

## **Managing change in an engineering company**

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### **Abstract**

The purpose of this study was to understand the factors which contribute to organisational change resistance by engineers in a civil engineering consulting organisation in order to better manage them in future. A questionnaire was sent out to employees and documents on the change were analysed to establish what these factors were and how they compared to literature. A number of steps the organisation should take during future organisational changes were put forth to assist in reducing employee resistance.

### **Keywords**

Change management; employee resistance

### **1. Introduction**

“Living and coping with change is a fact of life for organisations and the individuals within them (Daly, et al., 2003).” Approximately 70% of organisational change initiatives fail (Daly, et al., 2003) (Judge & Thomas, 2009). There are however different ways in which individuals deal with organisational change. Some individuals may support change and accept it easily; others may support change but find it difficult to accept as it requires changes in their habits; others may simply have no decided feeling about the change; and others just do not support change, cannot accept it and thus resist it. It is human nature to resist change as it brings insecurity (Yang, 2014). The reasons for resistance are difficult to overcome as it deals with human characteristics such as perceptions, personalities and needs (Agboola & Salawu, 2011). The manner in which organisational change is implemented and managed can affect employees’ resistance to the change (Folger & Skarlicki, 1999). However, there are ways to help minimise these cases of resistance (Yue, 2008). Organisations should accept that resistance is part of change as employees will in most cases defend their current security if they feel it is threatened (Folger & Skarlicki, 1999). Engineering is a process of constant change (Du Toit, 2014) therefore engineers by nature are constantly thinking of ways to do things better. However, organisational change that is implemented which employees do not think will improve their way of working will cause resistance (Mutihac, 2010). Change managers and change agents should anticipate employee resistance and should manage it from planning and through implementation.

The case organisation is a South African civil engineering consulting firm with a staff complement just over 600 (80% engineering departments, 16% support services departments and 4% environmental department). The change initiative implemented focused on improving the systems within the organisation to improve efficiencies, reduce time and costs, but not compromising on quality.

A problem identified within the case organisation was the low response rate to change readiness surveys by employees of the engineering departments (21.6 % response rate). As engineering employees make up 80 % of the employees, it was recognised that this was a problem. The neglect to respond to the surveys may have meant that these employees were resisting the change. If the rest of the engineering department employees responded, scores could have been lower than the positive scores and could have affected the change readiness results. A need to identify the factors which cause resistance and how to manage them was identified. The objective of this research was to identify and understand the main reasons that contribute to resistance of organisational change by engineering employees. Knowing the factors would assist management in reducing resistance during future changes.

The research approach followed a deductive method. The first stage involved a literature review that covered the factors that cause employee resistance to organisational change; the methods that can assist in reducing these factors; and good change management processes used in organisational change initiatives. The literature was evaluated using a qualitative approach (involves collecting and analysing textual data (Borrego, et al., 2009)) and helps to understand the view of the employees. A qualitative review was carried out on available documents on the change to assess whether a change management process was followed. The literature review findings were used to draft a questionnaire that was sent out to the employees. The data from the questionnaires was analysed to obtain a list of the common factors that caused employee resistance within the case organisation. This stage of the research followed a quantitative research approach (data that can be counted and ranked) (Anderson, 2009). Note that findings and recommendations from this research cannot be generalised for any other organisation.

## 2. Literature Review

Organisational change is implemented for positive reasons but employees often respond negatively and resist the change (Boohene & Williams, 2012). A study carried out in 500 Australian companies revealed that employee resistance was a common problem during organisational change (Bovey & Hede, 2000). Overcoming resistance to organisational change has been discussed over many decades since Kotter and Schlesinger stated that organisational change initiatives regularly encounter employee resistance and also proposed some strategies to assist in managing the resistance (Kotter & Schlesinger, 1979). Bovey and Hede state that organisational change is managed mainly from a procedural view and less by recognising or understanding the resistance from employees (Bovey & Hede, 2000).

### 2.1 Factors Contributing to Resistance

The factors that cause this resistance are summarised in Table 1 and are important to identify and understand as they can cause many organisational change initiatives to fail which can impact on an organisation’s competitiveness and survival. Sub-factors are listed with an indication of where it could originate from (from an individual (I) or from the organisation (O)).

