representing the output template, namely 0's (zeros) and 1's (ones). Binary numbers are represented as switches and an "on" switch is represented by a number 1(one). An "off" switch is indicated by a 0 (zero). In order to calculate the presence of fingerprints, computers are programmed to read ridges or splits and code them as either 0's or 1's or *vice versa*. Supervision (2008:13) mentions that algorithms are stored on the computer server and verifications are made against stored templates on the biometric devices. The translation of the fingerprint images into algorithmic code assists the computer to

store, compare and verify data. At no point does the computer apply rational thoughts towards the stored data and replies only by reacting to the retrieval of data instructions or the registration of attendance. Ridges and edges form the most important component in the coding process of fingerprints. Switches are turned “on” or “off” to represent a sequence of data and in the case of a fingerprint, template of ridges or edges of a particular individual (Eck, 2009:18).

3.10 Conclusion

The introduction of a biometric time and attendance system has commenced with limited knowledge. There is a limited understanding of technology amongst employees and almost no interest to know more. The strategies in the application of technology to assist with cloning, customization and translation provided insight into alternatives provided by technology. The characteristics of biometrics allow alternatives of how technology can serve as a labour saving device and allow employees to focus on the delivery of services. Clarity was provided that only living human beings can have access to this technology, eliminating the risk of irrelevant fingerprints. The operational existence of biometrics - both international and national - provided confidence that the limits of this technology has not been reached.

The manual attendance register served its purpose prior to the development of computers. The benefits of the biometric time and attendance system have proven to be more than the risks as well as offering different options for the interpretation of data.

Chapter four will provide a legal platform and guidelines for the conduction of administrative justice in reporting on and off duty for both the employer and the employee.

CHAPTER 4

LEGAL AND POLICY FRAMEWORK APPLICABLE TO STELLENBOSCH MUNICIPALITY

4.1 Introduction

Stellenbosch Municipality regards employees as its largest asset in rendering basic services. Government organisations on the other hand are obligated to comply with the basic rights of citizens as entrenched in the Bill of Rights. The need for change became vital when the Bill of Rights was passed during the promulgation of the new Constitution of South Africa. Local government is required to act in accordance with legislation, in an attempt to bring about change.

The provision of local government services requires the availability of employees from a predetermined period during the day and even after hours. In response to dealing with new challenges, a demand is placed on innovation, flexibility and imaginative management.

This chapter will clarify the question on legislation as approved by Parliament to ensure the delivery of basic services and the emphasis will be on attendance of employees. The following building blocks have been identified as mechanisms towards citizen, client satisfaction:

- a) The *Constitution of the Republic of South Africa Act, 1996 (No. 108 of 1996)* is the compass of all operations within Local Government.
- b) Secondly, the *Municipal Finance Management Act, 2003 (No. 56 of 2003)* is used as parameter whereby the Auditor General (AG) benchmarks all financial transactions.
- c) Thirdly, the *Basic Conditions of Employment Act, 1997 (No. 75 of 1997)* safeguards the rights of employees and employers.
- d) Moreover, the *Local Government: Municipal Structures Act, 1998 (No. 117 of 1998)* provides guidance on the structural and operational appearance of the Municipal Council.

- e) The *Local Government: Municipal Systems Act, 2000 (No. 32 of 2000)*, explains in detail the responsibility and functions of a municipality.
- f) The *Collective Agreement* between the South African Local Government Association (SALGA), the Independent Municipal Allied Trade Union (IMATU) and the South African Municipal Trade Union (SAMWU) commits itself to favourable labour relations between the employee and the employer. The *Basic Conditions of Employment Act, (No. 75 of 1997)* and *Labour Relations Act, 1996 (No. 66 of 1995)* creates a foundation for this agreement;
- g) The *White Paper on Transforming Public Service Delivery, Notice 1459 of 1997* in Local Government, directs the quality of service towards the community.

The following Acts will be described and explained to highlight employee attendance and service delivery.

4.2 The Constitution of South Africa Act, 1996 (No. 108 of 1996)

Local Government owes its existence to the establishment of a new Constitution (RSA, 1996:87). The power to rule is created within the Constitution and delegated to the Municipal Councils (RSA, 1996:87). Although the powers were delegated to Municipal Councils, the latter are mandated to render and execute the directives of the Constitution (1996).

Directives are given to local government whereby the need is focused on democratic values and principles, namely (RSA, 1996:116):

- a) high standard of professional ethics to be promoted and maintained;
- b) efficient, economic and effective use of resources;
- c) public administration must be accountable; and
- d) good human resource management to maximise human capital.

Secondly, municipalities – via the municipal council – received the instruction to (RSA, 1996:88):

- a) structure and manage all planning processes and to give priority to the basic needs of the community in the promotion of social economic development.

Thirdly, Municipalities have the obligation to formulate and administer bylaws for effective administration of matters which they have the right to administer (RSA, 1996:90). Municipalities, therefore exercise the ordained power on reasonable grounds. The performance of local government functions includes the assurance that employees are present to deliver basic services of an economic and efficient nature (RSA, 2000:158).

Provincial government, according to Section 155 of the Constitution (1996), has the responsibility to establish municipalities in its province with adequate monitoring and support structures in place (RSA, 1998: 89; 2000:226). The monitoring is not at the cost of any other right, since the acknowledgement of rights is non-negotiable. In the absence of rendering these services, citizens are exposed to life threatening diseases, e.g. cholera.

4.3 The Municipal Finance Management Act, 2003 (No. 56 of 2003)

Municipalities portray a protective role in the utilisation of public funds. Receiving services which are worth the value of their money is an important benchmark for citizens. Stellenbosch Municipality is compelled to account for every remuneration expense relating to the following categories, namely (RSA, 2003:76; 96):

- salaries;
- wages; and
- overtime payments.

The MFMA necessitates the Municipality to have mechanisms in place to ensure an unqualified audit whereby all income and expenditure transactions can be accounted for (RSA, 2003:76). Moreover, the importance of remuneration check and control measures is emphasised in Sections 69 and 89, also requiring non-negotiable compliance from employees of Stellenbosch Municipality. Proper administration is

achieved by keeping an employee attendance register for every financial year (RSA, 1997:34). The register must indicate an employee's attendance record per day during the financial year under review.

Salary and overtime payments form part of the monthly expenditure of a municipality. The municipal manager (MM) needs to provide a concise report on remuneration. Attendance registers assist the MM in confirming the hours worked against the calculation of remuneration per employee (RSA, 2003:76; RSA, 1997:34). In the case of unpaid leave an employee who worked fewer days in the month concerned, the attendance register, as well as salary payslip need to confirm such absence. On the other hand, if an employee was present for the month, the attendance register and payslip need to correspond accordingly. Municipalities remunerate their employees for their time spent on assigned tasks whether during normal or after hours (RSA, 2005:16-17). Langeveldt (2008) mentioned in his interview that employees at Stellenbosch Municipality are required to keep a personal manual attendance register and maintain it on a daily basis (RSA, 1997:34). Supervisors are compelled to sign the manual attendance register on a daily basis, confirming the attendance of subordinates. The implementation of a biometric time and attendance system will allow supervisors to observe real-time attendance reporting as well as conducting attendance confirmations with the use of an objective time keeping device. Attendance registers have to be kept for a three year period from the day of the last entry and must be available for viewing upon request of the Auditor General (AG) (RSA, 1997:24; RSA, 2003:97).

The expense categories, salaries, wages and overtime, form the basis of audit testing by the AG to benchmark the accounting standards of a municipality. The Municipal Finance Management Act (MFMA), 2003, stipulates that audit findings, as obtained from annual financial statements, are forwarded by the AG to the provincial member of the Executive Committee (MEC) on Finance (RSA, 2003:117). Salaries and overtime are therefore categorised as expenses and the required need to have supporting documents is strengthened by means of an employee attendance register. Stellenbosch Municipality has to ensure that the annual report be available within nine months after the end of a financial year, reflecting all public income and spending activities (RSA, 2003:116).

Every directorate within Stellenbosch Municipality is required to account for expenses incurred. Salaries and overtime have been decentralised to the other directorates and accordingly the guardian role to ensure compliance with legislation resides with the Corporate Services directorate.

The purpose of the annual report is to (RSA, 2003:116):

- a) provide a report on all the financial activities of the municipality for the financial year under review;
- b) report on performance against the budget for the relevant financial year; and
- c) promote accountability to the local community for decisions made during the financial year.

Reporting plays an important role in accordance with which municipalities disclose the state of affairs within their ranks, including performance with regard to the goals as set out within the Integrated Development Plan (IDP) (RSA, 2003:116). The salary budget comprises up to one third of the municipalities total budget and sufficient supporting documents must be available to indicate the expense. The employee attendance register acts as source document in supporting the salary expenses incurred per financial year. Municipalities need to recognise the overseers capacity of the Provincial Government and the AG.

The following areas of investigation are authorised by the MFMA - as the sole responsibility of the National Treasury (RSA, 2003:21) under the delegation of the Director-General of National Treasury and the Member of the Executive Committee of Provincial Treasury (RSA, 2003:23) to:

- a) monitor the budgets of municipalities and establish whether they:
 - (i) are consistent with the National Government's fiscal and macro-economic policy (RSA, 2003:21); and
 - (ii) comply with chapter four on municipal budgets which requires that expenditure must be budgeted for (RSA, 2003:31).
- b) monitor revenue collection and borrowing;
- c) monitor and access compliance by municipalities with

- (i) the MFMA; and
 - (ii) any applicable standards of generally recognised accounting practice (GRAP) and uniform expenditure, as well as revenue classification systems;
- d) investigate any system of financial management and internal control, including improvements; and
- e) take appropriate steps should municipalities commit a breach of the MFMA.

The Local Government: Municipal Finance Management Act, 2003 (No. 56 of 2003) requires that sufficient control measures are in place. The MFMA serves as a benchmark to prevent any financial misconduct and ensures financial compliance. Citizens are protected by law to the effect that money will be spent benefiting those in need, especially if all the above mentioned control measures are in place.

The following section will address the conditions of employment to ensure a healthy working environment.

4.4 The Basic Conditions of Employment Act, 1997 (Act 75 of 1997) (BCEA)

The BCEA gave effect to fair labour practices as referred to in Section 23(1) of the Constitution (1996) by establishing regulations for basic conditions of employment. The importance of this Act cannot be emphasised strongly enough as regards in the prevention of labour force exploitation. The Basic Conditions of Employment Act (1997) stressed the importance of employee attendance as a compliance measurement for all employers within the borders of the RSA by requiring a recording of attendance as stipulated in Section 31.

With a view to further elaboration the following terms need to be discussed:

4.4.1 Working hours

- (a) Ordinary working hours mean the hours of work permitted in terms of Section 9 of the BCEA (1997). (An explanation of Section 9 will follow in subtitle 3.4.3) (RSA, 1997:30).

- (b) Attendance is defined as the presence and physical completion of assigned tasks of an employee at the place of work from 08:00 until 16:30 commencing Mondays to Fridays. The delivery of a service after hours will imply the rendering of a task that resulted due to an emergency or arranged community gathering (Langeveldt, 2009; RSA, 1997:16).
- (c) Absence without leave is known as the failure of an employee to report for duty during the timeframes as discussed in (b) without prior absence of leave permission and being aware of the obligation to be present on a daily basis. In the event that an employee fails to deliver credible proof that the absence was unavoidable, the employer can institute an unpaid leave transaction to debit the salary of the employee in relation to the total number of leave days absent (Langeveldt, 2008).
- (d) Authorised leave refers to an agreement that has been reached between the employee and his/her immediate supervisor allowing consent to surrender leave credits prior to the leave day in question (Langeveldt, 2008; RSA, 1997:25).
- (e) Unforeseen leave can be classified as leave due to medical reasons that prevent the employee being present at work. In the event that the unforeseen illness is that of an immediate relative that occurred without warning, allowance can be made that the employee be granted family responsibility leave. This leave type will be discussed under the heading 4.4.3 (iv), family responsibility leave.
- (f) The employer agrees to credit the employee for loyalty by allowing one day leave credit for every seventeen (17) days of service to calculate the ordinary leave. The latter is to establish work satisfaction and render a service to an employer of choice (Langeveldt, 2008; RSA, 1997:25).

4.4.2 Regulation of working time

All employers must regulate their employees working hours:

- a) in accordance with the provisions of the Occupation Health and Safety Act (No. 89 of 1993) which governs occupational health and safety;
- b) with due regard to the health and safety of employees;
- c) in accordance with the Code of Good Practice relating to the regulations in accordance with which the protection of all employees has been guaranteed (RSA, 1997: 99-195); and
- d) in consideration of family responsibilities that may disrupt employee productivity by allowing five days compassionate leave per annum (RSA, 1997:16).

- Ordinary working hours

In order to adhere to the Bill of Rights, employers are required to prevent the exhaustion of human capital (RSA, 1996:6). Provision has been made in the Basic Condition of Employment Act, 1997 that the risks regarding employee fatigue are managed whereby:

- (1) an employer may not require or permit an employee to work more than:
 - (a) forty five (45) hours in any week; and
 - (b) nine (9) hours in any day if the employee works for five days or fewer in a week; or
 - (c) eight (8) hours of labour in any day if an employee works for more than five days in a week (RSA, 1997:16).
- (2) The ordinary working schedule may be extended by agreement to prolong any day with 15 minutes, but not more than 60 minutes (RSA, 1997:16).
- (3) Further limits include a maximum of 40 ordinary hours work per week and 8 ordinary hours work per day (RSA, 1997:16).

The regulation of overtime is as important as normal working time since remuneration is increased at a higher rate. Uncontrolled overtime capturing can lead to the depletion of budget provisions resulting in minimal funds available for emergency work.

- Regulation of overtime

- (1) An employer may not require or permit an employee (RSA, 1997:17-18) to:
 - (i) work overtime except in accordance with an agreement; and
 - (ii) work more than ten (10) hours overtime a week.
- (2) No agreement may require or permit an employee to work more than 12 hours on any day.
- (3) An employer must pay an employee at least 1½ times the employee's wage for overtime worked.

To have a full understanding of the audit testing done by the Office of the AG, leave needs to be scrutinised in its different forms. Due to the technical requirements when taking leave, the report on available leave credits, as well as leave processes, can lead to a qualified or unqualified audit.

4.4.3 Leave

(i) *Annual Leave*

The purpose of an electronic time and attendance system can be either to save money or address disorganised employee behaviour. Section 23 of the Constitution states that all employees have the right to fair labour practices, including the payment for services rendered by employees (RSA, 1996:10). Employees are allowed to take unpaid leave at the individual's written request and the employer is not held accountable to provide payment unless the payment is upon termination of service or credited from annual leave not taken within the financial year (RSA, 1997:26). Moreover, the employer is obliged to pay leave in relation to the remuneration as if the employee were on duty and receives permission to surrender accrued leave credits. It is required by legislation that the employer grants the

employee 16 days compulsory paid leave within a financial year or the opportunity to surrender the leave credits in exchange of a cash payout (RSA, 1997:26).

(ii) Sick Leave

The employer allocates 80 days sick leave over a three year period without any pro-ration of these sick leave credits in relation to days worked, unless it occurs within the first six months of service (RSA, 1997:27). Employees are allowed two consecutive days of illness without a sick certificate within an eight week cycle (RSA, 1997:28). Absence due to an illness after the second day requires a medical certificate signed by a recognised medical practitioner or traditional healer.

(iii) Maternity leave

Maternity leave is considered as an employee benefit due to a pregnant employee for four (4) consecutive months if the employee has a service record longer than 12 months (RSA, 1997:29). Provision has been made to allow this maternity leave from four weeks prior to the expectancy date, or from the date that has been indicated by the medical practitioner for release from work. The responsibility resides with the employee to provide written notice of her intention to commence and end maternity leave (RSA, 1997:29). Payment of unpaid leave for the fourth month due to maternity reasons is granted under the Unemployment Insurance Act (No. 30 of 1966) (RSA, 1997:29).

(iv) Family responsibility leave

This leave option is applicable to employees who work for more than four (4) months for at least four (4) days per week at the same employer (RSA, 1997:30). This leave credit is granted due to humanitarian reasons because the employee will not be able to render an efficient service on a specific day. The family responsibility leave option has a maximum of five (5) days per calendar year (Langeveldt, 2008). Employees qualify for the benefit if (RSA, 1997:30):

- (a) the employee's child is born;
- (b) the employee's child is ill; or
- (c) in the case of death of:
 - (i) the employee's spouse or life partner,

- (ii) employee's parents, adopted parent, grandparent, child, adopted child, grandchild or sibling.

The Basic Conditions of Employment Act, 1997 (No. 75 of 1997) forms the cornerstone for all working conditions in South Africa. Employers must adhere to these conditions and establish a healthy working environment for employees. Employers are requested to provide all the leave options, including mechanisms to safeguard against the abuse of employee rights.

4.5 The Local Government: Municipal Structures Act, 1998 (No. 117 of 1998)

The formulation of the powers as indicated in the Constitution is important to ensure the acceptance of municipalities as organs of state. The Constitution allows three categories of Municipalities, namely (RSA, 2002/3:318):

- a) Category A – 6 Metropolitan municipalities;
- b) Category B – 231 Local municipalities and
- c) Category C – 47 District municipalities

Section 156 of the Constitution provides the right to efficient administration of local council activities, including the promulgation of bylaws in compliance with the national mandate of service delivery (RSA, 2006:90). Municipalities received the powers of existence, including the obligation to have an unqualified audit for all financial transactions through effective management of employee attendance and compensation by means of salaries (RSA, 1996:90).

4.6 Local Government: Municipal Systems Act, 2000 (No. 32 of 2000)

Effective management requires the development and implementation of systems to sustain an organisation (Dubrin, 2004:401). Section 195 of the Constitution (1996) capacitates municipalities with an administrative and financial responsibility towards the relevant constituency (RSA, 2003:116). Therefore, Stellenbosch Municipality can be held accountable by the citizens of the town should effective and efficient service delivery be non-existent. The Municipal Manager (MM) is the head of the administration and accountable for the:

- a) formulation and development of economical, effective and accountable administration, including implementing the IDP;
- b) performance management and responding to the needs of the community;
- c) management of municipality administration;
- d) provision of sustainable services;
- e) appointment of staff in accordance with the Employment Equity Act, 1998 (No. 55 of 1998);
- f) effective utilisation and development of employees;
- g) promotion of sound labour relations;
- h) implementation and execution of municipal bylaws and other legislation;
- i) facilitating participation by the local community in municipality matters; and
- j) implementing and executing national and provincial legislation applicable to the municipality.

Compliance with the Municipal Systems Act (No. 32 of 2000) and Local Government Municipal Finance Management Act (No. 56 of 2003) is the primary responsibility of the MM. The MM's responsibility as the accounting officer is to guard all the income and expenditure of the municipal council which includes the expenses made to remunerate all employees. Proof needs to be captured in an attendance register to substantiate the management of an employee administration process. The MM must ensure the execution of continuous control measures in the capturing of attendance details on a daily basis.

4.7 White Paper on Transforming Public Service Delivery (1997)

Stellenbosch Municipality is obliged to deliver services in line with the White Paper on Transforming Public Service Delivery (1997:15), also referred to as the Batho Pele principles. Employees of the Municipality, as well as citizens, are required to understand the legislative requirements when dealing with basic service delivery. The Batho Pele principles require the following service standards from employees working at Stellenbosch Municipality, namely:

- Improved *service standards* within the Greater Stellenbosch area and informing all citizens about the level and quality of services that will be rendered;
- Accurate *information* on public service rendering must be available;
- The functioning and management of government departments in an *open and transparent* manner;
- *Redressing* the absence of a quality service – an apology and full explanation, including a quick and efficient solution, has to be provided; and
- Finally, providing *cost-efficient* and value for money service (RSA, 1997:15).

The White Paper on Transforming Public Service Delivery (1997) is a tool to enhance service delivery and can only be executed with the availability of employees who report for duty. Stellenbosch Municipality needs to have measures in place to meet the requirements of these service standards to promote excellence by managing employee attendance on a continuous basis.

4.8 Municipal operations

Municipalities within the border of the RSA report to National Government via the district municipalities, provincial governments and the Office of AG on an annual basis by means of financial statements and budget provisions. Municipalities operate semi independently and have the right to conduct business according to the powers vested within the Acts. They are, however, responsible to report on their operations thereby allowing National Government to indirectly oversee performances. The promulgation of the Local Government Municipal Finance Management Act (No. 56 of 2003) makes provision for Local Government to receive such independence. National government departments except local government are managed under the guidelines of the Public Management Finance Act (No. 1 of 1999).

