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INVESTIGATING USER RESPONSES TO MANDATORY IT-INDUCED ORGANISATIONAL CHANGES: A PRE-IMPLEMENTATION STUDY

Research in Progress

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Abstract

Organisational spending on IT-systems is still on the rise, despite research indicating that majority of these IT-systems are not used optimally by employees. This has been attributed to a wide range of responses from IT users, especially in a mandatory use context. In spite of decades of research, the identification of various user responses to IT and the factors that influence these responses remain very important. This study seeks to investigate how users respond to mandated IT-induced organisational changes and what factors influence these responses over time. An interpretive case study approach was adopted, with semi-structured interviews used as the primary data source at a Radio/Television station. Preliminary findings indicate that users respond differently (i.e., opportunity and threat responses) to the proposed mandated IT implementation, and also reveal 3 factors (i.e., management support, user involvement, and social influence) that influence a user's primary appraisal at the pre-implementation stage. The next phase of this study involves expansion of our interview questions and further in-depth interviews at an additional case site, at both the pre and post-implementation stages of Mandated IT-implementation projects. Upon completion, this research is expected to contribute to the IT use literature by deepening our understanding of different user responses to mandated IT-induced organisational changes and also inform managers involved in IT-implementation projects.

Keywords: Mandated IT-use; IT acceptance; User responses; IT resistance

1 Introduction

Organisations worldwide are implementing information technologies (ITs) to improve strategic and operational benefits (Bala and Venkatesh 2016; Seddon et al. 2010; Strong and Volkoff 2010). Research has revealed that IT implementation projects are accompanied by drastic changes that engender various user responses within an organisation. Ranging from positive responses (e.g., Mithas et al. 2012; Rai and Tang 2014) to negative responses (e.g., Lapointe and Beaudry 2014; Lapointe and Rivard 2005) especially in mandated-use contexts (Bhattacharjee et al. 2017). Majority of research on IT acceptance and use in organisations has studied IT use in voluntary contexts (Bagozzi 2007; Venkatesh et al. 2003). However, in most organisations employees do not enjoy this discretion, with employees having no choice but to use the IT to execute tasks in their work environment, as enormous investments have been made to acquire the IT systems (Koh et al. 2010). These studies have also been mostly quantitative in nature, measuring IT use in terms of quantity and frequency of IT usage (e.g., Davis 1989; Venkatesh et al. 2003, 2010), without looking at the dynamic process users go through when dealing with a new IT implementation. IT resistance research employs a different approach which is qualitative in nature, seeking to unveil “how” and “why” users react to a new IT implementations (Benbasat and Barki 2007; Bruque et al. 2008; Elie-Dit-Cosaque and Straub 2011).

Consistent with recent studies (e.g., Bhattacharjee et al. 2017; Lapointe and Beaudry 2014; van Offenbeek et al. 2013) that seek to integrate IT acceptance and resistance research, this study argues that IT acceptance and rejection coexist within the same organization (with some users having positive responses and others negative responses towards the same IT) and should be studied together rather than separately as in prior research. This research seeks to investigate “how do users respond to mandated IT-induced organisational changes at a pre-implementation stage” and “what factors influence these responses” by drawing on The Coping Theoretic Model of User Response to Mandated IT Use (Bhattacharjee et al. 2017). In the following section, a review of literature on user responses to IT is presented, followed by a description of the theoretical model used to conduct the study, and the methodology section. The preliminary findings of the study are discussed from 15 interviews conducted at the pre-implementation stage of the project and the paper concludes with expected contribution for both academia and practice.

2 Literature Review

In Information Systems (IS) research, a number of studies have investigated user responses to IT in terms of acceptance and resistance. Bhattacharjee et al (2017, p. 2) define user response “as the set of emotional and behavioural reactions manifested among users that co-emerge as IT is introduced into their work environment”. Majority of these studies have concentrated on acceptance, but IS literature is now showing a growing interest in resistance research (Lapointe and Beaudry 2014; van Offenbeek et al. 2013). These two user responses have been studied independently, with literature indicating that acceptance is good and leads to successful IT use, and resistance is non-beneficial and leads to negative outcomes. The sections below present a review of IT acceptance and resistance research from IS literature.