Table 1. Factors Contributing to Resistance

<b>Factor</b>	<b>Sub-factors</b>	<b>I</b>	<b>O</b>	<b>References</b>
Ineffective Communication	Lack of or infrequent communication		√	(Daly, et al., 2003; Folger & Skarlicki, 1999; Yue, 2008; Pikosz & Malmqvist, 1998; Yang, 2014; Mutihac, 2010; D’Ortenzio, 2012; Boohene & Williams, 2012; Judge & Thomas, 2009; Bovey & Hede, 2000; Kotter & Schlesinger, 1979; Gerkhardt, et al., 2008; Smollan, 2011; Husain, 2013; Allen, et al., 2007; McClellan, 2014; Jabri, 2012; Rousseau & Tijoriwala, 1999)
	Unclear or inadequate information		√	
	Incorrect timing of communication		√	
	Not communicating timeframes		√	
	Need for change not explained		√	
	Implementation without warning		√	
	Top-down communication		√	
Fear and Threatened Security	Fear of uncertainty about the impacts of the change and of what is expected	√		(Daly, et al., 2003; Agboola & Salawu, 2011; Folger & Skarlicki, 1999; Yue, 2008; Visagie & Steyn, 2011; Yang, 2014; Mutihac, 2010; D’Ortenzio, 2012; Kotter & Schlesinger, 1979; Gerkhardt, et al., 2008; Smollan, 2011; Husain, 2013; Allen, et al., 2007; McClellan, 2014; Jabri, 2012; Zakaria & Yusof, 2001; Rousseau & Tijoriwala, 1999; Chawla & Kelloway, 2004; Piderit, 2000)
	Lack of confidence in capability	√		
	Perception that personal interests are threatened	√		
	Fear of failure of change	√		

Low Tolerance for Change	Attachment to familiar culture	√		(Agboola & Salawu, 2011; Folger & Skarlicki, 1999; Yue, 2008; Visagie & Steyn, 2011; Yang, 2014; Mutihac, 2010; D'Ortenzio, 2012; Boohene & Williams, 2012; Bovey & Hede, 2000; Kotter & Schlesinger, 1979; Kotter & Schlesinger, 1979; Gerkhardt, et al., 2008; Smollan, 2011; Jabri, 2012; Zakaria & Yusof, 2001; Chawla & Kelloway, 2004)
	Comfort in status quo	√		
	Not emotionally or competently ready	√		
	Personal life changes	√		
	No time or resources for change		√	
	Lack of motivation and commitment to change		√	
Lack of Trust in Management	Bad experience during past changes		√	(Daly, et al., 2003; Folger & Skarlicki, 1999; Yue, 2008; Visagie & Steyn, 2011; Yang, 2014; Mutihac, 2010; D'Ortenzio, 2012; Boohene & Williams, 2012; Judge & Thomas, 2009; Kotter & Schlesinger, 1979; Gerkhardt, et al., 2008; Smollan, 2011; Husain, 2013; Allen, et al., 2007; Jabri, 2012; Rousseau & Tijoriwala, 1999)
	Past promises not delivered		√	
	Lack of confidence in management's credibility or sincerity		√	
Change by Management Only	No employee participation		√	(Daly, et al., 2003; Agboola & Salawu, 2011; Yang, 2014; D'Ortenzio, 2012; Boohene & Williams, 2012; Judge & Thomas, 2009; Gerkhardt, et al., 2008)
	No communication		√	
Poor Change Management	Poor planning or implementation		√	(Daly, et al., 2003; Folger & Skarlicki, 1999; Yue, 2008; Pikosz & Malmqvist, 1998; Visagie & Steyn, 2011; Yang, 2014; Mutihac, 2010; D'Ortenzio, 2012; Judge & Thomas, 2009; Bovey & Hede, 2000; Smollan, 2011; Allen, et al., 2007; Zakaria & Yusof, 2001; Rousseau & Tijoriwala, 1999)
	No change management process followed		√	
	Lack of support or poor training		√	
	Lack of vision, direction or objectives		√	
	Lack of goal setting for employees		√	
	Lack of change coalition or leaders		√	
	Incorrect or excessive change		√	
	Incorrect timing of change		√	
	No need for change		√	
	Ignorance of employee needs		√	
Personal or Group Beliefs	Individual ethics and principles	√		(Agboola & Salawu, 2011; Yue, 2008; Visagie & Steyn, 2011; Yang, 2014; Mutihac, 2010; D'Ortenzio, 2012; Kotter & Schlesinger, 1979; Gerkhardt, et al., 2008; Smollan, 2011; Allen, et al., 2007; Zakaria & Yusof, 2001; Rousseau & Tijoriwala, 1999; Piderit, 2000)
	Belief that the change is not needed, not well-timed, wrong or excessive	√		
	Group beliefs imposed on individuals	√		

## 2.2 Methods to Reduce Resistance

Resistance to change cannot be eliminated but managed in order to assist employees in accepting the change initiative sooner. There is also no single method to manage employee resistance to change. However a single method can assist in reducing many of the factors that cause the resistance. Successful organisational change is possible with employee support and interest for the proposed change rather than simply overcoming the resistance. Without managing resistance to change and encouraging support of employees to the change, the organisation runs the risk of the change failing. The eight methods and their sub-methods that can be used to reduce employee resistance to organisational change as found from the literature reviewed are summarised in **Table 2**.