The most important responsibility of Municipalities is to be effective and efficient in their daily operations. National Government assists with the provision of funds to boost the basic service delivery needs at national, provincial, district and local levels. Income is generated by means of rates and taxes to pay for all operational expenses

such as salaries. Decisions within all local government structures are made in line with the legislation - as previously discussed in this chapter. Municipalities need to be cautious with the payment of employees because the consumer is receiving a service from local government and can demand improvements as they pay for basic services. Therefore, municipalities' need to ensure the availability of employees by means of employee attendance registers and pay them only for services rendered. The maladministration of employee attendance registers confirms the inability to manage expenses because no reconciliation of employee attendance and remuneration takes place.

Criticism directed at the operations of local government has increased due to the lack of urgency in service delivery projects. The delivery of services is not of the same quality as compared with private organisations because the existence of local government organisations is not under threat in the event of poor service standards. The lack of urgency over employee attendance operations, have a significant impact on the delivery of services such as refuse removal, water provision and waste water treatment. The enforcement of policies such as leave management to address employee attendance is the responsibility of all employees. The relationship with the Human Resource Department is a pro-active measure to inform all employees of the responsibilities of the employer to the provincial and national governments.

4.9 Conclusion

The abovementioned legislation provides guidance concerning the services that need to be rendered by the employees of Stellenbosch Municipality, as well as simultaneously complying with the expectation of citizens. Municipalities are service driven organs of state that operate in a semi state environment. The monthly income acquired to run and maintain a municipality is obtained from rates and taxes. The remuneration of employees is derived from the same source of income. The quality of services is an important element to motivate steady income from citizens of any town. The existence of little or no boundaries - because of its local government status - allows that information about services is public knowledge. If one citizen is dissatisfied with the service experienced at a municipality more voices will be raised about poor service in the presence of pledges made through legislation.

Technology generated the interest to probe the existence of computerised knowledge management apparatus that could improve employee attendance with subsequent positive effects on the delivery of basic services. Clarity will be given in the case study if the abovementioned mandate regarding legislation is carried out thereby ensuring efficient service on continuous basis.

CHAPTER 5

CASE STUDY: THE ATTENDANCE MONITORING AT STELLENBOSCH MUNICIPALITY

5.1 Introduction

This chapter will provide clarity on the case study within the Human Resource Department of Stellenbosch Municipality. It will provide an overview of Stellenbosch Municipality and the biometric time and attendance pilot project. In reference to the pilot project, clarity will be provided on the interaction with labour union representatives, the methods of capturing employee attendance and on the benefits and drawbacks of the manual and biometric attendance systems. In order to understand the reaction of employees to these attendance methods, their relevant positions as employees are described to comprehend human behaviour. Moreover, clarity is provided by describing the participating departments within the biometric time and attendance pilot project. The results of the questionnaire will be tabled and analysed to determine the status of employee attendance and the change management effort to introduce an effective employee management system at Stellenbosch Municipality.

5.2 Background to Stellenbosch Municipality

Stellenbosch Municipality is situated in the Western Cape Province and conducts its business within the Cape Winelands District Municipality. It services about 900 square kilometers of municipal land – which includes the towns of Stellenbosch, Franschhoek and settlements such as Klapmuts, Koelenhof, Kylemore, Johannesburg, Pniel, Jamestown and Raithby. The Municipality is situated 50 kilometers east of Cape Town and has – after Cape Town – the oldest history (Stellenbosch Municipality, 2009) in the country. Stellenbosch is classified as a Category B Municipality according to the Local Government: Systems Act, 1998 (No. 117 of 1998) and operates by means of an executive mayoral system (RSA, 1998:18).

The municipal area has a diverse population group consisting of Afrikaans, English and Xhosa speaking residents. The residents live in formal and informal structures and contribute to the municipal budget by means of rates and taxes. Stellenbosch Municipality is required to respond to legislation as stipulated in the Constitution (No. 108 of 1996), promulgated by government and compelling all employees to comply with relevant legislation (RSA, 1996:87). Legislation identified in the previous chapter takes into account the effective delivery of services, as well as the management of employee attendance on a daily basis.

The Municipality consists of six Directorates comprising out of various departments. The Directorates are: Corporate Services, Financial Services, Engineering Services, Community Services, Community Safety and Planning and Development (this was the position in December 2009).

5.3 The biometric time and attendance pilot project

During May of 2008 Stellenbosch Municipality signed an agreement with Supervision Biometric Systems Pty (Ltd) to test the feasibility of a biometric employee attendance system. The operational management of the ensuing pilot project would be done by the Corporate Services Directorate. In line with the policy of decentralisation and with a view to optimal overseeing of their management employee attendance reports would be distributed to all the Directorates within the Municipality. The biometric time and attendance reports would allow departments and sections to manage employee attendance with real-time confirmation. Interaction between supervisors and subordinates will provide constructive feedback regarding the relevance of the biometric attendance system at the Municipality. Observations with regards to the correctness of the attendance data recorded versus that of the manual attendance register would be made. Although the biometric system is functional in the Cape Town Metropolitan, George and Overberg Municipalities, it was crucial to determine its effectiveness in the Stellenbosch context. As already mentioned the Ecclesia building in Plein Street, Stellenbosch, was identified for the pilot project and 96 employees were registered to use the system parallel with the manual attendance register. The selection of the Ecclesia building as the pilot project venue was done to monitor the system in a closed environment to observe a hopefully objective

response to the functioning of the biometric time and attendance system. A second phase of the pilot project entailed the registration of employees working at the Main building in Plein Street, Stellenbosch.

The case study was conducted by the author during 2010 by distributing a questionnaire to 171 employees who were using both the manual attendance register and biometric time and attendance clocks within the Main and Ecclesia buildings. The questionnaire (Appendix 1) would highlight the benefits and limitations of both manual and biometric attendance systems.

Stellenbosch Municipality made use of the manual attendance register for more than 30 years (Niemand, 2008). For the purpose of remuneration, Stellenbosch Municipality makes use of two registers, namely the manual attendance register and the manual overtime sheet. The manual attendance register does not need to be submitted at any stage during the month or year to effect salary payments because employees have a fixed salary tariff. The reason for not influencing salary payments resides within the inability to secure a monthly conciliation of employee attendance. In the event that employees remains absent without permission deductions can be made against the fixed salary. Attendance registers are submitted once a year upon request of the Auditor General (AG) for the conduction audit testing which determines if employee information on the manual attendance registers corresponds with leave taken during the previous financial year. The responsibility of the manual attendance register has been decentralised to directorates but the responsibility to check the compliance has been conveyed verbally to the Human Resource Department. Decentralisation implies that every Directorate is responsible for its own attendance administration. The Human Resources Department, with its 13 employees, is not able to conduct the employee attendance control function on a monthly basis. In the event of an employee being absent without permission, the Directorate concerned would inform the Human Resources Department to deduct pay from the relevant employee's for the days not worked.

Employees between the post levels of 1 to 5 are not allowed to claim overtime. Those between post levels 6 and 17 have to complete an overtime sheet in conjunction with the overtime pre-approval on the reverse side of the overtime sheet.

Approval has to be granted by the relevant director prior to the commencement of the month concerned. The Basic Conditions of Employment Act, 1997 (No. 75 of 1997), requires responsible expenditure, but overspending of the overtime budget is still a concern (Stellenbosch, 2003/2004, 2004/2005, 2005/2006, 2006/2007, 2007/2008). The overtime sheet needs to be submitted by the supervisor to the Salaries Section in the Finance Directorate for processing the monthly overtime payment. At no point in time does the overtime sheet reach the Human Resources Department for conciliation with the manual attendance register.

The manual attendance register is completed individually by all staff responsible for administrative duties such as secretaries; the client services help desk officials and human resources officers. However, some staff members working in teams at operational sites such as waterworks and greening complete a team manual attendance register with the names of the whole team on one sheet. The following status report exists for the pilot biometric time and attendance system as utilised in the Ecclesia and Main buildings.

5.3.1 Status of the pilot project at the Ecclesia and Main buildings

- Conditioning

The installation of the biometric time and attendance clock on the ground level of the Ecclesia building was accepted by the employees working in the building. The installation was correctly named a pilot project to assess the needs of Stellenbosch Municipality.

The introduction of new technology requires that employees familiarise themselves with the new way of doing (Robbins & Barnwell, 2002: 348). In order to execute a new role or action, the employees within the Ecclesia building were required to remember the new way of reporting “on” and “off” duty (Robbins & Barnwell, 2002:348). During the first month after introduction, various employees came up with a request to add data manually because they had forgotten to “clock”. In order to assist with the conditioning, employees were reminded to clock “in” or “out” by means of written notices in the lift and on the stairway of the building.

- Intervention with labour

The introduction of the biometric device was done by the author through inviting the then 2008 union representatives to attend a briefing session. The problems of the manual attendance register were explained, as well as the possible risk of receiving a qualified audit from the AG because of the problem. In order to obtain an objective view of the operations, a number of the union representatives of both SAMWU and IMATU were registered as users. In so doing they could gain first hand experience of the biometric time and attendance system. A second meeting was arranged to indicate the employer's intention to test the biometric time and attendance system.

- Dual registering

Due to the fact that the system was at a pilot stage during 2008, a dual function was introduced whereby employees were required to maintain the manual attendance register for the period until the biometric time and attendance system had been found adequate and approved as the official time management device for Stellenbosch Municipality. Employees were required to provide the manual attendance register as proof upon the AG's request. The time logged in the manual attendance register would reflect those times obtained from biometric reports provided via e-mail from the Human Resources Department. Supervisors would be able to have a check and control mechanism in place whereby the manual attendance register is controlled with the assistance of the biometric time and attendance reports. The reports provided more than reasonable confirmation that the employees indeed reported "on" and "off" duty on a specific day. It is important that the data obtained from the pilot biometric time and attendance reports during the "on" and "off" reporting can in no way be disputed. Data security would be discussed to explain the benefits and drawbacks during the pilot stage.

- Benefits

Information systems have to comply with the ability to maintain data integrity by being precise, accurate, unmodified and consistent (Le Roux, 2008:100). The

following benefits were identified – including the recommendations made by Le Roux (2008:100) – during the pilot stage of the biometric time and attendance system:

Table 5.1: Benefits of the biometric system during the pilot stage

What	Reason
Precision	It was established that no activities were registered to question the precision of the system
Accuracy	Accuracy of data took place with no conflicts due to malfunction
Modification	Modification of the system was only possible with the intervention of the provider.
Consistency	The system worked every day – without deviations in operation
Independent functioning without remembering any clock times	Responsibility to clock resides with the employee – without the intervention of a second person
Reports have multiple uses with set target hours per week	Reports display tendencies of the employee on specific days of the week in the analysis of clock times
Access available 24 hours per day	The access to the clocks are at the entrance doors of the building without any barriers that could prevent use
Time consumption minimised	No reports were received that rows of employees queued due to the slow operation of the time and attendance system.
Functioning	The functioning of the device is as fast as the effort by the user to report on and off duty.
Precision of operation has been established	No reports were received of employees experiencing conflict in the “on” or “off” duty reporting whereby their registered information could have been in conflict with another employee registered on the system
Electricity consumption minimal in a power over ethernet (POE) network using voice over internet protocol (VOIP) technology which ensures stable electrical power supply	Functioning takes place at 12 volts minimum and remains on standby until the green or yellow button has been depressed. The standby function ensures further power saving
Power over ethernet (POE) ensures no electrical variations due to the power spikes that could cause the destruction of the biometric devices	Stability has been secured by the POE to prevent direct influences from the electrical power supplier, ESKOM.

Source: Le Roux (2008:100)

- Drawbacks

The introduction of the time and attendance pilot project was a new concept for employees. The understanding that change needs to be done carefully, especially

with the presence of practices that were established decades ago were not adhered to by senior managers (Hopkins, *et al.*, 2005:10). The time and attendance project was not a priority although a tender for the services was approved. Furthermore, no approved policy and dedication was in place to implement and enforce corrective measures to the employee attendance problem.

The following drawbacks were identified during the pilot stage of the biometric time and attendance system:

Table 5.2: Drawbacks of the biometric system during the pilot stage

What	Reason
Electricity	The biometric system works only with a power supply or standby battery
Human intervention	The system cannot exist without the intervention of a human being to view and interpret the reports and to address missing clockings
Service delivery gap	The system will only register “on” and “off” clocking reports and requires supervisors to monitor employee conduct to secure efficient and effective service delivery
Presence and absence at work	The system functions without supervision and individuals can report “on” and “off” duty and be able to manipulate the system by leaving the work premises. It is imperative that supervisors be aware of the movements of subordinates during a working day in order to justify the payment to be received against the duties performed.

Source: Compiled by author (2009)

The drawbacks of the biometric time and attendance could be a direct consequence of the following:

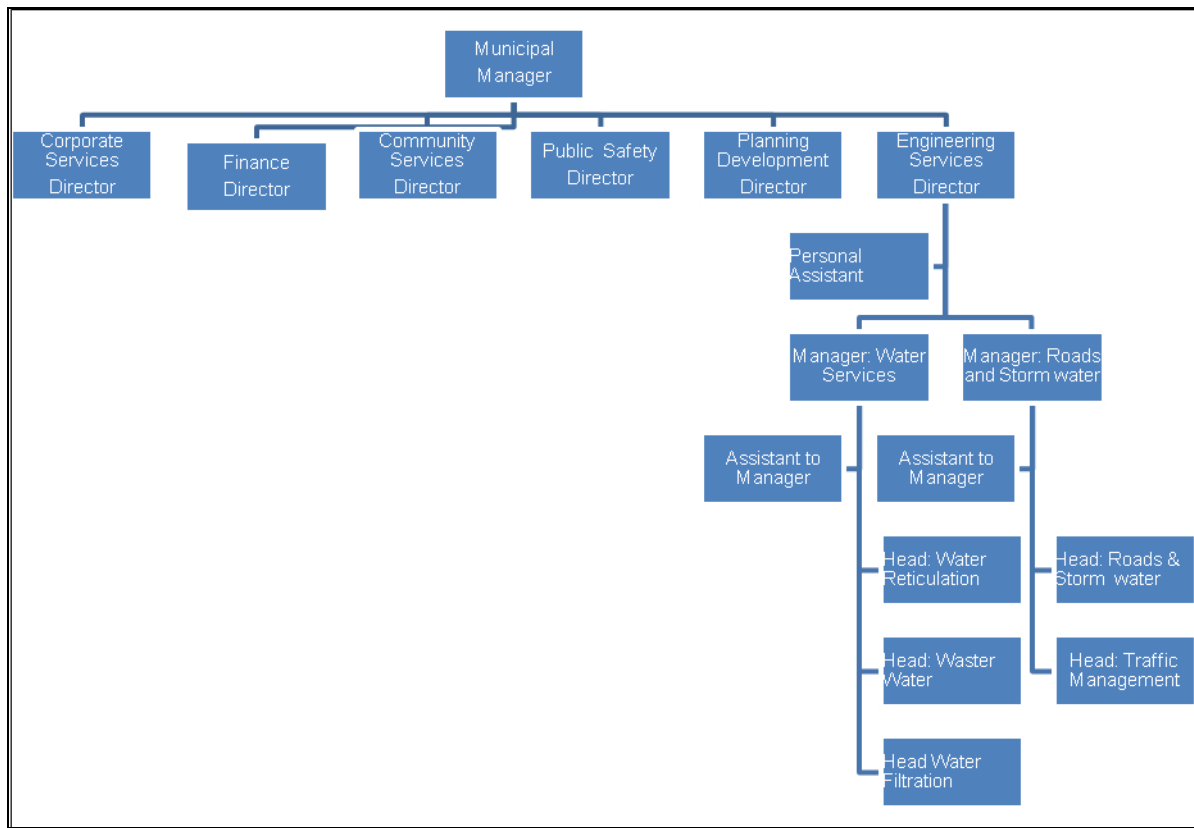
- absence of buy-in;
- absence of strategic direction;
- intervention of directors; and
- constant cancellation of meetings with stake- holders.

Although a tender was approved, the immediate buy-in of the then manager in the Human Resources Department was non existent. The efforts to reach senior management were carried out on own initiative because of the absence of immediate supervisor support. Unconvinced acceptance prevailed because of the absence of direction shown by management towards employee attendance. Bureaucratic red tape slowed the project down even after the tender was approved on 27 November 2008. Continuous cancellations of arranged meetings with directors regarding this project confirmed that the manual attendance register was preferred despite all its disqualification threats.

5.4 Administrative staff

Administrative employees can be classified as those who perform office bound duties and render their services during the day from 08:00 – 16:30. Diagram 5.1 provides an indication of administrative staff from the Municipal Manager, Directors, Managers, Assistants and Heads of sections. Every directorate has an administrative and operational staff component. All the employees within the positions of directors, managers and heads can be considered as administrative staff. The Engineering Services directorate was selected because it provides a segment of both office bound, administrative staff and operation staff.

Diagram 5.1: Depicting administrative staff with an expansion of operational staff at the engineering services directorate



Source: Compiled by author, 2010

More than 80% of the administrative staff as indicated in diagram 5.1 uses the generic starting and ending times, 08:00 and 16:30. The first row of diagram 5.1 including the Municipal Manager depicts the strategic decision-makers of the municipality. The use of 08:00 and 16:30 as starting and ending times is not queried by supervisors when the signing of the manual attendance registers is done. The supervisor's signature confirms that the captured time is a true reflection of an employee's attendance record for a certain period. Moreover, manual attendance registers are not completed on a daily basis but rather at the end of the week or at end of the month. This became apparent because supervisors rarely sign registers daily, weekly or monthly. An organisational extensive reconciliation of employee attendance records is not required by Stellenbosch Municipality. Adding to the latter, no reporting line is in place which requires supervisors to report attendance assurances on a daily basis. Another misunderstanding exists with the logging of overtime for employees on post levels 1-5. Although overtime has been deemed for

emergency responses to service delivery, normal administration is classified within the same category, resulting in overspending of the salary budget. Employees at post levels 1-5 book overtime for administrative duties and claim it back as leave credits which is then taken at a later date within the financial year against their high salary tariff. The AG has to date not questioned the duplication risk in the employee attendance starting and ending times, as a major threat. On the other hand, the Basic Conditions of Employment Act (1997) warns against false entries in the attendance register (Langeveldt, 2009; RSA, 1997:34).

For the purpose of this study and due to their daily utilization of the biometric time and attendance system, four directorates were selected by the author to answer a questionnaire, (detail will be given later) namely Corporate Services, Engineering Services, Finance and Planning and Development

- Corporate Services

The first directorate to be assessed was the Corporate Services Directorate consisting of the Human Resources Department, Institutional Support and Administration and the Information and Communications and Technology Department. The Human Resources Department functions as the custodian of the introduction of the biometric time and attendance system.

- Finance

The Finance Directorate is a service department to all directorates at Stellenbosch Municipality. They are administrative staff and their duties are office bound. The employees in the Main building were allowed to use the biometric system after the project was expanded in May 2010.

- Engineering Services

Engineering Services consist of two departments namely Civil Engineering and Electrical Engineering. Civil Engineering Services is the largest department and

comprises 20% of the 1300 employees. Similar to the previously mentioned department they are involved with the delivery of essential services that are not bound by normal working hours. Electrical Engineering is responsible for the maintenance of all the electrical distribution substations and has the smallest number of employees. The question of monitoring employee attendance has a significant impact on this directorate because it is difficult to monitor employee attendance due to its diverse operations.

- Planning and development

This directorate is situated in the Main building and employees are mainly office bound - occasionally they conduct out of office work to do building inspections.