2.1 IT Acceptance

Prior IS research has identified acceptance consisting of cognitive (user perceptions i.e., what users think), affective (what users feel emotionally) and behavioural (user’s actual or intended use) components (Davis 1989; Lapointe and Beaudry, 2014; van Offenbeek et al. 2013). A systematic review by Lapointe and Beaudry (2014) indicated that about half of the acceptance studies in their review samples heavily relied on Technology Acceptance Model (TAM) (Davis 1989), Unified Theory of Ac-

ceptance and Use of Information Technology (UTAUT) (Venkatesh et al. 2003), Theory of Reasoned Action (TRA) (Fishbein and Ajzen 1975), Theory of Planned Behaviour (TPB) (Ajzen 1991) or Innovation Diffusion Theory (IDT) (Rogers 1995) as their theoretical frameworks. The authors also identified that IT acceptance has mainly been measured by items based on TAM or by assessing the frequency or quantity of use (Lapointe and Beaudry, 2014).

IT acceptance has also been defined and conceptualized in various ways in the IS literature. There is still an ongoing debate among IS researchers, about the nature of the acceptance construct in empirical studies, which is still deemed unclear. IS research has conceptualized acceptance as an attitude e.g. (Lee et al. 1995; Wixom and Todd, 2005), as a process (e.g., Cooper and Zmud, 1990), and as a psychological state (e.g., Hiltz and Johnson, 1990; Nelson and Cheney, 1987). As a process, IT acceptance has been defined as a sequence of individual reactions (White and Massello, 1987), as a psychological state, IT acceptance has been defined as “the degree of willingness of an individual or group to utilize information systems” (Nelson and Cheney, 1987), and as a behaviour, IT acceptance has been defined as an individual’s intention to use an IT, as an intention to adopt an IT (Karahanna et al. 1999; Komiak and Benbasat, 2006), to reuse an IT (Turel et al. 2008) and to continue using an IT (Limayem et al. 2007). In summary, extant literature on IT acceptances shows that over the years, user IT acceptance has been conceptualised, defined and measured in different ways, with majority of researchers relying on intention to use or IT use as a proxy for acceptance (Bhattacharjee and Lin 2015; Hwang et al. 2016).

IT acceptance models and their variants have set a strong foundation for IT acceptance research and have aided in improving our understanding of the phenomena. However, a few concerns have been highlighted that limit the scope of these studies in shedding more light on the multifaceted process of an individual’s response to complex IT implementations that bring about drastic changes in the work environment. A major limitation of traditional IT acceptance models is their explanatory power in the context of mandated IT use (Agarwal and Prasad 1997; Bhattacharjee and Lin 2015; Karahanna et al. 1999), as majority of prior IT acceptance studies have been conducted in the context of voluntary IT use, with intention to use or usage as a dependent variable. Therefore, these models may not be a good explanatory fit in real life practice, where IT use is often mandatory (Brown et al. 2002; Hwang et al. 2016; Wu et al. 2017). Another concern is that traditional IT acceptance research implicitly restricts acceptance to system usage, suggesting that the behavioural component of acceptance is the same as usage, since it is often positioned on a unipolar continuum from non-use to high use (van Offenbeek et al. 2013). With this conceptualization, acceptance is abstracted at the individual level (Lapointe and Rivard, 2007) and restricts actors to those that are potential or actual, direct or indirect users. Van Offenbeek et al. (2013) identify different user categories, citing an example of an ambivalent category of users “supporting non-user” who were positive about an IT but did not feel the immediate need to accept the IT. In the traditional IT acceptance literature, these individuals would be identified as non-users. Therefore, this study answers the call of IS scholars (e.g., Bala and Venkatesh, 2016; Benbasat and Barki, 2007; Burton-Jones and Straub, 2006; Jasperson et al. 2005) for further studies on user responses and adaptation behaviours in IS research.