Table 2. Methods to Reduce Resistance

Method	Sub-method	References
Education and Communication	Transparent, well-timed and sincere communication	(Daly, et al., 2003; Agboola & Salawu, 2011; Folger & Skarlicki, 1999; Yue, 2008; Pikosz & Malmqvist, 1998; Visagie & Steyn, 2011; Yang, 2014; Mutihac, 2010; D'Ortenzio, 2012; Boohene & Williams, 2012; Judge & Thomas, 2009; Bovey & Hede, 2000; Kotter & Schlesinger, 1979; Gerhardt, et al., 2008; Smollan, 2011; Husain, 2013; Allen, et al., 2007; McClellan, 2014; Jabri, 2012; Zakaria & Yusof, 2001; Rousseau & Tijoriwala, 1999; Chawla & Kelloway, 2004; Piderit, 2000; Coetsee, Summer, 1999)
	Regularly sharing of information	
	Explain the need, positive and negative impacts	
	Controlled communication	
	Group discussions to express concerns and fears	
Facilitation and Support	Provide necessary facilitation	(Agboola & Salawu, 2011; Folger & Skarlicki, 1999; Yue, 2008; Agboola & Salawu, 2011; Pikosz & Malmqvist, 1998; Visagie & Steyn, 2011; Mutihac, 2010; D'Ortenzio, 2012; Boohene & Williams, 2012; Judge & Thomas, 2009; Bovey & Hede, 2000; Kotter & Schlesinger, 1979; Gerhardt, et al., 2008; Smollan, 2011; Allen, et al., 2007; Jabri, 2012; Zakaria & Yusof, 2001; Piderit, 2000)
	Provide necessary support	
	Provide necessary training	
	Provide necessary resources	
Participation and Involvement	Employee participation and involvement in planning and implementation	(Daly, et al., 2003; Agboola & Salawu, 2011; Folger & Skarlicki, 1999; Yue, 2008; Visagie & Steyn, 2011; Yang, 2014; Mutihac, 2010; D'Ortenzio, 2012; Boohene & Williams, 2012; Judge & Thomas, 2009; Bovey & Hede, 2000; Kotter & Schlesinger, 1979; Gerhardt, et al., 2008; Smollan, 2011; Husain, 2013; Allen, et al., 2007; McClellan, 2014; Jabri, 2012; Zakaria & Yusof, 2001; Rousseau & Tijoriwala, 1999; Chawla & Kelloway, 2004; Piderit, 2000)
	Group discussions to express concerns and fears	
	Consultation	
Negotiation and Agreement	Offer incentives	(Agboola & Salawu, 2011; Folger & Skarlicki, 1999; Yue, 2008; Mutihac, 2010; D'Ortenzio, 2012; (Boohene & Williams, 2012; Kotter & Schlesinger, 1979; Smollan, 2011; Jabri, 2012; Coetsee, Summer, 1999)
	Reach agreements	
	Reward top achievers	
Manipulation and Co-optation	Distorting facts to make change appear attractive	(Agboola & Salawu, 2011; Yue, 2008; Mutihac, 2010; Boohene & Williams, 2012; Bovey & Hede, 2000; Kotter & Schlesinger, 1979; Smollan, 2011)
	Giving employees key roles in change process	
Explicit and Implicit Coercion	Persuade by using force or threats	(Agboola & Salawu, 2011; Yue, 2008; Mutihac, 2010; Boohene & Williams, 2012; Bovey & Hede, 2000; Kotter & Schlesinger, 1979; Smollan, 2011)
	Disciplinary actions	
	Warning letters	
	Dismissals	
Repairing Trust	Change agent or manager competent, sincere and confident	(Daly, et al., 2003; Folger & Skarlicki, 1999; Visagie & Steyn, 2011; Mutihac, 2010; D'Ortenzio, 2012; Chawla & Kelloway, 2004)
	Transparent, well-timed and sincere communication	
	Use of trusted and capable employees to communicate	

Effective Change Management	Ensure clear vision, direction and objectives	(Daly, et al., 2003; Agboola & Salawu, 2011; Yue, 2008; Visagie & Steyn, 2011; Mutihac, 2010; D'Ortenzio, 2012; Boohene & Williams, 2012; Judge & Thomas, 2009; Kotter & Schlesinger, 1979; Gerhardt, et al., 2008; McClellan, 2014; Zakaria & Yusof, 2001; Chawla & Kelloway, 2004; Coetsee, Summer, 1999)
	Coalition of competent change leaders	
	Change process or model focusing on employees	
	Provide necessary resources	
	Implement change that is needed, well-timed, correct and not excessive	
	Pilot programs or smaller versions of change	
	Goal setting for employees	
	Monitoring	