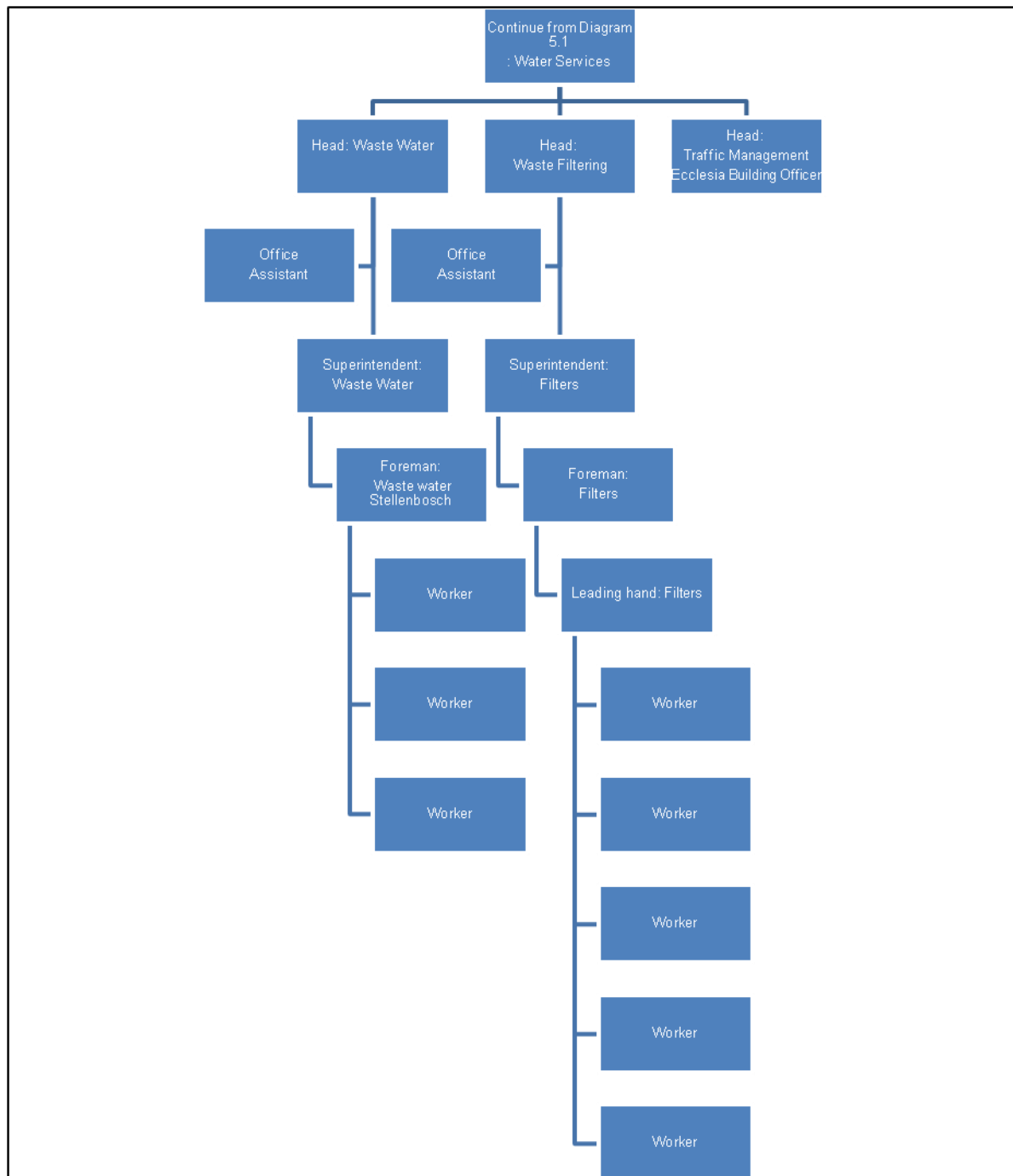
5.5 Operational staff

The operational staff can be classified as the employees who render a direct service to the community and services can range from waste water treatment to water filtration as indicated in diagram 5.2. They execute the services to the community as instructed by administrative staff. Employees lower than the head positions are considered as operational staff, namely superintendents, foreman, leading hands, operators and workers. The use of the manual attendance register by operational staff varies from 100% daily manual attendance register capturing to 100% disregard of the completion of the manual attendance register. Diagram 5.2 identifies operational staff from the position of superintendent and below. Deviations from having an individual manual attendance register are made whereby section attendance registers are created and ticked off on behalf of the employee who is either illiterate and do not want to reveal it or refuses to sign the manual attendance register. The majority of the operational staff makes use of section manual attendance registers which contain all the names of the work team in one book (Ras, 2010). A minority of the employee component refuses to sign the manual attendance register – the completion of a manual overtime sheet is considered of greater value because it provides remuneration at a higher rate per hour. Employees are required to sign the overtime sheet on a daily basis or alternatively, it is completed and verified by the foreman. Another factor that became apparent was that operational

staff such as superintendents does not wish to confront employees for non-compliance with regard to the completion of a manual attendance register and subsequently they complete it on behalf of ignorant employees. Employees classify the manual attendance register and the overtime sheet as two unrelated documents while both are paid out of the same salary budget (Vena, 2009). All the information on the overtime sheet has to appear on the manual attendance register for verification and reconciliation. The attendance register portrays a control function in the verification of overtime during the audit testing by the AG.

Diagram 5.2 provides an indication of operational staff of the water section within Engineering Services

Diagram 5.2: Indicates operational staff from the position of superintendent downwards



Source: Compiled by author (2010)

5.6 Gathering of research data

A questionnaire (See Annexure 1) was compiled during 2010 by the author to provide substance to the literature review and obtain realistic responses on the operation of the manual attendance register and the biometric time and attendance system. The questionnaire was compiled to examine the management of employees before and during a change management process. An e-mail was used as medium to distribute the questionnaires to 171 employees working inside the Ecclesia and Main buildings. A total of 77 (45,03%) of the respondents returned their questionnaires.

Table 5.3: Demographic information of the respondents

Post levels in hierarchy order	Stellenbosch post level structure as at Jan 2010	Post level of questionnaire participants	Percentage participation per post level
Highest	Senior Managers	Not participating	0.0%
Middle management	1-4	1-4	37,18%
Junior Management	5-7	5-7	37,18%
Lower levels	8-10	8-10	25,64%
	11-17	Not participating	0.0%

Source: Compiled by author (2010)

The demographic information of respondents provides an indication on the position that employees represent according to their seniority. The non-participation of senior managers in the use of the biometric time and attendance system is an indication of direction absence as well as non-compliance in the implementation of an employee attendance management system. Employees from the post levels 11 – 17 did not participate in the questionnaire.

Table 5.4: Educational levels of respondents

Qualification	Percentage
grade 12	22,08%
diploma	45,45%
degree	25,97%
postgraduate	6,49%

Source: Compiled by author (2010)

Table 5.5: The gender of respondents

Age group	Respondents	Female	Male
between 26 and 30	19,23%	12,82%	6,41%
between 31 and 35	42,31%	11,54%	30,77%
between 36 and 40	19,23 %	10,26%	8,97%
41 years and older	19,23%	16,67%	2,56%

Source: Compiled by author (2010)

The questionnaire was compiled bearing the following themes in mind:

- Driving forces to determine the amount of motivation of employees to use or not to use the manual attendance register and biometric time and attendance system. The purpose will clarify if employees see the use of employee management strategies as a practical tools or instruments of frustration with no constructive goals in mind. It will also highlight the spirit in which every respondent execute this daily reporting duty. ;
- Human Capital to emphasise the human assets of Stellenbosch Municipality. The value of employees cannot be determined but their actions can allow the generation of income when delivering services. This theme will clarify the amount of value that is attached to employees and their institutional memory;
- Expenditure refers to the amount of money that is deposited into the payment of employees to render a service. The payments are made for remuneration

such as salaries and overtime. This theme will allow respondents to provide their views on the functioning of an effective and efficient organisation; and

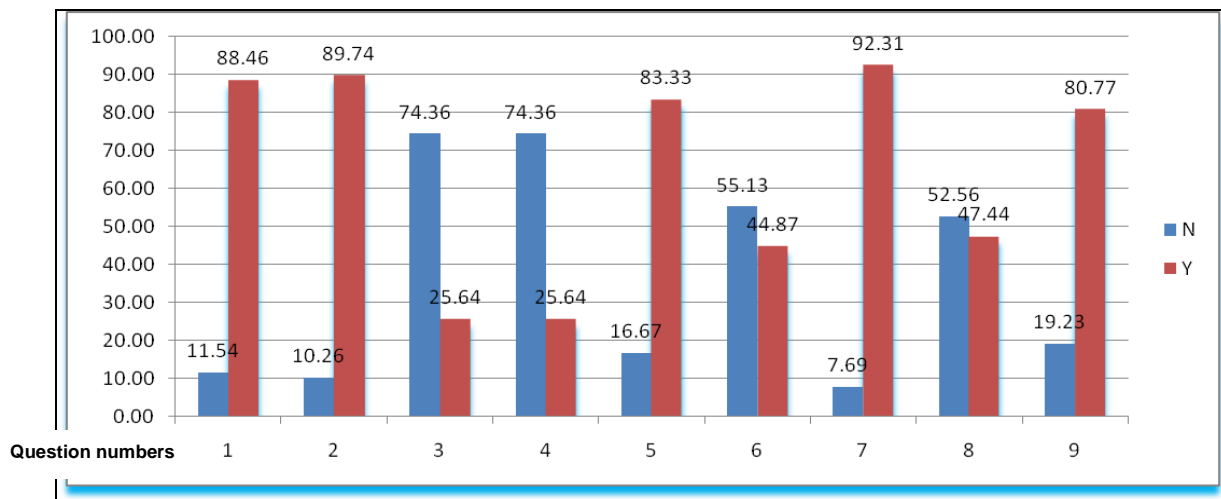
- The accountability theme will investigate the responsibility of employees while using the manual attendance register and the biometric time and attendance system.

Analysis was done by means of univariate tabulation whereby the questions were analysed one at a time (Struwig & Stead, 2010:154). The use of open ended questions allowed respondents to substantiate their answers with additional motivations.

5.6.1 Discussion and analysis of questionnaire response results

The results from the respondents addressing the questions per theme are as follows:

5.6.2 The Driving Forces behind the introduction of the change process



Graph 5.1: Driving Forces behind the change process

Source: Compiled by author (2010)

Question 1 determined how many respondents use both the manual and biometric attendance registers in the Ecclesia and Main buildings. The use of the manual attendance register and the time and attendance system can be used to validate the required daily reporting action of employees. Employees were allowed to use both the manual attendance register and the time and attendance system because the

decision to adopt an alternative attendance system was not approved by the employer. In order to participate in the biometric time and attendance pilot project employees were requested to scan upon reporting “on” and “off” duty. The utilization of both systems allowed the study of both mediums of employee attendance reporting. The respondents reacted positively whereby 88,46% indicated that they use both registers, while 11,54% did not use both mediums to capture their daily attendance.

Question 2 was posed to determine who complete the manual attendance register on a daily basis in the attendance register. A total of 89,74% of the respondents revealed that they capture their attendance in the manual attendance register on a daily basis, whereas 10,26% do not maintain the register daily.

Question 3 investigated the percentage of respondents who complete their manual attendance register on a weekly basis. A total of 74,36% of the respondents indicated that they do not complete their manual attendance register on a weekly basis, while 25,64% do.

Question 4 wished to establish how many respondents completed their manual attendance registers on a random basis. A total of 74,36% of the respondents do not complete their attendance registers randomly, while 25,64% do.

Question 5 examined if an alternative to the manual attendance register is necessary. A total of 83,33% of the respondents agreed to the search for an alternative, while 16,67% were satisfied with the use of the manual attendance register.

Question 6 investigated how many respondents use 08:00 and 16:30 as starting and ending times during any given day in relation to the biometric system that provides real-time attendance confirmation. A total of 55,13% of the respondents deny the use of the set times to capture their attendance in the manual attendance register, while 44,87% confirm the use of the 08:00 and 16:30 starting and ending times.

Question 7 highlighted the existence and identification of any limitations in the operation of the manual attendance register. A total of 92,31% of the respondents confirmed the existence of limitations with the use of the manual attendance register, while 7,69% denied this.

Question 8 investigated the identification of any limitations in the operation of the biometric time and attendance system. A total of 52,56% denied the existence of any limitations within the use of the biometric time and attendance system, while 47,44% confirmed definite limitations.

Question 9 explored the supervisor's contribution towards the effectiveness of the manual attendance register. A total of 80,77% of the respondents agreed to the important role of the immediate supervisor in the use of the manual attendance register, while 19,23% disagreed.

The Driving forces theme has been analysed with the submissions made by respondents to clarify their viewpoints.

5.6.3 Analysis of the Driving forces theme

The same themes as in the questionnaire will be used to reach an objective analysis of the respondents' to:

- Provide necessary and valid interpretations;
- Cover reasonable theoretical and practical analysis ; and
- Be unbiased to the results at hand

The results under the theme, driving forces in question 1 indicated that 88,46% of the respondents use both the manual and biometric attendance registers to capture their attendance. Secondly, they confirm their significant use of employee attendance monitoring in question 2 as an important tool whereby 89,74% of the respondents complete their manual attendance register on a daily basis. A further confirmation has been received with the completion of question 3 whereby 74,36% of the respondents declare that they do not complete the manual attendance registers

on a weekly basis. Respondents revealed in their responses that 15,38% are not using the manual attendance register on a daily basis if the “yes” results of question 3 (25.64%) and question 4 (25.64%) are deducted from the “no” result from question 2 (10.26%).

Question 3 and 4 serve as a control measure to question 1. A difference has been registered in the “yes” results of question 1 (88.46%) and 2 (89.74%) as well as the “no” results of question 1 (11.54%) and 2 (10.26%). If the respondents react consistent the results of question 1 and 2 must be the same. A response was received on the differences and similarities while using the manual attendance register. This was to determine if employees are reporting “on” and “off” duty on a daily basis.

The response received in question 3 confirms that 25,64% are completing their attendance register on a weekly basis. The responses in question 3 indicate an inconsistency. The combined “yes” results of question 1 (89.74%), question 2 (25.64%) and question 3 (25.64%) must add up to reach 100%. The actual result of question 1,2 and 3 is 141.02%. This gives an indication that the respondents did not act consistently to what they practice. The inconsistency can be substantiated with open ended results received from respondents whereby confirmation was received that it is difficult to remember the “on” and “off” duty reporting times of the previous day; a second response was revealed whereby starting times on the biometric clock are written down and later captured in the manual attendance register; that the capturing of attendance in the manual attendance register once a week will not be accurate because the employee will not be able to remember the correct times per week upon capturing; and the completion of a manual attendance register is time consuming and the existence of the risk that the manual attendance register could be lost.

The response obtained for question 4 is flawed because the response for questions 1, 2 and 3 is not a true reflection of occurrences as claimed by the respondents. It will therefore not be possible to analyse the results as a true and just indication to establish who complete their manual attendance register on a random basis although 25,64% of the respondents claim they do.

Clarity has been reached in question 5 that 83,33% of the respondents are in favour of an alternative to the manual attendance register, while 16,67% want to continue using the manual attendance register. The respondents in favour of the continuous use of the manual attendance register displayed satisfaction in the ambiguous conduction of attendance measurement because it allows for inconsistencies due to the absence of real-time attendance confirmation. Some respondents in favour of an alternative to the manual attendance register revealed in their responses that the manual attendance register is a vague indication of employee attendance. Further indication was given by respondents that the employer would pay for services rendered by employees without any proof to substantiate their claims for compensation.

A total of 55,13% of the respondents indicated in question 6 that they make use of 08:00 and 16:30 on a daily basis as their “on” and “off” duty manual attendance register reporting times. The respondents confirm that the use of these starting and ending times does not confirm any real-time event that could without any doubt confirm the employee’s arrival and departure to and from work. These two time indicators, namely 08:00 and 16:30, serve as an instrument to manipulate and confirm the absence of effective and efficient employee attendance monitoring because the times can be added without any confirmation whether the employee arrived on time. Furthermore, it allows employees to conveniently use these times without taking responsibility for late arrivals and early departures.

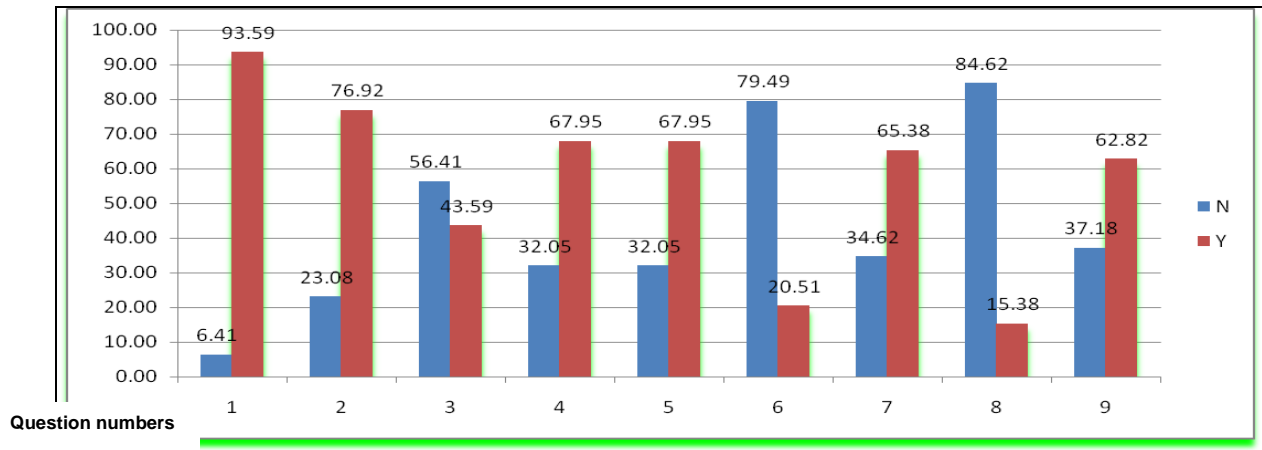
A majority of the respondents focused in question 7 on the time that was lost with the completion of the manual attendance register. An alternative must be able to save time and improve the monitoring of employees while on duty. Furthermore, respondents identified the manipulation of time with the manual attendance register as a concern because it is not portraying a realistic account of events. Ample room is available to write the normal times of 08:00 and 16:30 and no concerns will be raised by superiors. Supervisors on the other hand do not sign the registers of their subordinates on a regular basis to identify the irregularity with the capturing of attendance data. Respondents identified a flaw in the use of the manual attendance register as it does not compliment any check and control measures by recording daily attendance occurrences as they occur.

The respondents replied in question 8 in contrast with question 5 – the latter promotes the search for an alternative to the manual attendance register. The respondents pointed to the absence of biometric attendance reports as a reason for not being well informed about the operations of the biometric time and attendance system. The availability of biometric attendance reports for the biometric system can be attributed to the lack of communication from the administrative to the operational staff. Other respondents focused on the location of the clocks due to limited information surrounding the purpose of the biometric time and attendance clocks at the entrance doors. It became obvious that some of the respondents assume their responsibility around the tasks as drafted within their job description and thus did not include the daily “on” and “off” attendance reporting in their routine. A concern was raised that the introduction of the biometric time and attendance would restrain their movement “in” and “out” of the office because they will be compelled to clock for movements “in” and “out” of work premises. A further concern was raised by a respondent regarding the human element of forgetfulness to clock, as well as the occurrence of incidents such as emergencies that could possibly prevent an employee from clocking.

The effectiveness of the supervisor in the management of the manual attendance register has been highlighted in question 9 as an imperative factor of employee supervision. Respondents indicated that supervisors must be readily available to oversee the actions of their subordinates. Respondents confirm that employees are not aware that their supervisors are duty-bound to manage the movement of subordinates during working hours. Although the majority of the respondents agree that they are responsible for their own attendance register recording in either the manual attendance register or by using the biometric time and attendance system. Subordinates are of the opinion that the supervisor is the primary accountable person, while fact is that accountability starts with every employee. The respondents made it clear that supervisors have an oversight responsibility over subordinates. The lack of people management and supervisory skills contributed to the disregard for authority by subordinates.

The next theme will investigate human capital as an important component in the delivery of services in local government.

5.6.4 Human Capital



Graph 5.2: Human Capital behind the change process

Source: Compiled by author (2010)

The theme, human capital was used to determine the importance of employees as an asset for Stellenbosch Municipality.

Question 1 highlighted the monitoring of employee attendance as a priority. A total of 93,59% agreed that the monitoring of employee attendance is a priority, while 6,41% believe it is not.

Question 2 revealed the *lead-by-example* demonstration by supervisors. A total of 76,92% of the respondents indicated that their supervisors were setting an example by using the biometric clock for attendance, while 23,08% confirmed the opposite.

Question 3 investigated the existence of proper control with regard to the use of the manual attendance register. A total of 56,41% indicated that they do not experience proper control with the use of the manual attendance register, while 43,59% confirmed that it does exist.

Question 4 probed the question if the biometric time and attendance system provides more data on employee attendance. A total of 67,95% agreed that more data was

made available by means of the biometric time and attendance system while 32,05% experienced the opposite.

Question 5 investigated the relationship between the biometric time and attendance system and accountability. A total of 67,95% agreed that the biometric time and attendance system addresses accountability, while 32,05% were of the opinion that it did not.

Question 6 examined the effectiveness of the manual attendance register without the intervention of the supervisor. The purpose of this question was to confirm a link with the accountability theory as revealed in question 5. A total of 79,49% confirmed that the manual attendance register cannot exist without the intervention of the supervisor, while 20,51% agreed to the independent existence of the manual attendance register.

Question 7 revealed the probability that the biometric time and attendance system addresses problems experienced with the manual attendance register. A total of 65,38% of the respondents agreed to the fact that the biometric time and attendance system addresses problems experienced with the manual attendance register, while 34,62% denied that the biometric time and attendance system addressed problems that were identified with the manual attendance register.

Question 8 investigated the response time of the biometric time and attendance system in relation to the capturing of attendance data in the manual attendance register. A total of 84,62% of the respondents agreed that 0,2 seconds does not impact on the employees time when reporting “on” or “off” duty, while 15,38% are of the opinion that the 0,2 seconds impeded their work performance.

Question 9 probed the firmness of their supervisors in the monitoring of employee attendance. A total of 62,82% of the respondents confirmed that their supervisors were firm enough, while 37,18% claimed the opposite.

The Human Capital theme has been analysed with the submissions made by respondents to clarify their viewpoints.

5.6.5 Analysis of the Human Capital theme

The majority of the respondents, namely 93,59%, confirmed in question 1 that the monitoring of employee attendance was a priority. This response confirmed the importance of employees as an asset. Respondents clarified their responses by confirming the legislative requirement of the employer to monitor employees. The respondents identified the uncontrolled movement of employees during working hours, as well as the unnecessary absenteeism as motivations to oversee employees who are receiving remuneration. A demand for honesty was propagated by certain respondents during their open ended responses – their point was that employees are receiving pay for poor services rendered and they are labelled as participants in theft by depriving the recipients of basic services.

The respondents indicated in question 2 that supervisors need to set an example to subordinates. The misuse of authority by supervisors by arriving late at work and leaving early has been another concern for respondents and they are using this questionnaire to speak out. The use of the biometric time and attendance system will highlight early departure from work and late reporting for duty.

Respondents confirmed in question 3 - with 56,41% - regarding the lack of control with the use of the manual attendance register. Secondly, that the manual attendance registers had not received the mandatory amount of consideration as required by legislation. Thirdly, that proper control was never experienced with the use of the manual attendance register.

Question 4 confirmed that 67,95% of the respondents agreed that the controls of the biometric time and attendance system were in place. Employees are obliged to check the biometric time and attendance reports on a regular basis to verify their correct use of the reporting buttons on the scanning device.

Question 5 identified the biometric time and attendance system operational features as they are viewed by respondents. Respondents revealed that the reporting times of the biometric time and attendance system were accurate and tamper proof. Trust

has been established in the accuracy of the biometric time and attendance system and the reports are directed per individual to address the question on accountability.

Respondents indicated in question 6 about the importance of supervisor intervention. They confirmed - with 79,49% - that the use of the manual attendance register relied on the contribution of supervisors to manage employees effectively. Supervisors are supportive in nature and the manual attendance register cannot exist without this type of support. Respondents confirmed the interdependence between the supervisor and subordinates as well as the essentiality of monitoring employees by means of a manual attendance register.

Respondents confirmed in question 7 - with 65,38% - that the biometric time and attendance system offered solutions for the manual attendance register by providing a true reflection by means of real-time attendance reporting. Respondents made it clear that the manipulation of the manual attendance register by employees and the lack of control by supervisors, defeat the purpose of the attendance monitoring.

Question 8 started a new discussion with the application of the biometric time and attendance system whereby 84,62% of the respondents were convinced that the time spent at the biometric time and attendance clock was insignificant in relation to updating the manual attendance register. The time spent to clock "in" or "out" at a biometric time and attendance clock would be to the advantage of the employer and the citizens because less time would be required to report for duty in comparison to completing a manual attendance register.

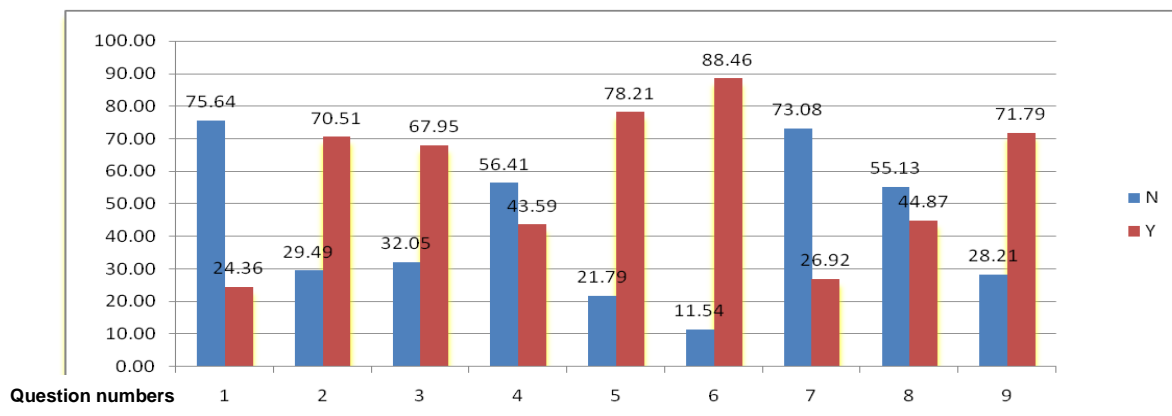
Question 9 revealed that 62,82% of the respondents confirmed that their supervisor was firm enough with regard to employee attendance matters. No motivations were received from the respondents to analyse this question further.

The analysis of the Human Capital theme confirmed the importance of employees to render basic services. It has been confirmed by respondents that the success in the delivery of services depends on the management of employees. Although the conduct of supervisors is not in sync with the obligation of the employer, efforts need to be made to prevent the mismanagement of people who are an asset.

Furthermore, efforts need to be made to inform all employees about the overseer's function of supervisors, as well as the legislative obligation of the employer to manage employees.

The next theme will examine Expenditure as an important component in the delivery of basic services within local government.

5.6.6 Expenditure



Graph 5.3: Expenditure behind the change process

Source: Compiled by author (2010)

Question 1 investigated the control measures when using the manual attendance register - 75,64% of the respondents agreed to the fact that savings cannot be made with the use of the manual attendance register, while 24,36% were of the opinion that savings could be made.

Question 2 tested opinions if savings would be possible on the overtime budget with the use of the biometric time and attendance system. A total of 71,51% of the respondents were of the opinion that savings could be made on the overtime budget, while 29% were not convinced.

Question 3 determined if any efforts towards savings on the salary budget was possible. A total of 67,95% of the respondents were of the opinion that savings will be possible, while 32,05% were not convinced of any efforts.

Question 4 was posed to determine if supervisor monitoring could reflect within the salary and overtime spending within their respective departments. A total of 56,41% of the respondents indicated that they were not convinced that supervisor monitoring could contribute in addressing salary and overtime spending, whereas 43,59% were are convinced that supervisors could contribute effectively.

Question 5 investigated if guidelines were in place to address employees who fail to report on duty. A total of 78,21 % of the respondents were of the opinion that guidelines were in place to address employees who fail to report on duty, while 21,79% disagreed.

Question 6 investigated if the question on employee attendance would be addressed by the use of the biometric time and attendance system. A total of 88,46% of the respondents agreed that the biometric time and attendance system would address the issue of employee attendance by means of real-time “on” and “off” duty clocking, while 11,54% were not convinced.

Question 7 investigated if guidelines were deployed to prevent overspending of the overtime budget with the use of the manual attendance register. A total of 73,08% of the respondents disagreed with the presence of sufficient guidelines to prevent the overspending of the overtime budget because employee attendance monitoring with the use of the manual attendance register were not in place, while 26,92% agreed that enough was done to prevent overspending.

Question 8 investigated the functionality of overtime pre-approval as an effective control measurement to curb overspending as approval was granted for working after hours without certainty that the relevant tasks were considered as emergency work. A total of 55,13% disagreed with the effectiveness of the overtime pre-approval, while 44,87% agreed with the use of this mechanism to control overtime spending.

Question 9 considered the possibility that the biometric time and attendance system would compensate for the human element during employee attendance monitoring. A total of 71,79% of the respondents agreed that the biometric time and attendance

system would compensate for the human element in employee attendance monitoring, whereas 28,23% were not convinced.

The Expenditure theme has been analysed with the submissions made by respondents to clarify their perspective.

5.6.7 Analysis of the Expenditure theme

The management of expenditure is a service delivery activity for local government organisations. Income is generated from the delivery of services, as well as rates and taxes.

Respondents confirmed in question 1 - with 75,64% - that the management of the manual attendance register was not favourable for savings on the annual budget. They were of the opinion that it was wasteful and lacked control measures for employee attendance whereby the latter left the premises during working hours without the approval of supervisors. Various reasons, such as disputing control measures, were confirmed, as well as the lack of positive influence by supervisors whereby employees stayed away from work without monies being deducted. The respondents revealed that in certain situations no manual attendance register had been kept, resulting in the incorrect capture of normal working hours and overtime claims. No punitive actions were instituted against the employees who inflated their overtime claims. Further responses identified that the use of paper and ink expenses could be minimized by using the biometric time and attendance system. The abovementioned responses gave an indication that proper control of the manual attendance system was lacking.

Savings on overtime was identified by respondents as an area that required proper control measures. The majority of respondents in question 2 confirmed - with 71,51% - that they were of the opinion that savings on the overtime budget was possible with the biometric time and attendance system.

Question 3 revealed that 67,95% of the respondents agreed that savings could be made in the salary budget by using the biometric time and attendance system; the

number of vacancies needed to be minimized to lessen the overtime expenditure rate; absenteeism needed to be addressed to counter the sudden urgency for overtime; honesty needed to be promoted to prevent the inflation of overtime worked. Investment in present employees was necessary. Further reasons given by respondents revealed that an appreciation for good work needed to be displayed by supervisors to develop a service driven workforce; the boosting of morale would enhance the overall performance of employees; rewards for outstanding performance was important; and staff at lower levels should be included in performance management. Respondents were of the opinion that a contented worker in his/her working environment would be able to deliver more effective services without asking for additional payment.

Respondents indicated in question 4 - with 56,41% - that salary and overtime spending and the assistance of supervisors were a concern; that no system controls were in place for duties rendered as overtime; calculations for overtime were done in the respective sections and accepted as true and just reflections of hours worked, and inadequate supervision existed with regard to the handling of overtime calculations. The respondents were of the opinion that the aforementioned reasons were not conducive to regulate salary and overtime spending. Additional solutions were suggested by respondents whereby:

- Overtime must apply for essential departments and attendance needed to be in line with such requirements;
- The booking of overtime should not encouraged;
- Overtime should only to be booked in cases of emergency and motivated to the relevant director for approval; and
- Overtime worked should be considered as an investment in the community without the claim of a monetary incentive.

Respondents indicated in question 5 that guidelines exist to employees to in the event that employees fail to report on duty - 78,21% of the respondents were of the opinion that guidelines should be in place to address absenteeism. Concerns over the application of attendance guidelines surfaced because responses were received

where absenteeism matters were not addressed with remedial actions such as discipline or salary deduction in relation to the absent days while using the manual attendance register; supervisor conduct in absenteeism situations was a concern and passion for the delivery of service remained absent.

Respondents were convinced with regard to question 6 - a total of 88,46% - that the biometric time and attendance system could address the question on employee attendance and serve as a control measure. They indicated that the biometric time and attendance system would specify if an employee worked on a particular day. Effective time management would be secured in the absence of a supervisor.

Respondents made it clear in question 7 - with 73,08% - that the control measures for the management of overtime were lacking because no control was exercised over the number of hours worked when using the manual attendance register.

The respondents agreed in question 8 - with 55,13% - that the application of overtime pre-approval on the manual overtime sheet was flawed – there were many inconsistencies. Clear patterns of overtime usage were not detected and overtime exceeded the labour law limits which requires not more than four hours per day, and not exceeding 12 hours in a 24 hour day.

The respondents confirmed with the response of question 9 that the human element in the management of subordinates would always be of concern - while using the manual attendance register. The biometric time and attendance system would compensate for the absence of human element in the use of the manual attendance register. The use of the manual attendance register cannot be seen as an effective measure to monitor employee attendance because the objectivity of the human element is not trust worthy.

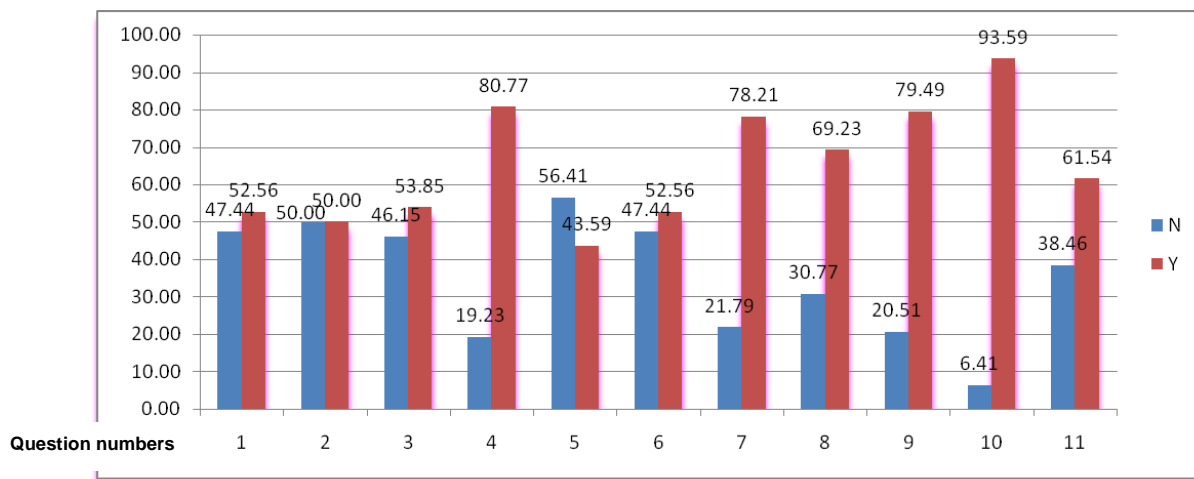
The management of expenditure plays an important role in the delivery of essential services to the community. The concerns raised by respondents' highlights the existence of poor management of public funds with no tangible effort to improve envisaged. It was alarming that the concerns raised were not featured in any

auditor's report. The issue of a pre-approved overtime sheet by directors confirmed the inability to introduce corrective measures as expenditure controls.

The next theme will examine accountability as an important component in the delivery of basic services within local government.

5.6.8 Accountability

Stellenbosch Municipality budgets and utilizes funds to remunerate employees for services rendered. The Auditor General requires accountability from the Municipality for income generated and expenses incurred on an annual basis.



Graph 5.4: Accountability behind the change process

Source: Compiled by author (2010)

Question 1 investigated the dedicated measures to verify employee attendance in their respective workstations while using the manual attendance register. A total of 52,56% agreed that dedicated measures were in place to verify employee attendance at their work stations, whereas 47,44% disagreed to the existence of any verification measures.

Question 2 disclosed the application of proper control by supervisors in the management of the manual attendance register. A total of 50% agreed that proper control existed by means of regular checking of employee work areas and checking

of attendance registers more than three times a week, while 50% disagreed on the implementation of proper control.

Question 3 revealed the management style to be followed in the event that an employee failed to maintain his/her manual attendance register. A total of 53,85% of the respondents believed that the matter of such an employee needed to be addressed in general meetings, while 46,15% intimated that the matter should be taken up with the relevant individual.

Question 4 determined if the biometric time and attendance system would allow proper employee attendance monitoring. A total of 80,77% of the respondents agreed to the monitoring of employee attendance by means of the biometric time and attendance system, while 19,23% disagreed with the correctness of the biometric time and attendance technology.

Question 5 investigated if the biometric time and attendance system and its impact were discussed by supervisors with their subordinates. A total of 56,41% of the respondents had never heard their supervisor discussing the biometric time and attendance system or its impact on normal operations, while 43,59% intimated that they had been part of such discussions.

Question 6 revealed the number of absenteeism matters that had been discussed in the past year with reference to the manual attendance register and biometric time and attendance system. A total of 52,56% of the respondents confirmed that they were part of discussions on absenteeism during the past year, while 47,44% intimated that they had never been included in any discussions of this nature.

Question 7 determined if accountability was addressed by the use of the biometric time and attendance system. A total of 78,21% of the respondents agreed that the biometric time and attendance system would address accountability, while 21,79% disagreed.

Question 8 determined the existence of any complaints against the biometric time and attendance system. A total of 69,23% of respondents were aware of complaints

against the biometric time and attendance system, while 30,77% were not aware of any complaints.

Question 9 investigated if employees would take responsibility in using the biometric time and attendance system. A total of 79,49% of the respondents agreed that the employees would take responsibility when using the biometric time and attendance system as an attendance clocking device, while 20,51% disagreed.

A total of 93,59% of the respondents confirmed in question 10 that employees would take responsibility of the time and attendance system if approved as the official attendance register, while 6,41% remained unconvinced.

Question 11 investigated if employees were aware of the responsibility that lies with the employer in monitoring employee attendance. A total of 61,54% of the respondents were aware of the responsibility of the employer, while 38,46% claimed they were not aware of the employer's responsibility.

The accountability theme has been analysed with the submissions made by respondents to clarify their viewpoints.

5.6.9 Analysis of the Accountability theme

Municipal officials need to be held accountable when spending money allocated for budget expenses such as salary and overtime remuneration. The existence of control measures within the Salary and Human Resources Departments gives an indication of whether preventative expenditure processes have been introduced.

Respondents indicated by means of question 1 - with 52,56% - that ample measures were in place to verify employee's attendance. A further suggestion has been made by a respondent to request regular feedback from supervisors concerning employee attendance patterns. The indicated percentage of respondents confirmed the existence of processes, as well as the ignorance to adhere to it by the guidelines laid down.

Confirmation has been received from the respondents in question 2 whereby 50% confirmed that proper control was exercised by supervisors in management of the manual attendance register. The other 50% disagreed with the management of the manual attendance register. It became apparent that respondents found it difficult to give a clear indication on the conduct of their respective supervisors in critically analysing their management style. This can also be an indication of the absence of any strategy in the management of subordinates. Previous responses confirmed the conduct of supervisors on the contrary, namely – that during the responses of the driving forces theme under question 9, the respondents revealed the following: Supervisors were viewed as an important role player in the management of the manual attendance register; clarity did not exist where supervisors were compelled to manage the movement of employees during working hours; the accountability of supervisors was not clear or not fully understood by the incumbents. The responses revealed the following while examining the Human capital theme revealed in question 1: - that employee attendance monitoring was a priority and that supervisors needed to *lead-by-example*; absenteeism was not well managed by supervisors; employees were receiving pay for poor services rendered; employees were stealing from the taxpayers. The following revelations were made as responses to question 2 whereby supervisors should set an example and not arrive late at work and leave early. Further responses indicated the misuse of authority as a concern. In the responses received on question 6 of the same theme, respondents confirmed - with 79,49% - that the manual attendance register could not exist without the intervention of the relevant supervisor; the overspending of the salary and overtime budget showed another viewpoint on the responses received. Furthermore, confirmation had been received to the effect that employees were not disciplined for absence without leave; or leaving the premises without permission or the absence of instituting penalties for deductions which should be made regarding absence without leave.

Question 3 revealed a firm approach towards employees with incomplete attendance registers - 53,85% of the respondents requested that the employee in question needed to be addressed in public meetings. The aggressive stance of respondents reflected on improper management of employee conduct while addressing attendance matters in general meetings; the feedback received from respondents

related to generalised approaches when employees needed to be addressed for not completing the attendance register on time.

Respondents confirmed in question 4 about the accuracy of the biometric time and attendance system, as well as the prevention of human error. Human interaction is an important factor while managing subordinates. The majority of the respondents confirmed the existence of discussions on the biometric time and attendance system during its pilot stage. Although some respondents welcomed the immediate implementation of the biometric time and attendance system, supervisors acted as the extension of management's vision and mission by applying check and control measures on biometric time and attendance reports and sustainable administration depended on the degree of supervisory action applied with regard to subordinate conduct. Furthermore, respondents confirmed that the precise indication of time by means of the biometric time and attendance system addressed accountability. The exact indication of reporting times provided clear guidelines and supervisors were required to comply in a responsible manner.

Respondents confirmed in question 5 that 43,59% were exposed to discussions of supervisors pertaining to the biometric time and attendance system and its impact on Stellenbosch Municipality. The low percentage of exposure points to a gap in communication between supervisors and subordinates because the project was started in the Ecclesia building and later expanded to the Main building. Employees who were entering or leaving these buildings during the morning or afternoon reporting were exposed to the clocking actions of fellow colleagues. In the event that they were not included in discussions on the use of the biometric time and attendance system indeed reflected on poor supervision.

Respondents indicated - with 52,56% - in question 6 that absenteeism matters were discussed in their presence during the past year. In two instances, punitive measures such as a verbal and a written warning were instituted to address the misconduct of employees while absent without supervisor approval.