### 2.3 Change Management Models and Strategies focusing on Resistance

Change management models are used as frameworks upon which change management strategies are built and implemented (D'Ortenzio, 2012). Ten change management models were considered that provides a guideline to follow on how to plan and implement change. *Lewin's Three-Step Change Model and Force Field Theory (1947-1951)* can be used to identify the factors that cause employee resistance and the methods to reduce them (Kebapci & Erkal, 2009). The model assists by providing three phases of unfreezing, changing and refreezing employee skills, values, attitudes and behaviours (Agboola & Salawu, 2011) (Bengat & Odenyo, 2015) (D'Ortenzio, 2012). For successful organisational change, *Beckhard's Change Program (1969)* does not specify direct ways of reducing resistance but emphasises that factors which may affect change should be identified and managed (cited in (Brisson-Banks, 2010)). *The Change Formula (1975-1990)* shows the importance of three components of change that must be present to overcome resistance but does not provide a process to follow for each component in order to reduce resistance (Cady, et al., 2014). The *Nadler and Tushman's Congruence Model (1980)* focuses on the organisation as a system of sub-systems that are interrelated which includes employees. Methods to reduce resistance for each component are not directly provided (Kebapci & Erkal, 2009) (Mutihac, 2010) (Nadler & Tushman, 1980). The benefit of the *Bullock and Batten's Four-Phase Model to Change (1985)* is that it introduces a planning phase and specifies a process to follow for each phase, each of which assist in reducing resistance (cited in (Brandt & Sommer, 2013)). The *Ten Commandments for Executing Change (1992)* is focused on first identifying the need for a change which is important to get the change process started and for employees to understand the risks of not changing. Motivation of employees is highlighted which assists in reducing resistance (Brandt & Sommer, 2013) (Kilpimaa, 2006). *Kotter's Eight-Stage Change Process (1995/6)* emphasizes the importance of communication to overcome resistance (Bengat & Odenyo, 2015) (D'Ortenzio, 2012) (Kebapci & Erkal, 2009) (Kilpimaa, 2006) (Mutihac, 2010). The disadvantage however is that no steps can be skipped which can be time-consuming. *Pendlebury, Gouard and Meston's Ten Keys to Successful Change Management (1998)* highlights participation and communication with employees and guiding employees to perform their new functions under the change but does not say if the steps should be sequential, concurrent or if they are interrelated (cited in (Kilpimaa, 2006)). *Kasurinen's Accounting Change Model (2002)* showed us the importance of overcoming barriers (resistance) for successful change implementation and having good change leadership to motivate employees to accept change but does not go into detail on how this can be done (Innes & Mitchell, 1990) (Kasurinen, 2002) (Mutihac, 2010). The *Prosci ADKAR Model (1998-2006)* highlights that individuals go through the change process at different times and ignoring this component may mean that some groups are left behind and can result in a less than successful change (Hiatt & Creasey, 2012) (Kiani & Shah, 2014) (Parker, et al., 2013). The model provides what can be done when there are gaps in the five elements but does not provide steps to follow throughout the change process.

From the change management models reviewed, change managers should ensure that:

1. The need for change is identified and understood: The status quo should be diagnosed to identify existing problems in the status quo.
2. Awareness of the change should be created: The problems with the status quo should be communicated to employees to establish a sense of urgency. The advantages of changing should be highlighted with the possible risks of not changing.

3. A change manager is selected and a change team is created: Choose a change leader with enough power to lead the change effort with a good change team with a good reputation. These individuals should be trusted by employees and have good change management skills.
4. Create a clear vision and common direction: Create a positive vision to increase the motivation for employees to accept change. The vision should be communicated to direct the change and develop strategies for achieving that vision.
5. Create an implementation plan: A plan to guide the change team and employees on what to do, when to do it and how to do it should be defined in order to reach the change goals. The plan should assist to manage the factors likely to affect the success of the change.
6. Develop enabling structures: Rewarding systems should be put in place to reward employees who perform well under the change. Training programs, workshops or pilot tests can also help employees through the change process as it provides employees with knowledge and ability for their new responsibilities the change requires. Obstacles that may undermine the vision should be identified and eliminated or managed appropriately. The necessary resources to implement the change should be provided where required.
7. Communicate effectively throughout the change process: Communicate openly, regularly and honestly.
8. Encourage participation: Involving employees in the change process is important as it assists in building trust between management and employees and creates a desire for employees to change. Constant feedback should be given by the change team and requested from employees.
9. Handle emotional and power issues: Employee resistance should be identified and managed accordingly. Trust between employees and managers should also be managed during change.
10. Reinforce the change: Reinforce and institutionalize the new change culture by incorporating it into the daily activities of the organisation.
11. Monitoring and feedback: This is necessary for a period after the change in order to develop corrective interventions.

### **3. Research Methodology**

The research method selected was a case study approach as it assists in understanding common occurrences or experiences of individuals or a group of individuals (Cooper & Schindler, 2014). The unit of analysis for this case study was the change process followed during the change initiative within the organisation. The process was assessed using the available documentation and then compared to the change models presented earlier. A questionnaire was selected as a method to collect data to allow a faster turnaround time versus one-on-one interviews with employees. The questionnaire assisted in understanding the factors that cause resistance and the methods that were used during the process. The sample size was approximately 120 employees (employees of engineering departments). The data from the questionnaires was analysed and grouped accordingly to obtain a list of the most common factors that cause employee resistance to organisational change. This stage of the research followed a quantitative research approach (data that can be counted and ranked) (Anderson, 2009). The questionnaire results, the information obtained from the literature and the change management documents reviewed were then considered in more detail and logical conclusions drawn from them.