Respondents confirmed - with 78,21% - in question 7 that their accountability would be addressed by the use of the biometric time and attendance system. This

indication was provided to strengthen their view on the importance of a people management system that could work in the interest of all employees.

Respondents indicated in question 8 that 69,23% became aware of complaints against the biometric time and attendance system. The complaints raised were from union representatives and expressed in a generalised manner – these included employees that felt threatened and under scrutiny; individuals that did not wish to comply; no training was a reason mentioned in defence for not using the system; claims that there was no consultation and communication on the new biometric time and attendance system were raised and biometrics to the employees.

A confirmation of 93,59% in question 10 indicated that respondents would take responsibility of the time and attendance system if it was approved as the official attendance register. The question revealed that employees were looking for guidance from the employer regarding the implementation of the biometric time and attendance system.

Respondents indicated in question 11 - with 61,54% - that they were aware of the employers' responsibility pertaining to the monitoring of employee attendance. They declared that the completion of an attendance register was part of their responsibility although it was not captured in their job descriptions. Communication plays an enormous role in the management of any organisation. The respondents indicated that the responsibilities of the employer were not always understood by the employees, because:

- All were not informed about the role of the employer;
- Employees were not aware of the administrative disorder surrounding the management of the manual attendance register as a result of no corrective measures being imposed;
- The responsibilities of the employer must be shared with all employees in order to reach a common understanding.

5.7 Conclusion

The various indications of how employees maintain their manual attendance registers are a cause for concern. The maintaining of a manual attendance register on a weekly, monthly or random basis means that respondents may lose out on important employee attendance occurrences earlier in the week or month, because they rely on short-term memory to provide “on” and “off” duty times. The later recollection of these attendance data entail the risk of not being a true reflection of reporting “on” or “off” duty. The importance of an alternative to the manual attendance register cannot be emphasised enough. Continuously repeating the starting and ending times of 08:00 and 16:30 is an indication that the administration of employee attendance has led to a financial loss, because employees have received their full salaries and no proof exist if their hourly service rendered equals the remuneration received. No measures are in place to capture the precise arrival or departure times of employees with the use of the manual attendance register. The fact is that the weaknesses of the manual attendance register have a stronger negative economic impact in comparison to the biometric time and attendance system. The limitations of the biometric time and attendance system are insignificant in relation to those of the manual attendance register.

The monitoring of employees must be considered as a priority, since one third of the operational budget has been allocated to pay salaries to employees for the rendering of services. The poor management of the manual attendance register highlighted the need for greater accountability at employee and supervisor levels. The availability of employees is crucial for the effective delivery of services, as well as reducing the amount of time spent to complete a manual attendance register. In order to obtain full understanding of Stellenbosch Municipality’s responsibility towards the community, employees need to be aware that such employee attendance monitoring is a compulsory mandate enforced by legislation.

Respondents confirmed on numerous occasions in their responses that the manual attendance registers needs to be replaced and a search for an alternative was imperative. The importance of the views of employees cannot be stressed enough

and their value needs to be affirmed. The management of funds is also imperative, because effective controls will minimise losses. Control measures need to be in place irrespective of the working environment. The roles of the supervisor, subordinates and the employer need to be clarified and communication channels need to be in place to secure an understanding of legislative compliance. The use of the biometric time and attendance clock has indicated that savings can be made. Although sufficient guidelines are in place to control overtime spending, this process needs to be properly formalised and the use of the pre-approval overtime form must be discontinued. The limitations of the human element in the regular checking and controlling of manual employee attendance registers will be substituted with the use of real-time monitoring of the biometric time and attendance system. The rights of employees will be protected, because they will not be paid less for services they have rendered. Furthermore, their presence can be confirmed on any particular day, because they need to be present to provide their fingerprints for scanning and thus confirming of attendance.

An indication of sufficient communication with subordinates would have been beneficial towards the respondents concerned. Various complaints such as the invasion of privacy were raised about the biometric time and attendance system, which is an indication that some respondents would like to preserve the element of uncertainty in employees' reporting their arrival and departure from work. In the event that the biometric time and attendance system will be approved by the employer as the official employee attendance register, the employees will accept their responsibility, because the burden of maintaining a manual attendance register will become evident.

The following chapter will be an evaluation of chapters 2, 3, 4 and 5 in relation to the change perspective that was researched with regard to the implementation of a biometric time and attendance system.

CHAPTER 6

EVALUATION OF CHANGE MANAGEMENT DURING THE IMPLEMENTATION OF A BIOMETRIC TIME AND ATTENDANCE SYSTEM AT STELLENBOSCH MUNICIPALITY

6.1 Introduction

The process to change from one working procedure to another is delicate and requires proper planning whereby all the parties concerned need to be taken into consideration. After planning and implementation, follows evaluation which is the third step in the learning cycle to determine the success in the initiation of change – to be dealt with in Chapter 7. Any change process requires an assessment to benchmark the implemented change against its success, as well as the medium and long term benefits to the organisation.

Evaluation requires the compilation of a criterion that can be used to effectively measure the success rate of the change idea.

6.2 Ownership

The execution of basic services by municipalities requires a level of satisfaction by the client. According to Kirkpatrick (1985:30) the implementer of change should claim possession of the whole process. It is not clear if the management of Stellenbosch Municipality seized ownership in the introduction of the biometric time and attendance system, since the proof of interventions with the employees and labour representatives up to August 2010 does not exist. The slow process from the approval date, 27 November 2008, to obtain a directive from senior management and the absence of consultation with union representatives was the only evidence available. Problems with the manual attendance register were experienced because supervisors did not consider the check and control of employee attendance as a crucial part of their duties. Governance strategies such as reporting to management

per directorate on a daily basis on the availability of the workforce in relation to the projected basic service delivery are nonexistent. The request of a monthly reconciliation report on employee attendance to and from management is not requested to recollect the working force availability on a given day. Respondents revealed through the questionnaire that 61,54% are aware of the employer's responsibility in the monitoring of employee attendance. The response that 38,46% of the respondents did not realise the legislative requirement of employee attendance monitoring, create a management concern. The question of ownership in the monitoring of employees needs to be addressed with all employees to alter the understanding and emphasise the importance of change to improve service delivery.

6.3 The essence of change

Barker (2007:15) explains in the literature study that change is a humane interaction whereby the affected needs to be involved by means of discussions to alter their beliefs and value systems pertaining to the change process. The introduction of a biometric time and attendance system as a pilot project was an effort whereby employees could experience the suggestion of Barker (2007:15). The manual attendance register operated for such a long period and the employer wasted time to allow employees to experience the administrative problems associated with the said register.

The legal framework focussed on an agreement between the employer and the employee representatives, who requires the discussion of changes in mutual interest as indicated by the 1st of May 2007 Main Collective Agreement (MCA). The author did commence with honouring the MCA in the absence of management support. The absence of support from senior managers has not made the consultation attempts conducive because employee representatives were not briefed by a convinced employer delegation but rather the author tasked to implement such project.

The case study revealed that although the Main Collective Agreement was in place, the instruction to commence with the biometric time and attendance project originated from a management perspective. Barker (2007:15) encouraged the initiation of discussions to identify the benefits and risks of a system that could

enhance the operations of the whole organisation. Due the fact that a management perspective was involved, intervention from management did not contribute to address the collective needs of an objective time and attendance system.

6.4 The nature of change

Beckhard & Harris (1987:98) and Bowman & Jarret (1996:215) described that the initiators of change must be convincing in describing the current employee management situation as well as its benefits and risks. The advantage of the intended change process must be clarified to secure a full understanding by the employees. Employees should be made aware of the poor management of the manual attendance register which has been in operation for more than 30 years.

The legal framework, by means of the Constitution (1996), gave direction on the accountability of Stellenbosch Municipality with regard to the management of all expenses. Annually, Stellenbosch Municipality experience a delay in the provision of completed manual attendance registers to the Auditor General (AG) for audit purposes. The reasons behind the delay of available manual attendance registers occurs because they are not in a central place, or not up to date, or not in existence or have either been destroyed, lost and/or employees refuse to sign them.

The case study, Stellenbosch Municipality does not comply with reasonable governance processes which include the availability and effective use of control measures to secure the management of the manual attendance register. The inability of Stellenbosch Municipality to account for the expenditure such as salaries, places them in contravention of the Municipal Finance Management Act (No. 56 of 2003). Employees, departments and directorates fail in the safeguarding of the manual attendance register because no terms and reference in the handling of these employee attendance registers are available for an expense that amounts to 33% of the annual budget. The questionnaire revealed through question 5 under the theme, driving forces that 83,33% of the respondents are in favour on an alternative to the manual attendance register. Greater demand is placed on the provision of a time saving device that does not require additional administration for employees and supervisors.

This inability to secure a document that can lead to the issuing of a qualification certificate by the AG for non-compliance in the management of salary expenses, constitutes gross negligence because Stellenbosch Municipality failed to impose a duty as provisioned in the Municipal Finance Management Act (No. 56 of 2003) (RSA, 2003:158). The latter justifies the investigation of alternative methods to secure the availability of employee attendance information that can be readily available upon request of the AG. The level of dissatisfaction pertaining to the availability of manual attendance registers occurred during the 2009 financial year. Departments were not forthcoming regarding the provision of the attendance registers with a delay and eventually providing the manual attendance registers to the AG.

The case study is influenced by an Eiffel tower culture whereby reliance is placed in the support of union representative bodies who serves as the first line of communication between employees and the employer. Every employer has to maintain an attendance register in order to account for the remuneration expenses during a particular financial year (RSA, 2003:66). The management of manual attendance registers is decentralized to the oversight of relevant directors, managers, heads and supervisors. The employer – in this case, Stellenbosch Municipality – is in non-compliance of the aforementioned legislation because the management of manual attendance registers for all employees is not met by the responsible directorates. The revelation by respondents, that they are aware of only two disciplinary cases on employee attendance creates a concern on the consistency that is practiced by individuals on behalf of the employer, Stellenbosch Municipality. The inability to comprehend the nature of change will contribute negatively to the stages that are present in the change process.

6.5 Stages of change

Bowman & Jarret (1996:216) and Cameron & Green (2009:111) agree in the literature study on a three-step model of change as identified by Lewin (1952), namely: unfreezing, moving and freezing. All five researchers agree that change cannot be instituted in an instant.

According to the legal framework, as mentioned in the Main Collective Agreement (RSA, 2007), discussions will be held to institute change whereby all parties concerned will reach an understanding on a consultative platform. It is therefore the employers' duty to initiate a consultation platform as agreed upon before the initiation of change.

The responses from the case study revealed the same occurrence of events as in the nature of change, namely:

- that the instruction to investigate an alternative to the manual attendance register was given from a management perspective;
- no project plan was designed that could reveal the role players or stipulate any process which would have been informative to all employees on how and when change will affect their daily operations;
- no clear image was drafted to explain the rate of change that will be used to provide ample time for employees to digest the shock, denial, awareness, acceptance, experimentation, search for meaning and integration processes before and during the change process as described by Hayes (2007:3).

6.6 Rate of change

Hunt & Buzan (1999:170-172) indicated in the literature study that a relationship exists between the level and time in the transition process to accept a new idea of change.

The legal framework within the Constitution (1996) promotes administrative justice within a governmental environment (RSA, 1996:16). Administrators need to enhance governmental action that lawful, reasonable and procedurally fair to all the receivers of government services, including employees who will be allowed to experience change.

Stellenbosch Municipality did not institute a change management process with all the parties involved before the initiation of a time and attendance pilot project. The importance of human capital has been confirmed by question 1 under the theme, human capital whereby 93,59% agree that the monitoring of employee attendance is a priority. The instruction to change from a manual attendance register to a biometric time and attendance system came from management without a change management process in place and is in contrast with the transition process to accept a new change idea.

6.7 People map

Abrahamson (2004:44) requested in the literature study that a study of the organisational culture must be done before the implementation of a change process in order to analyse the adjustment towards the anticipated change.

The legislative framework emphasises the right of employees to freedom of expression and consultation by which they can express their views on a project such as the implementation of a biometric time and attendance project that could bring about an adjustment in the “on” and “off” duty reporting methods (RSA, 1996:9).

An opportunity to exercise their freedom of expression concerning the time and attendance system was not granted as dictated by the Main Collective Agreement which requires that any new idea that could change the work environment of employees needs to be introduced via consultation with the union representatives (RSA, 2007). The employer therefore remains in contradiction to this agreement that was targeted at promoting a healthy working relationship.

6.8 Change agents

Jones & Brazzel (2006:147-148) identified that the internal change team, namely union representatives as well as the employees is an important component in the understanding the organisational cultures while working towards change.

The legislative framework demands procedural fairness to all, including employees that will be affected by the implementation of the time and attendance system.

Jones & Brazzel (2006:147-148) shed light on the fact that Stellenbosch Municipality did not realize that management is an important change agent along with union representatives. The respondents revealed with 80,77% that supervisors should play an effective role in the management of the manual attendance registers. The important role of supervisors substantiates the fact that they are important change agents because of their daily interactions with subordinates.

6.9 Clarification of change

Robbins & Barnwell (2002:348) identify revolutionary and evolutionary change as well as the influence it have on the working environment.

Legislation from National Government by means of the White Paper on Transforming Public Service Delivery, Notice 1459 of 1997 seeks improvements with regard to its service delivery on a daily basis.

The case study, on the other hand, reveals a dynamic environment that leans over to revolutionary change – without any prior warning – due to the executive powers that lies with the mayor. The change in political leadership destabilizes the working environment of any local government authority and this effect trickles down to the administrative staff. The influence from politicians is guaranteed by legislation in the Code of conduct for councillors, but is not executed accordingly (RSA, 2000:241). Political instability within Stellenbosch Municipality plays a role due to the fact that political leadership had changed from 2007 until 2010 due to the formulation of new coalitions.

The classification of change, according to Robbins & Barnwell (2002:351) categorizes Stellenbosch Municipality into a chaotic cluster due to the instability of its management and the presence of political interference. The political environment allows for hostile takeovers as a result of the coalition agreements between politicians which will negatively affect the authority of Directors in the delivery of

basic services. The Constitution promotes an effective, efficient working environment in order to encourage communities to exercise their political rights (RSA, 1996:87). Change requires clarification in order to understand the complexity of the process.

6.10 The complexity of change

Black & Gregersen (2003:180) identify anticipatory, reactionary and crisis change in the literature study as complex representatives of change. The implementation of the biometric time and attendance system relates to anticipatory change and will be a cost effective change option if thorough planning will go into the process.

The White Paper on Transforming Public Service Delivery, Notice 1459 of 1997, within the legal framework, instructs that cost effective operations must be used as a measure to change all spheres of government, including Stellenbosch Municipality.

Stellenbosch Municipality revealed within the case study the benefits of the biometric time and attendance system *versus* the manual attendance register. This effort is an example of a reactionary measure to curb the non-compliance declaration threat of the AG. Although the move is reactionary, it predominantly prevents a crisis with the management of the manual attendance register but emphasised a concern on how this manual attendance system operated for the past 30 years. The 83,33% response by respondents in favour of an alternative to the manual attendance register confirms the existence of a need for people management through an effective employee attendance system. The respondent's confirmation of 92,31% towards the presence of weaknesses in the use of the manual attendance register adds to the inability of managing employees while they are reporting "on" and "off" duty. The identification of weaknesses within the manual attendance register system will have an undetermined cost implication for Stellenbosch Municipality and needs to be considered due to its accountability on expenditure.

6.11 The cost of change

The cost factor is further described by Black & Gregersen (2003:180) in the literature study as an influence towards change. Although the manual attendance register

existed for a long time, motivation for change was not forthcoming due to the absence of management input prior and during the change process. The only effort to obtain management involvement was made through the registering of Directors on the biometric time and attendance system during June 2010.

The legislative requirements in the White Paper on Transforming Public Service Delivery, Notice 1459 of 1997 demand cost effectiveness without compromise (RSA, 1997:15). The MFMA requires compliance in the provision of a clean audit on salary and overtime expenditure in all the operations of Stellenbosch Municipality (RSA, 2003:76).

The case study reveals the absence of planning, the inability to include all role players, such as labour, supervisors, managers and directors. The cost of initiation was inflated and more operational time will be required to undo the wrong change decisions and replace it with a new introduction that is filled with suspicion because the processes was not followed the first time around. The loss in cost cannot be directly translated into monetary value because time was wasted in the first consultation with union representatives during 2008. The biometric time and attendance tender was approved in November 2008 and led to the loss of capital in normal and overtime payments which were processed in the absence of real-time and attendance recording. The questionnaire on the other hand confirms that 92,31% of the respondents agree to the weaknesses that exist in the management of the manual attendance register.

6.12 Dynamics of change

Jones & Brazzel (2006:107) identified the cycles of repetition to create harmony within the internal and external environment. The signs of harmony in the change process can be seen in the Ecclesia and Main building.

The legislative framework promotes the execution of fair labour practices to all workers (RSA, 1996:10) whereby employees could experience their position within the organisation through the present and future state before experiencing a process of change (Jones & Brazzel, 2006:107) .

The case study reveals that the harmony has been disturbed by engaging with union representatives at a later stage during the Local Labour Forum of with regard to the implementation of an alternative to the manual attendance register. Unhappiness towards the change process was received from SAMWU and IMATU because proper consultation was not conducted although invitations were forwarded and accepted by the previous chairpersons of SAMWU and IMATU during 2009. IMATU's concern can be seen in a lesser degree because they are of the opinion that the employer has certain duties in the management of employee attendance (Theart, 2010). Requests were made to IMATU and SAMWU respectively, to register as well as experience the time and attendance system personally in order to obtain an objective opinion about this new employee management system.

6.13 Boundaries

Jones & Brazzel (2006:108) classified local government organisations within the literature study as "thin" boundary organs of state which allow easy access to information, because it is a public institution. All public organisations are obligated to promote the availability of information to the public.

The Constitution (1996:16) promotes the same access to information as confirmed by Jones & Brazzel (2006:108) within the legal framework and requires Stellenbosch Municipality to comply with free access to information in the possession of the government.

The late inclusion of labour representatives in the time and attendance consultation process as well as the availability of information to all employees is in contrast with the Collective Agreement. It is clear that although information was available, the free access of information between management and employees did not transpire.

6.14 Change and its effect on people

Blake *et al.* (1989:182) identified the importance of humane treatment, during and after the change process as an indicator of the success rate.

The Constitution (1996:7) proclaims the treatment of individuals with the required dignity and administrative justice. Any action that does not promote the right to existence is in contrast to legislation.

The case study indicated that the inclusion of the union representatives at a later stage was in disregard of human relations. The one sided approach to implement a biometric time and attendance system can be seen in the 56,41% of the respondents that was not exposed to the operational discussions and impacted on the time and attendance pilot project.

6.15 Resistance to change

Tushman & Anderson (2004:30) mentioned in the literature study that an organisation needs to compete and requires transformation to do so. Fear will always be present because the unknown will always pose a threat.

The employer, Stellenbosch Municipality, the South African Local Government Association (SALGA), SAMWU and IMATU committed themselves to legal sound working relations with the signing of the Main Collective Agreement whereby situations of common interest are discussed to improve working relations (RSA, 2007).

The case study indicated that the implementation of the time and attendance system was driven by a previous management instruction without consultation with labour unions. The presence of fear was highlighted in the knowledge of the new time and attendance technology. No evidence of any weaknesses has been identified within the responses of the respondents about the biometric time and attendance system. The employer has to set aside time and explain the problem of employee attendance as well as the reluctance of employees to maintain and provide proof of manual attendance registers.

6.16 Excellence in truth

Blake *et. al.* (1989:183) proclaimed the importance of honesty in a shared model whereby all parties agree to honour and respect one another.

The legal framework states that an organ of state, namely Stellenbosch Municipality has the responsibility to execute administrative justice as a representative of National Government (RSA, 1996:16).

The case study disclosed the existence of efforts to source a solution for the maladministration of the manual attendance registers. Furthermore, that the problems with the capturing of attendance data in the manual attendance register arose in all directorates at Stellenbosch Municipality. The inability to enforce the management of a manual attendance register, according to legislation, is considered as a contravention of the Municipal Finance Management Act (MFMA)(RSA, 2003:76; 96). Respondents revealed in the questionnaire that honesty with the completion of the manual attendance register is a matter of concern. The provision of answers for matters such as daily, weekly and randomly completion of manual attendance registers confirms that information can be captured incorrectly. Therefore, the only available proof of employee attendance records cannot be used as a reliable source when presented to the AG on an annual basis.

6.17 Motivations behind change

Hunt & Buzan (1999:167) have identified in the literature study, goal setting as a reason for the institution of change. The setting of goals is important especially if the existence of the organisation depends on the much required change. In the event that the organisation fails to institute change, great losses could be experienced and disrupt the administration of Stellenbosch Municipality.

The legislative framework of the Constitution (1996) requires that the employee be subjected to fair labour practices which include being informed when the organisation is in distress due to poor employee attendance management (RSA,

1996:16). The inability of supervisors to manage the manual employee attendance registers as an operational task threatens indirectly the ability of the employer to make provision for over all well-being and survival (RSA, 1996:11). A total of 67,95% of the respondents believe that savings on the budget of Stellenbosch Municipality is possible. A total of 75,64% is of the opinion that it is not possible to save on the budget by using the manual attendance register. A total of 71,51% of the respondents agree that savings is possible on the salary and overtime budget in using the biometric time and attendance system to monitor employee attendance.

6.18 Evaluation of change

The literature study emphasises the importance of having a vision within the change process to reach the projected milestones as stipulated within the project plan. The evaluation of the anticipated change was nonexistent because the opportunity to create a structured change process was prevented due to the absence of the new management team in 2009.

The legislative guideline provided by the *White Paper on Transforming Public Service Delivery, Notice 1459 of 1997* highlights the importance of progress reports to all employees as recipients of service delivery related information. This includes attempts in improving the manner in which employees will be reporting “on” and “off” duty. Employees will take less time to report on duty, which will result in savings on administration and subsequently more time to deliver services to the community of Stellenbosch. Continuous updates during the time and attendance change process could have provided employees with the insight to handle all their clients with the same dignity as received from the senior management of Stellenbosch Municipality.

The case study made known that the evaluation process had never been addressed as the project commenced without all the change agents being present. In the absence of any evaluation an analysis was conducted by means of a questionnaire (Annexure A).

6.19 Conclusion

Guidance provided by the literature study gave an indication on how to address the implementation of change. Concern has been drawn to the interpretation of legislation by senior managers which include the management of assets and human capital. The assumption was reached through the case study that Stellenbosch Municipality, by means of its management did not succeed with the implementation of the change management process in accordance to any principles as indicated in the literature study. The absence of a structured plan to initiate change requires the establishment of an agreement whereby Stellenbosch Municipality can determine the values and norms to address the problems caused by the management of the manual attendance register.

CHAPTER 7

THE NORMATIVE APPROACH TO CHANGE MANAGEMENT WITH THE IMPLEMENTATION OF A BIOMETRIC TIME AND ATTENDANCE SYSTEM AT STELLENBOSCH MUNICIPALITY

7.1 Introduction

The occurrence of organisational change can be gradual or sudden. In order to improve the effective administration of employee attendance, change is required to replace the manual attendance register with an effective real time clocking system. The identification of an ideal situation can be found in how much commitment both the employee and the employer have placed in a change process. Secondly, it is dependent on a series of well calculated arrangements that needs to be mutually in sync in order to arrive at a point of collaboration. Alternatively, the absence of such a joint effort will inevitably lead to ridicule.

7.2 The change process

The introduction of change requires the identification of problems at the core of the organisation – in the case of Stellenbosch Municipality it is the monitoring of employee attendance. Organisational change is informed by Lewin's (1952:173) philosophy whereby the old idea needs to be unfrozen – this includes movement into a new shape, followed by the freezing of the new idea as standard operating procedure (Bowman & Jarret, 1996:216; Cameron & Green, 2009:111). Hellriegel *et al.* (2008:240-247) identified the following steps as part of the ideal situation to arrive at a successful change result:

- Assess the environment;
- Determine the performance gap;
- Diagnose the organisational problems;
- Identify the sources of resistance;
- Reduce resistance;
- Set goals and making decisions

- Monitor change; and
- Implement change: Technologically based, organisational redesign, task-based, people-orientated.

The ideal resolution to address change in this study can be derived from the recommendations of Hellriegel *et al.* (2008:240-247).

7.2.1 Assess the environment

Organisations can be classified as learning entities because of their constant need for operational evaluation (Hellriegel *et al.*, 2008:240). The responsibility to ensure the existence of the organisation is first and foremost the task of management who needs to be on the lookout for signs that indicate areas of concern. These problem areas may not be of any concern for employees but the continuous repetition of small occurrences, such the inflation of overtime can be a threat to the effective administration of an entity like Stellenbosch Municipality. Senior managers, such as directors have a responsibility to the Municipal Manager (MM) regarding the delivery of basic services by preventing fruitless and wasteful expenditure. A constant need for improvement brings on the urgency in leaders to transform organisations from low performance to acceptable standards and ultimately high performance (Dubrin, 2004:80).

Change can be brought about by either internal or external influences. The latter can result in a chaotic or disorderly process because the outside view is not informed on internal processes. Influences are brought about by environmental factors such as customers, technology, competitors, workforce, shareholders, government regulators, unions and political groups. Environmental factors can further be classified in accordance to their level of negotiation and resistance. The influence of environmental factors - as indicated in Table 7:1 – indicates the influence of internal and external factors on the change management process.

Table 7.1: Influence of environmental factors

Internal		Internal/External	External	
workforce		unions	customers	technology
management		management	shareholders	government
				regulators
commitment	of		competitors	political groups
employees				
competency	of			
employees				

Source: Compiled by author (2011).

The initiators of change, either internally or externally, make allowance for a smooth or chaotic process. Internal change – indicated in yellow – has the benefit of knowing the people and reaching an agreement in a professional manner while external initiators would increase resistance. The involvement of internal and external environmental factors such as unions and management raises the bar on resistance because knowledge of the employees circumstances is not known. External environmental factors such as customers, shareholders, competitors, technology, government regulators and political groups increase resistance because of the total misinterpretation of the working environment. The use of external role players confirms the lack in internal organisational skills to consult with employees on matters of mutual concern. It is therefore recommended to handle change matters within the parameter-capacity of the organisation and keep external involvement to a minimum.

In the case of Stellenbosch Municipality, it was found that the manual attendance register was an area of concern with every Auditor General (AG) audit but it was never logged as a major expenditure risk. The area of concern was addressed with the implementation of the biometric time and attendance pilot project that should have had the full support of the management of Stellenbosch Municipality during 2008. A uniform attendance register was introduced from 1 of July 2010 in an effort to standardise the use of a manual attendance register. This was an intermediary

solution to remove all the different interpretations of the manual attendance register in the absence of consultation between the employer and the employee representatives on the biometric time and attendance system. The failure to reach 100% compliance with the use of a standardised manual attendance register during 2010 was prevented because of the resistance of internal environmental factors namely, union representatives who demanded consultation.

7.2.2 Shared values

In an ideal situation, union representatives would be aware of the employers' requirements to meet an annual unqualified assessment by the AG. Together with the threats involved, union representatives would be informed of the repercussions if the goal to prevent an unqualified audit is not successful. Elements contributing to a qualified audit need to be identified and prevented with corrective measures. The implementation of a biometric time and attendance system for Stellenbosch Municipality could be considered as a strategy to prevent a qualified audit. Change agents must be similarly acknowledged and placed within the success formula to realise change. The acknowledgement of union representatives confirms the validity of collective agreements towards solving mutual problems. Union representatives communicate decisions as shareholders of the process due to shared understanding. In order to enhance participation Blake *et al.* (1989:189) promotes the Interface Conflict-Solving Model to acknowledge solutions in, for instance, the change process from a manual attendance register to a computerised time and attendance system (to be explained – 7.2.9).

7.2.3 Benefits of communication

It is important to increase the level of understanding whereby employees are informed of the employer's legislative requirements via their employee representatives. In the event where employees are unable to maintain their manual attendance registers, a message needs to be directed at the entire working force, indicating the lack or absence of compliance towards the recording of employee attendance. Work related questions and misinterpretations may be illuminated and a well calculated decision may be made if the benefit of communication is realised. A

positive consultation environment has to be developed to encourage employees to raise their concerns on the new employee monitoring idea. Clear understanding should exist amongst change agents before, during and after the consultation process in order to address the necessity to change. Active participation to develop insight, understanding and agreements on the problem solving process has a positive outcome. A well constructed change agent relationship that is based on good faith should be formed to facilitate future engagements.

7.2.4 Decision-making

The Main Collective Agreement, as agreed upon by the South African Local Government Association (SALGA), the Independent Municipal Allied Trade Union (IMATU) and the South African Municipal Workers Union (SAMWU), gave effect to the importance of negotiations in the Local Labour Forum (LLF) (RSA, 2007). The LLF, as formally structured negotiation platform, enhances the decision-making process whereby the employer and workforce representatives consult on labour related matters. The inclusion of union representatives in the identification of a suitable time and attendance management system may have benefited the negotiation process. Discussion points and decisions are included in the minutes of every meeting as proof of a standing agreement between labour and the employer. All the decision makers should share in the outcome of the consultation process which becomes a reality due to the inclusive approach that reduces work related conflict. More respect and worth may be recognised in decision makers if they can comprehend and suggest alternatives for deliberation in contrast to merely being followers of employer resolutions.

7.2.5 Responsibilities

Union representatives should be briefed on the budget reports of the Municipality to establish a full understanding of the economic position of the organisation. It needs to be made clear that local government is bound by financial limitations as indicated in the budget and this provides the parameters for consultation. Buy-in needs should be obtained from the LLF on the vision and mission statements that visualise the organisation's terms of existence. A clear understanding of the Municipality's

objectives and responsibilities will narrow the consultation parameters to a realistic agreement. The subjective understanding of National Government's undertaking should be eliminated to ensure the acceptance of responsibilities.

7.2.6 Principles

An inclusive understanding of standards should be reached and implemented. Less time should be spent on consultation and more on materialising the goals as agreed upon. The emphasis on the Batho Pele principles needs to be increased to improve the commitment of efficient basic service delivery (RSA, 1997:15). The gap between the ideal and actual achievements should be highlighted by means of motivations from both the employer and employee representatives.

7.2.7 Goal setting

The investigation into a suitable attendance monitoring system should be a major occurrence in order to find a solution that meets the requirements of the Auditor General (AG). The employee representatives and the employer need to be dedicated in addressing the situation of poor employee attendance management, as well as reaching goals set during consultations. In order to allow effective goal setting, they need to be set first and then action towards achieving them should follow. This needs to meet the requirements as stipulated in Section 33 of the Constitution whereby lawful, reasonable and procedurally fair administrative requests are favoured (RSA, 1996:15). Furthermore, goals should be realistic, clear, measurable, consistent and attainable (Hellriegel *et al.*, 2008:245). Transformation can only be taken further if the employees are (Dubrin, 2004:82):

- made aware of the problem at hand;
- looking beyond self-interest;
- understanding the need for change;
- investing managers with a sense of urgency;
- committed to greatness;
- adopting a broader perspective; and
- building trust between the employee and employer

Objective feedback should be required at regular intervals whereby employees can adapt their views on the set goals. The inclusion of employees in the goal setting process allows room for prompt response in the search for an alternative such as the manual attendance register.

7.2.8 Conflict

Rivalry between individuals or representatives of IMATU and SAMWU should be illuminated by means of common understanding in searching for an alternative that could benefit the entire organisation. No generalisation should be allowed because this could lead to irrelevant discussions distanced from seeking an attendance monitoring alternative. Sound relationships may be built while assessing alternatives to the manual attendance register and these could contribute to a healthy working relationship.

7.2.9 Control

Focus needs to be on combined efforts that benefit Stellenbosch Municipality without promoting the interest of individuals within union representative or managerial ranks. Individuals within the Municipality that experience work related problems would be are learning how to conduct self diagnosis regarding problems that occur and they very well also may develop the skills to apply the new knowledge in various other environments.

In the completion of the Interface Conflict–Solving Model the following follow-up applications may be reached (Blake *et. al.*, 1989:192):

- a) Applications are executed to improve basic service delivery;
- b) Every manager must develop self control as a means to channel human actions towards efficiency;
- c) The quality of supervision must be studied, evaluated and strengthened to enhance optimal application of the organisation regarding its service delivery mandate;

- d) Team work must be strengthened while removed from historical ways of monitoring employee attendance; and
- e) Co-operation should be studied and evaluated to achieve the organisations goals as promulgated in legislation, the White Paper on Transforming Service Public Delivery, Notice 1459 of 1997.

The Interface Conflict-Solving Model has been developed to test the behaviour cultures. Actions have been benchmarked against excellence guidelines such as the MFMA and the Basic Conditions of Employment Act (1997) to identify gaps in the delivery process (RSA, 2003; Dept of Housing (DoH), 2005). Special attention should be focused on control mechanisms to monitor, maintain and supervise employee attendance within the workplace and to bridge the gaps as analysed in the following paragraph.

7.3 Determine the performance gap

The purpose of the performance gap is to expose the problem and gauge whether it is operational or strategic by nature. Organisations tend to indicate what they wish to accomplish by means of their vision and mission statements. This provides a clear indication of what the organisation wishes to do and how it will go about achieving set goals. Moreover, it affords the external observer the opportunity to pinpoint the areas not covered in the mission and vision statements.

Stellenbosch Municipality strives to render a service delivery mandate on a daily basis. The main component of the service sector is people and without them to cope with the physical tasks, there will be no satisfied citizen. Employees are part of the problem-solving team, brain storming sessions and role play activities and have their place to realise and address problems. It would make operational sense if employees could be the ones to identify the problem of concern. Identification within a peer group renders a significant result in allowing employees to seek self discovery on what may have been the reasons why the employer experienced problems with employees who failed or refused to maintain their manual attendance registers. The identification of the performance gap should be viewed by government officials as

their major responsibility because citizens have placed their trust in them to solve limitations with regard to service delivery (RSA, 1997:15).

Efforts to improve service delivery would require that the performance gap be people centred because the employer needs to have control of the management of employee attendance. In order to clarify the performance gap, examples of anonymous attendance register performances could be made available to union representatives to form the basis of working group discussions. The following employee attendance scenarios emphasise the non-compliant use and management of the manual attendance register, namely:

- every section, department and directorate accounts only to the immediate supervisor;
- the process ends at the supervisor with no further communication upwards to reach the attention of the responsible director;
- no daily attendance reports are required to inform the Human Resource Department about the day to day attendance status of employees;
- management does not receive any feedback on daily attendance reports; and
- no strategic measure exists in the determining of the work force's ability to render services of an essential nature such as water and electrical provision.

Legislative requirements and the results of previous AG visits, as well as compliance with the Municipal Finance Management Act (MFMA)(RSA, 2003), must play a role in identification of performance gap scenarios. This is a tool whereby employees would experience the predicament of the employer in its people management strategies and the problems brought on by the management of the manual attendance register. Self discovery can be achieved within working group activities to clarify legislative requirements in employee attendance monitoring. The discovery of the performance gaps amid the use of a manual attendance register could initiate discussions to reach an agreement on employee attendance monitoring.

7.4 Diagnose the organisational problems

The solving of organisational problems is a means to an end approach whereby the dilemma occurs first and then the search for a solution follows. Organisations are tested by means of their ability to rise above threatening situations. Meticulous action is required to counter threats for the sake of the organisation. The diagnoses of organisational problems are the responsibility of the employer and employees need to be made aware of this delegation of authority. The importance of historical occurrences such as the use of the manual attendance register is the first point of diagnosis. It could serve as motivation for the improvement of services and a benchmark tool for customer satisfaction. Employees are involved in the rendering of operational services and do not fully grasp the strategic milestones set for a specific service delivery as indicated in the Integrated Development Plan (IDP).

The diagnosis should contain the following arguments on which to base the identification of organisational problems:

- Although two systems are in place to log employee attendance, it is important to have one system that could allow for the reconciliation of employee attendance;
- No formal evidence of communication structures was found to be in place whereby data could be used to reconcile an organisational wide employee attendance register;
- If one attendance register was in place, Stellenbosch Municipality would consequently be able to establish its labour capacity on a particular day of the week;
- This would position the organisation to manage its employees efficiently on a day to day basis;
- The employer would be able to establish the attendance trends of the working force;

- The identification of employee attendance problems could be benchmarked against external environmental factors, for instance legislation that requires certain compliances in expenditure such as salary expenses; and
- By not having an efficient employee attendance register which reflects the daily work history of employees, Stellenbosch Municipality is currently not complying with the legislative requirements as set out in the Constitution (RSA, 2006) and the Basic Conditions of Employment Act (No. 75 of 1997:34).

In order to determine the extent of the problem at hand it would be wise to obtain the expertise of an external assessor to diagnose some of the organisational problems with the use of the manual employee attendance register and the biometric time and attendance system. An occupational therapist may conduct a risk analysis on employee attendance, as well as gauge the effect it may have on salary and overtime expenditure against the aforementioned legislation. Employees at ground level have to be involved in the operational responses because they are the main respondents who are able to arrive at a feasible solution. The introduction of an independent person (a third party) would ensure that the lack of expertise is overcome and misinterpretation of the responsibility of every employee to assist in reporting on duty on a daily basis, be held at a minimum. Ample time needs to be set aside to conduct interviews and interpret extracted data concerning the “on” and “off” duty trends of employees at Stellenbosch Municipality while using the manual employee attendance register and the biometric time and attendance system.

7.5 Identify the sources of resistance

The introduction of new ideas, or an investigation of new options may reveal the presence of resistance amongst employees as they are unaware of the consequences of the new idea. Primarily resistance is present due to the unknown phenomena of a biometric time and attendance system. The appearance of resistance develops within employees who are threatened by the new biometric technology. Concerns over human rights infringements, personifies itself by means

of fear, misunderstanding, assessment differences and inter-organisational agreements (Hellriegel *et al.*, 2008:240).

7.6 Reduce resistance

In order to succeed with change it is imperative to reduce the resistance by means of information sessions offering ample time for questions in order to convert the energy of resistance and to explore the benefits and threats within the change process.

Resistance could be minimised by means of:

- Information sessions with ample time for questions in order to convert the energy of resistance to explore the benefits and threats within the change idea;
- The use of role play can be used to allow employees to explain their understanding of what has happened over the past 30 years in maintaining a manual employee attendance register;
- It will always be difficult to introduce a new idea; therefore employees should be dignified participants of the change process;
- Avail as much as possible information on the implemented change via newsletters, messages in payslips, e-mail and/ or intranet;
- Planning needs to be thorough and should reach the least educated employee in order to ensure that proposals result in sound decisions;
- Various communication methods exist and change can be examined by means of peer group activities, education, participation, involvement, consultation, negotiation and co-optation in order to reach the desired response (Hellriegel *et al.*, 2008:243);
- It is important that all consultation efforts are carried out in good faith while simultaneously exploring an effective employee attendance monitoring system.

It is imperative to structure decisions by means of values as indicated in Figure 7.1. Strategy, staff, shared values; style; systems and skills need to be used in combination to acquire the co-operation of employees (Rothwell *et al.*, 2008:159).

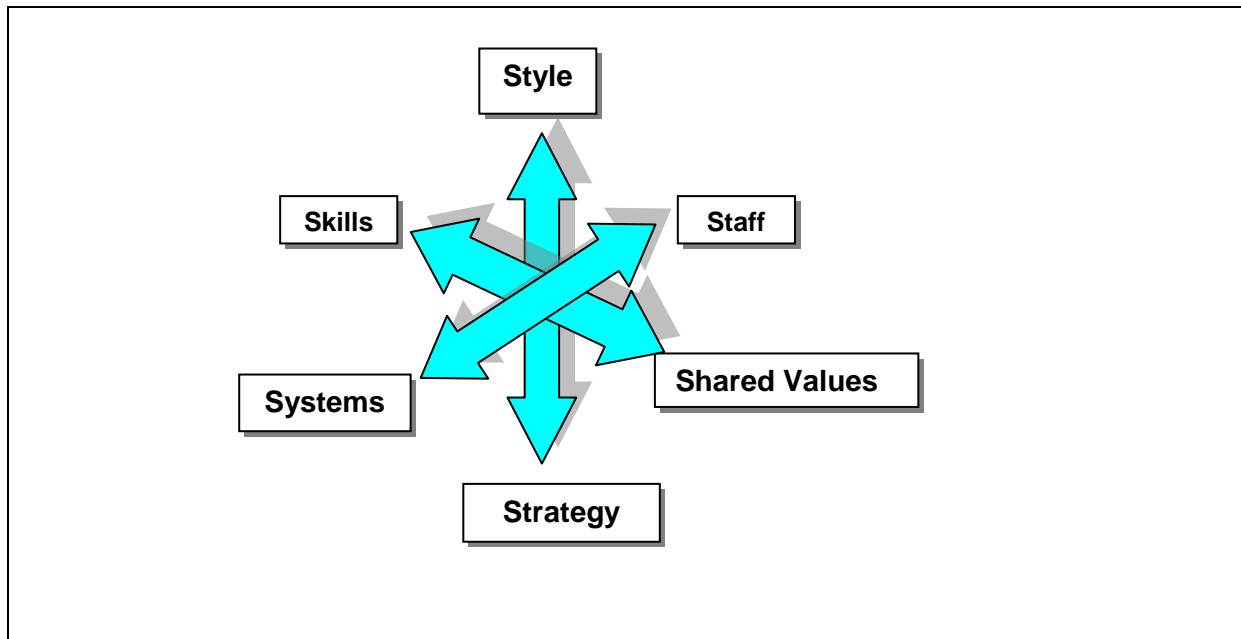


Figure 7.1: Value structure towards decision-making

Source: Rothwell *et al.* (2008:159)

Rothwell *et al.* (2008:159) are of the opinion that a value structure in decision-making could be cultivated by means of a common understanding of the problem at hand. They identified style, staff, shared values, strategy, systems, and skills as the components in a value conducive for decision-making. A term of reference needs to be incorporated to address the principles behind all decision interventions. The employer needs to identify non-negotiable legislative guidelines that need to be in place, as well as provide workshops for all employees on the relevant documentation. This is an effort to confirm the parameters of consultation as promulgated in the White Paper on Transforming Public Service Delivery, Notice 1459 of 1997. Acknowledgment needs to be given to the validity of previous negotiations and agreements, as well as the confirmation of previous failures to meet the agreed objectives as indicated in the Main Collective Agreement between SALGA, IMATU and SAMWU (2007). The reference framework within the agreed criteria on decisions needs to be communicated to all employees concerned to eliminate any misunderstanding. Employees would be the main component of any

decision-making, thus the importance of providing the required skills and expertise to participate in the consultation-making process as regards the most suitable system to manage effective and sufficient employee attendance.