The questionnaire consisted of three sections. The first section asked the number of years the employee was employed at the organisation, their management level and job title or description. The second section consisted of questions regarding the seven main factors and their sub-factors that cause resistance and whether the employees perceived them to be valid within the case organisation. The sub-factors from **Table 1** were used to draft the questions. The questionnaire consisted of questions with optional answers ranging from 1 to 5 (1 – Strongly disagree to 5 – Strongly agree). The rating scale (Likert Scale) was used in order to measure the attitude of employees with regard to their feelings towards the organisational change (Vagias, 2006). The third section asked the methods that the organisation used to assist in reducing employee resistance. The sub-methods from **Table 2** were used to draft the questions. The questionnaire consisted of questions with optional answers ranging from 1 to 5 (1 – Never use to 5 – Frequently use). The Likert Scale was also used in this section in order to measure the amount of times the organisational used methods to reduce employee resistance (Vagias, 2006).

Reliability and validity are two important elements in research (Brink, 1993). Findings of research are said to be reliable if the results are found to be consistent or occurs repeatedly in the same environment but sometimes in different circumstances or periods of time (Brink, 1993). Validity in research exists if it accurately measures what it is intended to measure (Tavakol & Dennick, 2011). To ensure the reliability of the findings of the research, two data

sources were used (available documents on the change process and the completed questionnaires based on the same change). Similarities from the factor section and the method section of the questionnaire were identified. These similarities were then compared to the literature review findings to establish which factors, methods and processes were found to be used in the case organisation. From this, recommendations on what must be done during future organisational change initiatives were made. Triangulation is when two or more data sources or approaches in research are used and then identifying the similarities among them (Brink, 1993). To ensure reliability and validity of the data, the documents available and the factor and methods section of the questionnaire were compared to find similar trends. These were then triangulated back to the findings from literature. Triangulation in research is checking at least three ways to verify an event, description or fact being reported (Yin, 2011).

#### **4. Data Analysis**

The document analysis indicated that communication was carried out regularly. The need, risks, benefits, vision, direction and objectives of the change were sometimes shared. Detailed workplans, employee responsibilities, progress, successes and problems were occasionally shared. However, management did not accept or provide any negative feedback or communicate timelines and tasks at first. Communication was not effective as employees were not convinced of the benefits of the change. Employees acknowledged the change agents' good efforts and acknowledged that meetings were held to share information regarding the change. Negative aspects identified were that the change sponsor and change agents only consisted of senior management; management did not lead by example; insufficient workshops were held with employees; and that training for employees was required to enable them to perform their duties during the change.

The number of responses was 59 out of the approximate 120 employees (response rate of almost 50% - a good representative sample). 76% of responses were technical staff. 68% of questionnaires completed were by employees having been employed by the organisation for less than 5 years. 73% of responses were by employees falling within the junior or middle level of position.

A summary of the responses of the questionnaire covering employee resistance factors are provided below:

- Ineffective Communication - 70% of respondents felt that communication during organisational change was done in a top-down fashion (25% strongly agreed); 50% indicated that information provided was unclear or inadequate and 50% felt that the need for the change was not communicated or explained to them. The highest sub-factor of ineffective communication was that communication about the change was done in a top-down fashion.
- Fear and Threatened Security - 70% of respondents felt confident in their capability to perform under the change (20% strongly feeling confident); 60% did not fear the failure of the change and 50% disagreed that their personal interests were threatened with the change. 50% of respondents felt uncertain about the impacts of the change and what would be expected of them during and after the change. The most prevalent sub-factor was that employees felt uncertain about the impacts of the change and what would be expected of them during and after the change which may have been due to the lack of communication. Overall the weighted scores of the sub-factors for this factor were much lower than those of ineffective communication.
- Low Tolerance for Change - 70% of respondents felt emotionally or competently ready for the change (20% strongly feeling ready); 60% did not feel a lack of motivation or commitment to the change and 50% disagreed that they did not have the time or resources for the change. Respondents were reasonably comfortable with the status quo and were attached to the current organisational culture. Responses for the remaining sub-factors of low tolerance for change were consistently spread and no particular one stood out.
- Lack of Trust in Management - 60% of respondents felt that past promises were not delivered during past changes and 50% of respondents felt a lack of confidence in management's credibility or sincerity. Respondents felt that past promises were not delivered during past changes and that there was a lack of confidence in management's credibility or sincerity. Overall each sub-factor of lack of trust in management indicated that there may be a problem with employees' trust in management.

- Change by Management Only - 50% of respondents felt that there was no employee participation before and during the change.
- Poor Change Management - 60% of respondents felt that there was a lack of or no support and training for the change; 50% indicated that planning and implementation of the change was poor and that there was a lack of a change coalition or leaders. 50% felt that management was ignorant of employee needs (30% strongly agreeing with this statement). However 50% agreed that there was a need for a change and that disagreed that the change lacked a vision, direction or objectives. Overall most sub-factors of poor change management indicated a lack of change management during organisational change.
- Personal/Group Beliefs - 70% of respondents disagreed that the change goes against their ethics and principles (20% strongly disagreed); 50% believed that the change was needed, well-timed, correct or reasonable; and 50% of respondents disagreed that the change goes against group beliefs that are imposed on them or other employees. This shows that employee resistance due to personal/group beliefs was low.