A strategic approach towards reaching consensus with the labour force allows room to visualise the process flow towards achieving set goals. The use of the manual attendance register identified a lack of intervention between the supervisor and the employee which contributed negatively to the monitoring of employee attendance. The decision-making process on arriving at a suitable employee attendance monitoring system will require:

- the knowledge of legislation, agreements and conclusions as mentioned in the Main Collective Agreement (RSA, 2007);
- requirements as mentioned within the Constitution of the Republic of South Africa to streamline processes that are fair and reasonable (RSA, 1996:16);
- the identification of a system on the monitoring of employee attendance that will be undertaken;
- penalties that may be instituted by provincial and national government that could lead to the loss of independence due to mismanagement of expenses;
- development of an employee attendance policy;
- a flow diagram to indicate the channel of communication from the Human Resources Department to all directorates.

The creation of a value structure aimed at decision-making in the form of an employee attendance policy that includes biometric time and attendance contributes towards the establishment of a corporate strategy to manage people efficiently. Blake *et al.* (1989:194-197) suggest the inclusion of elements promoting change by establishing key financial objectives directed at cost cutting by holding supervisors responsible for the report of absenteeism or absconding the moment it happens. Approval for overtime needs to be booked well in advance, including the detail of the emergency, as well as approval by the relevant director. Cost cutting will be made possible because only employees will be paid for being on duty and rendering a service unless provision has been made to be on paid leave for a certain period. The

promotion of a value for money strategy is an important service delivery outcome due to the accountability of the Municipality. The mandate of Stellenbosch Municipality cannot be negotiated since its accountability to National Government is evaluated on an annual basis by the AG. Local government is obliged to comply with the mandate of government and the needs of its citizens. Government principles such as service delivery provision need to be aligned to fulfil profitability, growth, services, processes, human resources and organisational and management development. The benefits of a real-time clocking device are that it can function without supervision, allows for the said profitability and minimizes the management of human resources in the Stellenbosch Municipality. The additional benefits such as daily reporting, regular backups, including statistics on attendance, complements the value of technology and benefits citizens whereby more time becomes available to render operational duties.

The management in Stellenbosch Municipality must discuss change before, during and after the transformation process to stress the urgent need for alteration (Bellingham, 2001:10). In meeting the ideal change situation the employer needs to have shared values, communication, responsibility, principles, conflict and control measures in place.

7.7 Develop and implement an action plan

The first step will be to select and implement a practical approach towards the assessment and identification of a time and attendance system. The failure of management in its involvement during 2008 tainted their intentions with regard to the introduction of the biometric time and attendance system. The plan with regard to the employee attendance problem of Stellenbosch Municipality may be easy or complicated and it is thus imperative to address the change idea at the Local Labour Forum. Access to a consultation process with labour representatives guarantees a direct channel of communication to all employees. The employer needs to ensure and eradicate all myths by introducing workshops to all union representatives. Ample time needs to be given whereby the new change idea can filter through to reach all employees via the union structures. An introductory effort needs to be undertaken whereby all employees need to experience workshops for the introduction of

practical examples on the current state of the organisation, as well as the motivation behind the need for change. The second step would be to address employees who have a wrong perception of effective employee attendance management. Thirdly, education would illuminate the ill informed and secure an objective opinion regarding the new change idea. The introduction of a new operational procedure of a biometric time and attendance system requires the standardisation of “on” and “off” duty alternatives at the hand of demonstrations with biometric clocks.

Lastly, employees need to be informed about the technical operations, as well as the characteristics of computers and biometrics to prevent and reduce fear. The operational functioning of biometrics needs to be clarified at the point of integration with computers, as well as the existence of data integrity. A new area of exposure is introduced with the learning cycle as described by Osborne & Brown (2005:14) in Figure 7.2.

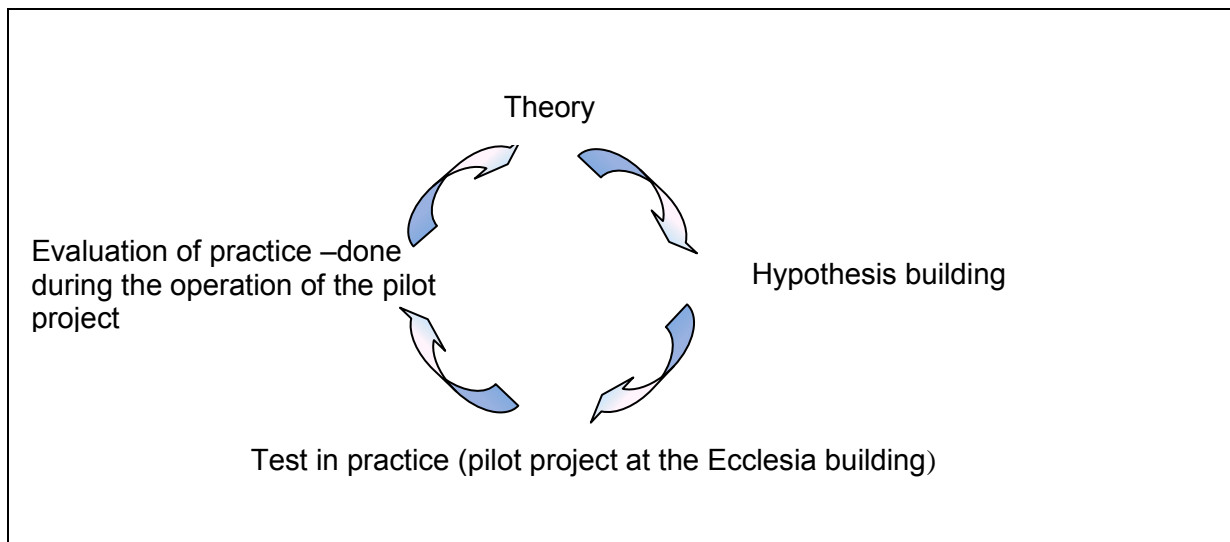


Figure 7.2: The learning cycle

Source: Osborne & Brown (2005:14)

In order to test the theory it would be advisable to source a test environment. The learning cycle will act as a closed environment to test the suitability of the time and attendance system. The second step would be to construct a hypothetical solution to the problem. Thirdly, the practice result and in this case the pilot project, at the Ecclesia and Main buildings, was tested. Following the testing phase, a thorough evaluation has to be done to determine if theory and the hypothesis have answered

to the need of having an effective time and attendance device in operation. If the testing and evaluation reveal that a suitable answer has been found the solution will be accepted. In the case of Stellenbosch Municipality, the testing phase already started in 2008 and the responses regarding its feasibility may be obtained from those working in the Ecclesia and Main buildings. Alternatively, the learning cycle will start again if the need was not been met by what had transpired over the past two years in the monitoring of employees reporting “on” and “off” duty.

During the construction of a suitable employee attendance monitoring system, union representatives should be required to provide suggestions to address the problem statement as indicated in the previous paragraph. The suggestions will be tested against its suitability as a possible solution to the problem. After this process every alternative would have to be evaluated to determine if the time and attendance system is meets the legislative and consultative requirements as drafted at the start of the assessment for an alternative to the manual attendance register. The introduction of change relies on the results of the pilot project being available to all employees. The learning cycle and a proof of concept tool have the same characteristics as they investigate the options available.

The introduction of the biometric time and attendance clock in the Ecclesia building is a practical example of providing technology beforehand in order for employees to become acquainted with the operational purpose and goal. Moreover, this introduction removed the fear of being foreign and filled with hidden threats. Ample time needs to be allowed whereby employees can see the differences between the manual attendance register and the biometric time and attendance system. The benefits and threats in both systems are revealed by way of practical experience and employees make firsthand acquaintance with the biometric technology.

Allowance is made for the conditioning of reporting procedures whereby employees share views while using the biometric time and attendance clock and they become better informed due to interactions within their peer groups. In order for all to buy into the adoption of a biometric time and attendance system as a new method of logging attendance, employees need to be involved at an early stage. The employer needs to understand that change has interrelated approaches and in some way or another

technology, design, task and people form part of the organisational structure because all employees will be required to use the biometric time and attendance device (Hellriegel *et al.*, 2008:245). The formation of newly created behaviours through reporting on duty by means of a computerised time and attendance clock, creates a climate to welcome the efforts in changing from a manual to a biometric employee management system.

7.8 Monitor change

The introduction of regular employee attendance monitoring is important because it creates an acceptance of the new idea. Monitoring can be read along the creation of a problem statement while conducting a suitability study. In practice the problem statement will be as follows: “If the change to a biometric time and attendance system will address the uncertainty of who reported on duty to secure that sufficient employees are available to deliver basic services?”

The following has been identified as part of the theory or problem statement that needs to be utilised as criteria to objectively assess the manual attendance register and determine if the problems are solved by the biometric time and attendance system by asking if:

- attendance registers are available;
- attendance registers are complete;
- attendance registers are all accounted for;
- attendance registers are checked by supervisors;
- communication of attendance results exist with Human Resources;
- late arrival and early departure are correctly captured at work;
- early departure from work has supervisor approval;
- buddy clocking or employee cover up prevails;
- absent without leave takes place without the knowledge of the supervisor;
- payments are received while being absent without leave;
- attendance registers are properly signed off, transferred and safely kept on resignation of employee;
- inflation of overtime takes place; and

- supervisors and foremen are claiming overtime payment.

It is imperative that employees who make use of the biometric time and attendance system need to express their observation with regards to the efficiency of the system. Feedback in relation to the manual attendance register also needs to be assessed. Secondly, the acceptance of employees needs to be investigated by supervisors and management to obtain an objective response regarding the change process. Monitoring requires that the speed, degree and duration of improvement be monitored by supervisors and feedback be relayed to management. The overall spending on time management is a component that needs to be taken into account by employees when considering the cost of salaries. The measurement of overtime on a month-to-month, as well as year-to-year basis can also be used as yard-stick to determine the trends of overtime usage and payment. Monitoring is not a once-off activity and requires a follow-up assessment to prevent premature conclusions on a suitable solution of effectively monitoring employee attendance. The implementation of change is a complex process and requires constant consideration.

7.9 Implementing change

Stellenbosch Municipality, through its management, has decided that the manual attendance register needs to be replaced with more secure and trustworthy technology. Although previous discussions were held with union representatives, consultation with all employees did not take place. The decision on what approach to take can be a combination of technology, organisational re-design, task-based or people orientated (Hellriegel *et al.*, 2008:249). The intention to change from a manual attendance register to a biometric time and attendance system characterises a technology-based approach because the handwritten method of recording attendance will be replaced by computer technology.

The technology-based approach is based on the incremental adjustments whereby employee monitoring is enhanced with information technology in the form of a biometric clock. The purpose of this approach is to introduce organisational efficiency with the application of biometric and computer technology to distinguish between individuals and capture “on” and “off” duty clocking times. A change in the

responsibility of employees would be made possible because duties have been refined by the introduction of a biometric clock that would record all attendance data. The biometric system will simplify employee attendance because employees would not be required to complete a manual attendance register.

The institution of change can be done via restructuring or education. An attempt to change an employee attendance monitoring method whereby employees need to clock in with the use of a biometric scanner is an education intervention to meet the requirements within the MFMA (Bellingham, 2001:01). Bellingham (2001:01) furthermore promotes the idea of shared ideals whereby all the role players are informed about the actions such as the implementation of a biometric time and attendance system before action is taken. Strategies must be in place to determine the cause and effect of the problem as well as the remedial action to arrive at a solution. The introduction of the biometric time and attendance system was received with huge enthusiasm during 2008, promising to solve administrative problems such as record keeping and data integrity. The implementation was delayed due to the inability of direction from the then management structure and this exacerbated the problem. The questionnaire gave operational feedback on what was happening within the departments, as well as how different interpretations caused the demise of administrative procedures. The following recommendations were made to reach a desired outcome with the development of an efficient employee attendance system.

7.10 Recommendations

The ideal solution towards employee management needs to focus on the development of a project plan whereby all the steps have been drafted towards efficiency. The importance of change agents cannot be emphasised strongly enough because they address the parameters of consultation benefiting Stellenbosch Municipality and its employees.

The following recommendations were made towards a successful change management approach:

7.10.1 Project planning

The implementation of a new project with dramatic change in the normal operation of the workforce requires thorough planning. The following areas of thought needs be brainstormed to map a successful transition from the old idea to a new concept of thinking:

- Communication;
 - Goals and objectives;
 - Scope; and
 - Project Management Approach.
-
- Communication

An effective communication channel before, during and after change would clearly indicate the success of the process. The continuous flow of information from management to the working corps and back is important to confirm the good faith intention. A communications method needs to be defined to serve as reminder to all role players. Clear indication must be tabled to identify either a top down or a bottom-up communication channel. The project participants would require daily or weekly updates on progress being made. The availability of information would contribute to the eagerness of the participants. Communication would create a learning environment to inform employees of the reasons why change needed to be implemented. The obtaining of buy-in can only be achieved with the ready availability of the project information.

- Goals and objectives

Goals and objectives need to be drafted along clear lines of understanding whereby milestone achieved during the change process could be highlighted as indicators of progress. Clear goal setting would prevent any assumptions and constraints outside the vision and mission of the change process.

- Scope

Direction needs to be placed along the change process in order to guide and eliminate any misunderstanding. The benefit of the scope definition is to exclude the irrelevant matters and allow focusing on a central idea. A common understanding of the purpose of the scope definitions would allow the identification of risks that could pose a major dilemma for the change agents.

- Project management approach

The establishment of a project management approach allows for the creation of a timeline. Clear guidelines will stipulate the roles and responsibilities of each member of the change management team and prevent the alienation of labour representatives. Role definition contributes to the elimination of further assumptions whereby labour could claim that they were just spectators to the implementation of a change management process that was entirely driven by the management component. The management of change is as important as the change process itself and therefore requires the monitoring of issues that could in a way demand amendment of the change plan. Any change within the initial project plan could infringe on the planned timeframe to reach the goal; impede on the available resources and dilute the quality of the product.

7.11 Conclusion

The management of employees has developed from an unplanned event to a well designed activity. Evaluation is an essential part of any change event whereby the participants of the change venture use check and control measures to determine the rate of success and enhance the operations of - in this instance - Stellenbosch Municipality. The participants of the change initiative have to experience the sense of belonging and therefore require ownership to be part of their actions. This can only be made possible if employees understand the essence of change, as well as the direction that will be taken to reach the change destination. If the plan dictates that a pilot project needs to be driven for a certain period, regular feedback needs to

be given to the participants towards the realization of project progress. While involved in the pilot project, employees need to be aware that they are change agents assisting with the shaping of a new dimension for the organisation would enhance the service delivery capacity of Stellenbosch Municipality. The commencement of a transparently operated pilot project to determine the feasibility of a biometric time and attendance clock emphasises the open boundaries of Stellenbosch Municipality and also diminishes the fear that has developed due to the previous absence of involvement by directors.

Communication is the key to success of any project. The inclusion of all role players contributes to the complete understanding of the need for change. It became apparent that the management of change had the same amount of intricacies. Change occurs daily and the only consistent occurrence is change.

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Annexure 1

Interview Questions

Questionnaire to receive responses for the Masters thesis (MPA) of Ulrich Cupido

“The introduction of a time and attendance system at Stellenbosch Municipality – A change management perspective” This questionnaire is for research purpose only and directed at employees working at the Ecclesia and main building who are using the biometric time and attendance clock for attendance purposes. It is noted that the biometric system is in its first stage and this questionnaire will assess the change management aspects.

You are not required to write your name. Kindly complete the following questions by indicating Yes or No by clicking a check box per row and provide a comment to clarify your answer. Please save in a new name and mail back to ulrichc@ Stellenbosch.org

Demographic Data – Post level [1-4 ☐]; [5-7 ☐]; [8-10 ☐]; [11-17 ☐]

- Education [Grade 8-11 ☐]; [Grade 12 ☐]; [Diploma ☐]; [1st Degree ☐]; [Post Grad ☐

- Age Category [21-25 ☐]; [26-30 ☐]; [31-35 ☐]; [36-40 ☐]; [41- above ☐

- Gender [Male ☐]; [Female ☐

	Driving forces	Y	N
1	Do you make use of both the manual and biometric attendance registers? If no why not?	<input type="checkbox"/>	<input type="checkbox"/>
2	Do you complete your attendance register on a daily basis? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
3	Do you complete the manual attendance register on a weekly basis? Why?	<input type="checkbox"/>	<input type="checkbox"/>
4	Do you complete the manual attendance register randomly?	<input type="checkbox"/>	<input type="checkbox"/>
5	Do you agree with the search for an alternative to the manual attendance register? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
6	Do you make use of the exact times 08:00 & 16:30 in your attendance register? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
7	Can you identify any weaknesses in the manual attendance system? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
8	Can you identify any weaknesses in the biometric time and attendance system Comment:	<input type="checkbox"/>	<input type="checkbox"/>
9	Does the involvement of your immediate supervisor contribute towards the effectiveness of the manual attendance register? If yes, please comment?	<input type="checkbox"/>	<input type="checkbox"/>

	Human capital	Y	N
1	Do you agree that the monitoring of employee attendance is a priority? Why?	<input type="checkbox"/>	<input type="checkbox"/>
2	Is your supervisor setting an example by using the biometric clock for attendance? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
3	Do you experience proper control with the use of the manual attendance register? Comment	<input type="checkbox"/>	<input type="checkbox"/>
4	Do you experience that the reports on the biometric attendance provide more detail on employee attendance? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
5	You are working within a Local Government services environment. Does the management of employees improve service delivery? If no, why not?	<input type="checkbox"/>	<input type="checkbox"/>
6	Do you think that the manual attendance register can exist without the intervention of the supervisor? What is your opinion?	<input type="checkbox"/>	<input type="checkbox"/>

7	Does the biometric time and attendance system address problems experienced with the manual attendance register? If any indicate	<input type="checkbox"/>	<input type="checkbox"/>
8	Does the response time of 0,2 seconds by the biometric clock impact on your time when reporting "on" or "off" duty?	<input type="checkbox"/>	<input type="checkbox"/>
9	Do you believe that your supervisor is firm enough with the management of employee attendance matters?	<input type="checkbox"/>	<input type="checkbox"/>

	Expenditure	Y	N
1	Do you believe that the current control measures by using the manual attendance register is in favour of savings on salary budget for 2010/2011? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
2	Do you predict that the biometric time and attendance system will save on overtime expenses? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
3	A 1/3 of the budget is allocated to salaries. Do you believe that an effort towards saving money on the budget is possible How can it be done?	<input type="checkbox"/>	<input type="checkbox"/>
4	According to your knowledge, does the amount of supervisor monitoring address salary and overtime spending within your department? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
5	According to your knowledge, are guidelines in place to address employees who fail to report on duty? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
6	Do you agree that the biometric time and attendance system will address the question on employee attendance? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
7	Do you experience that enough guidelines are in place to prevent overspending of the overtime budget? Why?	<input type="checkbox"/>	<input type="checkbox"/>
8	Do you agree that overtime pre-approval is an effective control measure for overtime expenditure? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
9	Do you think that the biometric system will compensate for the human element in employee monitoring? Why?	<input type="checkbox"/>	<input type="checkbox"/>