The top five sub-factors are communication about the change is done in a top-down fashion, followed by two poor change management sub-factors (management is ignorant of employee needs and a lack of or no support and training for the change), then that past promises were not delivered during past changes and lastly that there was no employee participation before and during the change. Each of these sub-factors is influenced by the organisation and particularly by management. Ineffective communication sub-factors stood out as being higher in general than the other sub-factors. Eighteen of the top twenty sub-factors are influenced by the organisation. The factors that stand out in the top ten sub-factors additional to ineffective communication are poor change management, lack of trust in management and change by management only.

A summary of the responses to the questionnaire covering methods used by the organisation are provided below:

- Education and Communication - 50% of respondents felt that four sub-methods of education and communication of the change by the organisation were only occasionally or sometimes carried out (Transparent, well-timed and sincere communication, regularly sharing of information, explanations of the need and impacts of the change and controlled communication). 50% of respondents felt that the organisation almost never had group discussions for employees to express concerns and fears (20% felt this was never used by the organisation).
- Facilitation and Support - 40% of respondents felt that all sub-methods of facilitation and support during organisational change were only occasionally or sometimes carried out by the organisation.
- Participation and Involvement - 50% of respondents felt that all sub-methods of participation and involvement during organisational change were almost never used by the organisation.
- Negotiation and Agreement - 50% of respondents felt that incentives were almost never offered by the organisation (20% said that this was never used).
- Manipulation and Co-optation - 40% of respondents felt that manipulation and co-optation was occasionally or sometimes used by the organisation.
- Explicit and Implicit Coercion - 60% of respondents felt that explicit and implicit coercion was almost never used by the organisation (40% felt that this was never used).
- Repairing Trust - 40% of respondents felt that the organisation occasionally or sometimes used methods to repair trust during organisational change.
- Effective Change Management - 50% of respondents felt that the organisation occasionally or sometimes ensured that the change had a clear vision, direction and objectives. 50% of respondents also felt that the organisation almost frequently monitored the organisational change progress.

The top five sub-methods occasionally or sometimes used by the organisation were ensuring a clear vision, direction and objectives for the change, transparent, well-timed and sincere communication, monitoring and sharing of information about the change and lastly that the organisation communicated to employees using trusted and capable employees. Nine of the top ten sub-methods are from the education and communication, effective change management and repairing trust methods. The tenth sub-method used occasionally or sometimes was the rewarding of top achievers during the organisational change. Facilitation and support sub-methods and manipulation and co-

optation sub-methods were less occasionally used. The four lowest weighted scores are sub-methods from the explicit and implicit coercion method. The fifth lowest sub-method was group discussions to express concerns and fears which indicated that the organisation almost never used this sub-method during organisational change. All sub-methods from the participation and involvement method were not used or often not used by the organisation. The organisation also seldom used the offering of incentives sub-method (negotiating and agreement method) as well as the distorting of facts to make the change appear attractive (manipulation and co-optation method).

## 5 Conclusions and recommendations

The factors which contributed the most to employee resistance and the methods most used (occasionally or sometimes used) to manage employee resistance in the case organisation are listed in **Table 3**.

Table 3: Factors Contributing to Employee Resistance and Methods to Manage Employee Resistance

<b>Factor</b>	<b>Sub-factor</b>	<b>Method</b>	<b>Sub-Method</b>
Ineffective communication	Communication about the change is done in a top-down fashion	Effective Change Management	Ensure clear vision, direction and objectives
	The information provided about the change is unclear or inadequate		Monitoring
	The timing of the communication about the change is incorrect		Coalition of competent change leaders
	There is a lack of or infrequent communication about the change		
Poor change management	Management is ignorant of employee needs	Education and Communication	Transparent, well-timed and sincere communication
	There was a lack of or no support and training for the change		Regularly sharing of information Controlled communication
Lack of trust in management	Past promises were not delivered during past changes	Repairing Trust	Use of trusted and capable employees to communicate
	I feel a lack of confidence in management's credibility or sincerity		Transparent, well-timed and sincere communication Change agent or manager competent, sincere and confident
Change by management only	There was no employee participation before and during the change	Negotiation and Agreement	Reward top achievers

From the ten change management models and strategies presented from literature, change managers should ensure that:

1. The need for change is identified and understood.
2. Awareness of the change should be created.
3. A change manager is selected and a change team is created.
4. Create a clear vision and common direction.
5. Create an implementation plan.
6. Develop enabling structures.
7. Communicate effectively throughout the change process.
8. Encourage participation.
9. Handle emotional and power issues: Employee resistance should be identified and managed accordingly. Trust between employees and managers should also be managed.
10. Reinforce the change.
11. Monitoring and feedback.

**Table 4** gives the steps or gaps in some of the steps that the case organisation should ensure is carried out during future changes.

Table 4: Steps to Carry out During Future Changes

<u>Literature Findings</u>	<u>Case Organisation Steps</u>
The need for change is identified and understood	This needs to be better communicated to employees
Awareness of the change should be created	This should be done regularly to create a sense of urgency
A change manager is selected and a change team is created	The change team should consist of more middle or junior employees
Create a clear vision and common direction	-
Create an implementation plan	Develop a plan to guide employees on what, when and how to reach the change goals. The plan should assist to manage factors likely to affect the success of the change
Develop enabling structures	A rewarding system was put in place to reward employees who perform well under the change. Training programs and workshops should be held regularly to provide employees with knowledge and ability for their new responsibilities. Obstacles that may undermine the vision should be identified and eliminated or managed appropriately (such as employee resistance).
Communicate effectively throughout the change process	Communicate openly, more regularly and honestly. Communication should not be done in a top-down fashion.
Encourage participation	Involve employees in the change process to assist in building trust between management and employees and to create a desire to change.
Handle emotional and power issues	Employee resistance should be identified and managed. Trust between employees and managers should also be managed.
Reinforce the change	Reinforce the new change culture by incorporating it into the daily activities of the organisation.
Monitoring and feedback	More feedback should be given to employees

Resistance, although perceived as a negative force, has a positive purpose as it forces managers to assess the proposed change or the way in which it is being managed (Coetsee, Summer, 1999). Understanding the factors that cause resistance can assist in the creation of a set of change management steps to assist employees in accepting the change (Yue, 2008). Successful organisational change is not only due to strategic planning and implementation but also due to employees accepting and being committed to the new change (Zakaria & Yusof, 2001). When employees trust management, change initiatives tend to be more successful (Rousseau & Tijoriwala, 1999). Change management focused on employees can assist organisations in implementing successful change initiatives (Chawla & Kelloway, 2004). Some managers may completely ignore the fact that there is resistance or simply label employee concerns about the change as resistance in an attempt to dismiss the concerns as potentially valid (Piderit, 2000). Resistance to organisational change will always remain a challenging issue due to the diversity of employees. Therefore, similar studies should be carried out in various organisations implementing different organisational changes to identify these unique factors and to find appropriate change management steps to manage them.

## References

Agboola, A. A. & Salawu, R. O., 2011. Managing Deviant Behaviour and Resistance to Change. *International Journal of Business and Management*, 6(1), pp. 235-242.

- Allen, J., Jimmieson, N. L., Bordia, P. & Irmer, B. E., 2007. Uncertainty during Organizational Change: Managing Perceptins through Communication. *Journal of Change Management*, 7(2), pp. 187-210.
- Anderson, V., 2009. Chapter 5 - Approaches to gathering data in HR research. In: *Research Methods in Human Resource Management*. London: CIPD, pp. 132-156.
- Bengat, J. & Odenyo, M., 2015. Organizational Change and Resistance Dilemmas - Resolution Approaches and Mechanisms. *International Journal of Economics, Commerce and Management*, 3(2), pp. 1-17.
- Boohene, R. & Williams, A. A., 2012. Resistance to Organisational Change: A Case Study of Oti Yeboah Complex. *International Business and Management*, 4(1), pp. 135-145.
- Borrego, M., Douglas, E. P. & Amelik, C. T., 2009. Quantitative, Qualitative, and Mixed Research Methods in Engineering Education. *Journal of Engineering Education*, 98(1), pp. 53-66.
- Bovey, W. H. & Hede, A., 2000. Resistance to organisational change: The role of defense mechanisms. *Journal of Managerial Psychology*, 16(7), pp. 534-548.
- Brandt, M. & Sommer, P., 2013. *The 4-by10 Ruler of change - A Practical Framework for Managing Change*, Goteborg, Sweden: Master Thesis, Chalmers University of Technology.
- Brink, H., 1993. Validity and Reliability in Qualitative Research. *Curationis*, 16(2), pp. 35-38.
- Brisson-Banks, C. V., 2010. Managing change and transitions: a comparison of different models and their commonalities. *Library Management*, 31(4/5), pp. 241-252.
- Cady, S. H., Jacobs, R., Koller, R. & Spalding, J., 2014. The Change Formula: Myth, Legend, or Lore. *OD Practitioner*, 46(3), pp. 32-39.
- Chawla, A. & Kelloway, E. K., 2004. Predicting openness and commitment to change. *Leadership & Organization Development Journal*, 25(6), pp. 485-498.
- Coetsee, L., Summer, 1999. From Resistance to Commitment. *Public Administration Quarterly*, 23(2), pp. 204-222.
- Cooper, D. R. & Schindler, P. S., 2014. *Business Research Methods, 12th ed.*. New York: McGraw-Hill.
- Daly, F., Teague, P. & Kitchen, P., 2003. Exploring the role of internal communication during organizational change. *Corporate Communications: An International Journal*, 8(3), pp. 153-162.
- D'Ortenzio, C., 2012. *Understanding Change and Change Management Processes: A Case Study*. Ph.D Dissertation, University of Canberra: Canberra.
- Du Toit, D., 2014. *Engineering change management in a large steel manufacturing company*. Master Dissertation in Engineering, North-West University: Potchefstroom.
- Folger, R. & Skarlicki, D. P., 1999. Unfairness and resistance to change: hardship as mistreatment. *Journal of Organizational Change Management*, 12(1), pp. 35-50.
- Gerkhardt, M., Frey, D. & Fischer, P., 2008. The human factor in change processes: Success factors from a socio-psychological point of view. In: *Change 2.0 - Beyond Organisational Transformation*. Berlin: Springer Berlin Heidelberg, pp. 11-25.
- Hiatt, J. M. & Creasey, T. J., 2012. *Change Management - The People Side of Change, 2nd ed.*. Loveland, Colorado: Prosci Learning Center Publications.
- Husain, Z., 2013. Effective communication brings successful organizational change. *The Business & Management Review*, 3(2), pp. 43 - 50.
- Innes, J. & Mitchell, F., 1990. The process of change in management accounting: some field study evidence. *Management Accounting Research*, 1(1), pp. 3-19.
- Jabri, M., 2012. *Managing Organizational Change - Process, Social Construction and Dialogue*. England: Palgrave Macmillan.
- Judge, W. & Thomas, D., 2009. Organizational change capacity: the systematic development of a scale. *Journal of Organizational Change Management*, 22(6), pp. 635-649.
- Kasurinen, T., 2002. Exploring management accounting change: the case of balanced scorecard implementation. *Management Accounting Research*, 13(3), pp. 323-343.
- Kebapci, S. & Erkal, H., 2009. *Resistance to Change - A Constructive Approach for Managing Resistant Behaviors*. Master Thesis, Baltic Business School, University of Kalmar: Kalmar, Sweden.
- Kiani, A. & Shah, M. H., 2014. An Application of ADKAR Change Model for the Change Management Competencies of School Heads in Pakistan. *Journal of Managerial Sciences*, 8(1), pp. 77-95.
- Kilpimaa, J., 2006. *Factors influencing successful change management in IT outsourcing from transferred personnel point of view*. Master Thesis, University of Tampere: Tampere, Finland.
- Kotter, J. P. & Schlesinger, L. A., 1979. Choosing strategies for change. *Harvard Business Review*, 57(March-April), pp. 106-114.
- McClellan, J. G., 2014. Announcing Change: Discourse, Uncertainty, and Organizational Control. *Journal of Change Management*, 14(2), pp. 192-209.