	Accountability	Y	N
1	Do you have dedicated control measures in place to verify employee's attendance on a daily basis while using the manual attendance register? If yes, What?	<input type="checkbox"/>	<input type="checkbox"/>
2	Do you experience that proper control is exercised by your supervisor with the management of employee attendance while using of the manual attendance register? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
3	If an employee fails to maintain an attendance register. Are you of the opinion that the matter must be addressed in general meetings? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
4	Would the biometric system according to your opinion allow for correct employee attendance monitoring? If no why not?	<input type="checkbox"/>	<input type="checkbox"/>
5	Are you aware of any discussions by senior managers about this biometric time and attendance system and its impact? If any what?	<input type="checkbox"/>	<input type="checkbox"/>
6	Are you aware if any absenteeism matters were addressed within the past year? If yes how many?	<input type="checkbox"/>	<input type="checkbox"/>
7	According to your knowledge, does the biometric time and attendance system address accountability? If	<input type="checkbox"/>	<input type="checkbox"/>

	no, why?		
8	Are you aware any complaints against the biometric time and attendance system? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
9	Do you agree that employees will take responsibility of the biometric system if approved as the official attendance register? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
10	Do you agree that the completion of the employee attendance register is your responsibility? Comment:	<input type="checkbox"/>	<input type="checkbox"/>
11	Do you think that employees are aware of the responsibility that lies with the employer in the monitoring of employee attendance? Comment:	<input type="checkbox"/>	<input type="checkbox"/>

Annexure 2 Research Data

Key for reading questionnaire results

PI – Post Level

PI - 1-4

PI – 5-7

PI – 8-10

PI – 11-17

EL- Education Level

12 - Grade 12

D - Diploma

DE - Degree

PD – Post Graduate

AG- Age

21 - 25

26 - 30

31 - 35

36 - 40

41 - Above

GE – Gender

M - Male

F - Female

Theme 1 and 2

DRIVING FORCES															HUMAN CAPITAL									
	PI	EL	AG	GE		1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9
3	4	DE	40	M		N	Y	Y	N	Y	Y	N	Y	N		Y	Y	N	Y	Y	N	Y	N	N
46	4	D	40	F		Y	Y	Y	Y	Y	N	Y	N	Y		Y	Y	N	Y	Y	N	Y	N	N
3	4	D	35	M		Y	Y	Y	N	N	Y	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N
37	7	D	30	M		Y	Y	Y	N	N	Y	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N
39	X	12	30	F		Y	Y	Y	N	N	Y	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N
2	4	D	40	M		Y	Y	Y	N	N	Y	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N
46	7	12	35	F		Y	Y	Y	N	N	Y	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N
656	X	PD	41	F		Y	Y	Y	N	N	Y	Y	Y	Y		Y	Y	Y	N	Y	N	N	N	Y
37	7	D	30	M		Y	Y	Y	N	N	Y	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N
39	X	12	30	F		Y	Y	Y	N	N	Y	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N
2	4	D	40	M		Y	N	Y	Y	Y	N	Y	Y	Y		Y	Y	N	N	Y	N	Y	N	N
11	4	D	40	F		Y	N	Y	Y	Y	N	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N
12	7	D	35	M		Y	N	Y	N	Y	N	Y	Y	N		Y	Y	N	Y	Y	N	Y	N	N
7	X	D	35	M		Y	N	Y	Y	Y	Y	Y	N	N		Y	Y	N	Y	Y	N	Y	N	N
36	7	D	35	M		Y	N	Y	N	Y	Y	Y	N	Y		Y	Y	N	Y	Y	N	Y	N	N
58	7	D	35	M		Y	Y	Y	N	Y	N	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N
48	4	DE	35	M		Y	Y	Y	Y	Y	Y	Y	N	Y		Y	Y	N	Y	Y	N	Y	N	N
37	4	D	35	M		Y	N	Y	Y	Y	N	Y	Y	Y		Y	Y	Y	N	Y	N	Y	N	Y
45	4	DE	35	M		Y	Y	Y	N	N	Y	Y	Y	Y		Y	N	Y	Y	Y	N	N	Y	Y
56	4	DE	40	F		Y	Y	Y	N	N	Y	Y	Y	Y		Y	N	N	Y	Y	N	N	N	N
1	4	DE	35	M		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	N	N	Y	N	N	N	Y
13	4	DE	40	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	Y	N	Y	N	Y	N	Y
S37	4	D	35	M		Y	Y	N	N	Y	N	Y	N	Y		Y	N	Y	Y	Y	Y	N	Y	Y
S52	4	DE	35	M		Y	Y	N	N	Y	N	Y	N	Y		Y	N	N	Y	Y	N	N	N	N
E49	7	D	35	M		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	N	N	Y	N	N	N	Y
56	X	D	41	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	Y	N	Y	N	Y	N	Y
1001	7	D	35	M		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	N	Y	Y	Y	Y	Y	Y
101	X	D	41	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	N	Y	Y	Y	Y	Y	Y
1003	X	D	40	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	N	N	Y	N	N	N	Y
1004	4	DE	40	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	N	N	Y	N	N	N	Y
1005	4	D	35	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y
1006	7	D	41	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	Y	Y	Y	Y	Y	N	Y
1007	7	PD	30	M		Y	Y	N	N	Y	N	Y	N	Y		Y	N	Y	Y	Y	N	N	Y	Y
10012	7	12	35	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	Y	Y	Y	Y	Y	N	Y
14	7	PD	35	M		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	N	Y	Y	Y	Y	Y	Y
15	X	D	41	F		Y	Y	N	Y	Y	Y	Y	N	Y		Y	Y	Y	Y	Y	N	Y	N	N
16	4	DE	41	F		Y	Y	N	N	Y	Y	Y	Y	Y		Y	Y	N	N	Y	N	N	N	Y
17	4	12	30	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	N	Y	Y	Y	N	N	Y
18	7	D	41	F		Y	Y	N	Y	Y	Y	Y	N	Y		Y	Y	Y	N	Y	N	N	N	Y
19	7	DE	30	M		Y	N	N	Y	Y	N	Y	N	N		Y	N	Y	Y	Y	N	Y	Y	N
20	7	12	35	F		N	Y	N	N	Y	N	Y	N	N		Y	Y	Y	Y	Y	N	N	N	Y
30	7	DE	35	M		Y	Y	N	N	Y	Y	Y	Y	N		N	N	N	N	Y	N	N	N	Y
32	7	D	30	F		Y	Y	N	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	N	Y	N	Y
33	7	D	30	F		Y	Y	N	N	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	N	N	Y
35	7	12	35	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	Y	Y	Y	Y	Y	N	Y

38	7	12	35	F		Y	N	N	Y	Y	N	Y	N	N		Y	N	N	Y	Y	N	N	N	N	
40	X	D	30	F		N	Y	N	N	Y	N	Y	N	N		Y	N	N	Y	Y	N	N	N	N	
41	X	DE	30	F		Y	Y	N	N	Y	Y	Y	Y	N		Y	N	N	Y	Y	N	N	N	N	
44	4	PD	41	M		Y	Y	N	Y	Y	Y	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N	
1044	X	DE	30	F		Y	Y	N	N	Y	Y	Y	Y	Y		Y	Y	N	Y	Y	N	Y	N	N	
51	X	D	41	F		Y	Y	N	N	Y	Y	Y	Y	N		N	N	N	Y	Y	N	N	N	N	
111	X	D	40	M		Y	Y	N	N	Y	Y	Y	N	Y		Y	Y	Y	Y	Y	N	Y	Y	Y	
132	4	12	41	M		Y	Y	N	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	N	Y	Y	Y	
151	10	D	41	F		Y	Y	N	Y	Y	Y	Y	Y	Y		Y	Y	Y	N	N	N	Y	N	Y	
213	X	DE	41	F		Y	Y	N	Y	Y	N	Y	Y	Y		Y	Y	Y	N	N	N	Y	N	Y	
321	7	12	40	F		Y	Y	N	N	Y	N	Y	Y	Y		Y	Y	Y	N	N	Y	Y	N	N	
445	4	12	35	F		Y	Y	N	N	Y	N	Y	Y	Y		Y	Y	Y	N	N	N	Y	N	Y	
1000	7	DE	40	F		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	Y	N	N	N	Y	N	Y	
1115	4	DE	30	F		Y	Y	N	N	Y	Y	Y	N	Y		Y	Y	Y	N	N	N	Y	N	Y	
1354	7	DE	35	M		Y	Y	N	Y	Y	Y	Y	N	Y		Y	Y	Y	N	N	N	Y	N	Y	
1368	X	12	30	F		Y	Y	N	Y	Y	Y	Y	Y	Y		Y	Y	Y	N	N	N	Y	N	Y	
1959	X	12	35	M		Y	Y	N	N	Y	Y	N	N	Y		Y	Y	Y	Y	N	N	Y	Y	Y	
1987	4	D	35	M		N	Y	N	Y	Y	Y	N	N	Y		Y	N	N	Y	N	Y	N	N	Y	
9658	7	DE	35	F		Y	Y	N	N	Y	N	Y	Y	Y		Y	Y	Y	Y	N	N	Y	N	Y	
10021	X	12	35	M		Y	Y	N	N	Y	Y	N	N	Y		Y	N	N	Y	N	N	Y	N	N	
19780	X	12	35	M		Y	Y	N	N	Y	Y	Y	Y	Y		N	Y	N	Y	N	N	Y	N	Y	
10031	X	DE	30	F		Y	Y	N	N	Y	Y	Y	N	N		Y	N	N	Y	N	Y	N	N	Y	
1006	4	DE	35	M		Y	Y	N	N	Y	N	Y	Y	Y		Y	N	N	Y	N	N	Y	N	N	
41	4	12	35	M		Y	Y	N	Y	Y	N	Y	Y	Y		N	Y	N	Y	N	N	Y	N	Y	
47	7	D	41	F		N	Y	N	N	Y	N	N	Y	N		Y	N	N	Y	N	Y	N	N	Y	
58	7	D	41	F		N	Y	N	N	Y	N	Y	N	N		Y	N	N	Y	N	Y	Y	N	Y	
57	7	D	41	F		N	Y	N	N	Y	N	Y	N	N		Y	Y	Y	Y	N	N	N	Y	Y	
60	4	12	35	M		N	Y	N	Y	Y	N	Y	N	N		Y	Y	Y	Y	N	N	Y	N	Y	
50	4	D	40	M		Y	Y	N	N	Y	N	Y	N	Y		Y	Y	N	N	N	N	N	N	Y	
52	4	D	40	M		Y	Y	N	N	Y	N	Y	N	Y		N	N	N	N	N	N	N	N	Y	
154	4	D	40	M		N	Y	N	N	N	N	N	N	Y		Y	Y	Y	N	N	Y	N	N	Y	
3	7	PD	35	F		Y	Y	N	N	N	N	Y	Y	Y		Y	Y	Y	N	N	N	Y	N	Y	
34	7	PD	35	M		Y	Y	N	N	N	N	Y	Y	Y		Y	Y	Y	N	N	N	Y	N	Y	
						78	78	78	78	78	78	78	78	78		78	78	78	78	78	78	78	78	78	
				N		9	8	58	58	13	43	6	41	15		5	18	44	25	25	62	27	66	29	
				Y		69	70	20	20	65	35	72	37	63		73	60	34	53	53	16	51	12	49	
		%				N	11.54	10.26	74.36	74.36	16.67	55.13	7.69	52.56	19.23	N	6.41	23.08	56.41	32.05	32.05	79.49	34.62	84.62	37.18
		%				Y	88.46	89.74	25.64	25.64	83.33	44.87	92.31	47.44	80.77	Y	93.59	76.92	43.59	67.95	67.95	20.51	65.38	15.38	62.82
							100	100	100	100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100

Theme 3 and 4

EXPENDITURE														ACCOUNTABILITY										
	PI	EL	AG	GE	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	X	1
3	4	DE	40	M	N	Y	Y	N	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
46	4	D	40	F	N	Y	Y	N	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
3	4	D	35	M	N	Y	Y	N	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
37	7	D	30	M	N	Y	Y	N	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
39	X	12	30	F	N	Y	Y	N	Y	Y	N	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	N
2	4	D	40	M	N	Y	Y	N	Y	Y	N	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	N
46	7	12	35	F	N	Y	Y	N	Y	Y	N	Y	Y	N	N	Y	Y	Y	N	Y	Y	Y	Y	N
656	X	PD	41	F	Y	N	Y	Y	Y	N	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
37	7	D	30	M	N	Y	Y	N	Y	Y	N	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	N
39	X	12	30	F	N	Y	Y	N	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
2	4	D	40	M	N	Y	Y	N	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
11	4	D	40	F	N	Y	Y	N	Y	Y	N	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
12	7	D	35	M	N	Y	Y	N	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
7	X	D	35	M	N	Y	Y	N	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
36	7	D	35	M	N	Y	Y	N	Y	Y	N	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
58	7	D	35	M	N	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
48	4	DE	35	M	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
37	4	D	35	M	N	Y	N	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
45	4	DE	35	M	N	Y	N	N	N	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	N	Y	Y	Y
56	4	DE	40	F	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y
1	4	DE	35	M	N	Y	N	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N	Y	N	Y	Y	Y
13	4	DE	40	F	N	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	N	Y	Y	Y
S37	4	D	35	M	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
S52	4	DE	35	M	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
E49	7	D	35	M	N	Y	Y	N	Y	Y	N	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
56	X	D	41	F	N	Y	N	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y
1001	7	D	35	M	Y	N	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
101	X	D	41	F	N	Y	N	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
1003	X	D	40	F	Y	Y	N	Y	Y	Y	N	Y	Y	N	Y	Y	Y	N	N	Y	Y	Y	Y	N
1004	4	DE	40	F	N	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y
1005	4	D	35	F	Y	N	Y	N	Y	Y	N	N	Y	N	Y	Y	Y	N	N	Y	Y	Y	Y	N
1006	7	D	41	F	N	Y	Y	N	Y	Y	N	N	Y	Y	N	N	Y	N	N	Y	N	Y	Y	N
1007	7	PD	30	M	N	N	Y	Y	N	Y	N	N	Y	N	N	N	Y	N	N	Y	N	Y	N	N
10012	7	12	35	F	N	N	Y	Y	Y	N	N	Y	N	N	N	N	N	Y	N	Y	Y	Y	Y	N
14	7	PD	35	M	Y	N	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	N	N	Y	N	Y	Y	Y
15	X	D	41	F	N	Y	N	N	N	Y	N	N	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	N
16	4	DE	41	F	N	Y	Y	Y	Y	Y	N	N	Y	N	N	N	N	N	N	Y	Y	Y	Y	Y
17	4	12	30	F	Y	N	N	N	N	N	Y	Y	Y	Y	N	N	Y	N	N	Y	N	Y	Y	N
18	7	D	41	F	N	Y	Y	Y	Y	Y	N	N	Y	N	N	N	Y	N	N	Y	N	Y	N	N
19	7	DE	30	M	N	N	Y	Y	N	Y	N	N	Y	N	N	N	N	Y	N	Y	Y	Y	Y	N
20	7	12	35	F	N	N	Y	Y	Y	N	N	Y	N	N	N	N	Y	N	N	Y	N	Y	Y	N
30	7	DE	35	M	Y	N	Y	N	Y	Y	Y	Y	N	N	N	N	Y	N	N	Y	N	Y	Y	N
32	7	D	30	F	Y	N	N	N	N	Y	N	N	N	N	N	N	N	Y	N	Y	Y	Y	Y	N

33	7	D	30		F	Y	N	N	N	N	Y	N	N	N		N	N	N	N	N	Y	Y	Y	Y	Y	N
35	7	12	35		F	Y	N	Y	Y	Y	N	N	Y	N		Y	Y	Y	Y	N	N	Y	N	Y	Y	Y
38	7	12	35		F	N	N	Y	Y	Y	N	N	Y	N		Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y
40	X	D	30		F	N	Y	Y	Y	Y	Y	N	N	Y		Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y
41	X	DE	30		F	N	Y	Y	N	Y	Y	N	N	Y		N	N	N	Y	N	N	Y	N	Y	Y	N
44	4	PD	41		M	N	N	N	N	N	Y	Y	N	N		N	Y	Y	Y	N	N	Y	Y	Y	Y	N
1044	X	DE	30		F	N	Y	Y	N	Y	Y	N	N	Y		N	N	Y	Y	N	N	Y	Y	Y	Y	N
51	X	D	41		F	N	Y	N	Y	N	Y	N	N	Y		N	N	N	N	N	Y	N	Y	Y	Y	N
111	X	D	40		M	Y	N	N	N	N	Y	N	N	N		Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y
132	4	12	41		M	N	Y	Y	Y	Y	Y	N	Y	Y		Y	Y	N	Y	N	N	Y	N	Y	Y	Y
151	10	D	41		F	N	Y	N	Y	N	Y	N	Y	N		Y	Y	N	Y	N	Y	Y	Y	Y	Y	Y
213	X	DE	41		F	N	N	N	Y	N	Y	N	Y	N		Y	Y	N	Y	N	N	Y	N	Y	Y	N
321	7	12	40		F	N	Y	Y	Y	N	Y	Y	Y	N		Y	Y	Y	Y	N	N	Y	N	Y	N	Y
445	4	12	35		F	N	N	Y	Y	N	N	N	Y	N		Y	Y	Y	Y	N	N	Y	N	Y	Y	N
1000	7	DE	40		F	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y
1115	4	DE	30		F	N	N	N	N	Y	Y	N	Y	Y		Y	N	N	Y	N	N	Y	N	Y	Y	N
1354	7	DE	35		M	Y	N	Y	N	N	Y	N	N	N		Y	N	N	Y	N	N	N	N	Y	Y	N
1368	X	12	30		F	Y	Y	Y	N	Y	Y	N	Y	Y		Y	N	N	Y	N	N	N	N	Y	Y	N
1959	X	12	35		M	N	N	N	Y	Y	N	N	Y	N		Y	Y	Y	Y	N	N	N	N	Y	Y	Y
1987	4	D	35		M	Y	Y	Y	N	Y	Y	N	N	Y		Y	Y	N	N	Y	Y	N	Y	N	Y	Y
9658	7	DE	35		F	N	Y	Y	Y	N	Y	N	Y	N		Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
10021	X	12	35		M	Y	Y	Y	Y	Y	Y	Y	N	Y		Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
19780	X	12	35		M	N	N	N	Y	Y	N	N	Y	N		Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
10031	X	DE	30		F	N	Y	Y	N	Y	Y	N	N	Y		Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
1006	4	DE	35		M	N	N	Y	N	Y	Y	N	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
41	4	12	35		M	N	Y	N	Y	Y	Y	Y	Y	Y		Y	Y	Y	N	N	N	N	Y	N	Y	Y
47	7	D	41		F	N	Y	Y	N	Y	Y	N	N	Y		Y	N	N	Y	N	N	Y	Y	N	N	N
58	7	D	41		F	N	Y	Y	N	Y	Y	N	N	N		Y	Y	Y	N	N	N	N	Y	N	Y	Y
57	7	D	41		F	N	Y	Y	N	Y	Y	N	N	N		Y	Y	Y	N	N	N	N	Y	N	Y	Y
60	4	12	35		M	N	Y	N	Y	Y	Y	Y	Y	Y		N	Y	N	Y	N	N	N	Y	N	N	Y
50	4	D	40		M	N	Y	Y	N	Y	Y	N	N	Y		Y	Y	N	Y	N	N	N	N	N	Y	N
52	4	D	40		M	N	Y	Y	N	Y	Y	N	N	Y		Y	Y	N	N	N	N	Y	Y	N	Y	N
154	4	D	40		M	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	N	N	N	N	Y	N	N	Y	N
3	7	PD	35		F	Y	Y	Y	N	Y	Y	N	N	Y		Y	Y	N	N	N	N	Y	N	N	Y	Y
34	7	PD	35		M	Y	Y	Y	N	Y	Y	N	N	Y		Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y
							78	78	78	78	78	78	78	78		78	78	78	78	78	78	78	78	78	78	78
					N	59	23	25	44	17	9	57	43	22		37	39	36	15	44	37	17	24	16	5	30
					Y	19	55	53	34	61	69	21	35	56		41	39	42	63	34	41	61	54	62	73	48
		%				75.64	29.49	32.05	56.41	21.79	11.54	73.08	55.13	28.21	N	47.44	50.00	46.15	19.23	56.41	47.44	21.79	30.77	20.51	6.41	38.46
		%				24.36	70.51	67.95	43.59	78.21	88.46	26.92	44.87	71.79	Y	52.56	50.00	53.85	80.77	43.59	52.56	78.21	69.23	79.49	93.59	61.54
						100	100	100	100	100	100	100	100	100	0	100	100	100	100	100	100	100	100	100	100	100