- Mutihac, R., 2010. *Managing resistance and the use of internal communication in organizations undergoing change*. Master Dissertation, Aarhus School of Business: Aarhus, Denmark.
- Nadler, D. A. & Tushman, M. L., 1980. A model for diagnosing organizational behavior: Applying a congruence perspective. *Organizational Dynamics*, 9(2), pp. 35-51.
- Parker, D. et al., 2013. Critical evaluation of project-based performance management: Change intervention integration. *International Journal of Productivity and Performance Management*, 62(4), pp. 407-419.
- Piderit, S. K., 2000. Rethinking Resistance and Recognizing Ambivalence: A Multidimensional View of Attitudes toward an Organizational Change. *Academy of Management Review*, 25(4), pp. 783 - 794.
- Pikosz, P. & Malmqvist, J., 1998. *A Comparative Study of Engineering Change Management in Three Swedish Engineering Companies*. Atlanta, USA, s.n.
- Pimentel, L. & Major, M. J., 2009. Management Accounting Change: A Case Study of Balanced Scorecard Implementation in a Portuguese Service Company. *Portuguese Journal of Accounting and Management*, -(8), pp. 89-109.
- Rousseau, D. M. & Tijoriwala, S. A., 1999. What's a Good Reason to Change? Motivated Reasoning and Social Accounts in Promoting Organizational Change. *Journal of Applied Psychology*, 84(4), pp. 514 - 528.
- Smollan, R., 2011. Engaging with Resistance to Change. *University of Auckland Business Review*, 13(1), pp. 12-14.
- Tavakol, M. & Dennick, R., 2011. Making Sense of Cronbach's Alpha. *International Journal of Medical Education*, Volume 2, pp. 53-55.
- Vagias, W. M., 2006. *Likert-Type scale response anchors*, Clemson University: Clemson International Institute for Tourism & Research Development, Department of Parks, Recreation and Tourism Management.
- Visagie, C. M. & Steyn, C., 2011. Organisational commitment and responses to planned organisational change: An exploratory study. *Southern African Business Review*, 15(3), pp. 98-121.
- Yang, X., 2014. *Resistance to Organizational Change and the Value of Communications: The Case of Volvo Cars Human Resources Department*. Master Thesis, University of Gothenburg: Gothenburg, Sweden.
- Yin, R. K., 2011. *Qualitative Research from Start to Finish*. New York: The Guilford Press.
- Yue, W., 2008. Resistance, the Echo of Change. *International Journal of Business and Management*, 3(2), pp. 84-89.
- Zakaria, N. & Yusof, S. A. M., 2001. *The Role of Human and Organizational Culture in the Context of Technological Change*. Albany, NY, s.n.

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