2.2 IT Resistance

Lapointe and Beaudry (2014, p. 4621) highlight that “there is no clear agreement in the literature on how resistance to IT ought to be defined and studied”. In IS literature, resistance to IT has been mostly conceptualised as a behaviour, being defined as behavioural reactions expressing reservation in the face of pressure exerted by change supporters seeking to alter the status quo (Lapointe and Rivard 2005; Meissonier and Houzé 2010; Waddell and Sohal 1998). IS scholars who have conceptualised resistance as a behaviour include Markus (1983, p. 433), who defines resistance to IT as “behaviours intended to prevent the implementation or use of a system or to prevent system designers from achieving their objectives”.

Other IS scholars have conceptualized resistance differently, for example Selander and Henfridsson (2012, p. 293) report resistance as a “negative affect towards the IT implementation and manifests a perception of seeing through the espoused goals of the implementers” Lapointe and Rivard (2005) conceptualize IT resistance as a multidimensional construct. The authors argue that resistance behaviours occur when there is a perceived threat associated with the interaction between an object and initial conditions (Lapointe and Rivard, 2005; Rivard and Lapointe, 2012). Ferneley and Sobreperéz (2006) suggest that resistance is a process comprising of two-phases: an initial cognitive or emotional phase and a second phase, where a decision is made to resist (Ferneley and Sobreperéz, 2006).

Van Offenbeek et al., (2013) highlight common characteristics of IT resistance studies in IS literature. First, resistance research has a wider scope of aiming to shed light on resistance behaviours of all actors involved, rather than just concentrating on direct system users. Second, resistance research often starts with a stakeholder analysis and reveals how the introduction of an IT may disrupt activities and redistribute resources such as control and finance, power, and how various individuals may react differently to these changes, either in a positive or negative manner. Finally, antecedents of resistance to IT-induced changes are often related to wider contextual issues than the new IT’s functional and technical features. Recently, IT resistance research is seeing a shift in paradigm, where resistance is not necessarily seen as a good or bad reaction, but rather can involve either dysfunctional or functional conflict (Bagayogo et al. 2014). IS scholars are now calling for a broader view of how resistance is being studied (Bagayogo et al. 2014; Lapointe and Beaudry, 2014; van Offenbeek et al. 2013), as prior research has lacked an actual measure and conceptualization of resistance.

2.3 Relationship between IT Acceptance and Resistance

IT acceptance and resistance have been mostly studied as a dichotomy, with these two phenomena assumed to be opposite ends of a single dimension by some researchers (e.g., Lapointe and Beaudry, 2014; Marakas and Hornik, 1996). After numerous calls by IS scholars for a broader view on acceptance and resistance research, some researchers have argued that acceptance and resistance are not opposite ends of a bipolar continuum, and acceptance and resistance are distinctive behaviours in their own right (Bhattacharjee et al. 2017; van Offenbeek et al. 2013; Rizzuto et al. 2014). These researchers have backed this argument with three (3) reasons: Firstly, if IT acceptance is the polar opposite of resistance, then system users cannot accept and resist an IT at the same time. Secondly, prior IT acceptance research has studied user behaviours and responses to IT in a voluntary context (Bala and Venkatesh 2016; Bhattacharjee et al. 2017; Venkatesh et al. 2003), while IT resistance research has studied user behaviour and responses to IT in a mandatory context, and finally if acceptance and resistance are polar opposites, it would be expected that IT acceptance and resistance studies will apply similar theories, attributes and methods (van Offenbeek et al. 2013). Even though these research streams are all directed at explaining user behaviour and responses to IT, they draw on distinctly different conceptualization and assumptions.

3 Theoretical Model

The model adopted for this study is The Coping Theoretic Model of User Response to Mandated IT Use (Bhattacharjee et al. 2017). This model was deemed fit for the study as it integrates both variance and process-oriented streams of IS research in relation to user responses to IT. With regard to the application of theory, the model was used as a guide for design and collection of data, and as part of an iterative process between data analysis and collection (Walsham 1995). It is worth noting that the authors remained flexible while using theory, in order to accommodate emergent themes during the study. Bhattacharjee et al. (2017) draw on the Coping Theory (Lazarus and Folkman 1984) to extend the work of Beaudry and Pinsonneault (2005) and Lapointe and Beaudry (2014). Bhattacharjee et al.

(2017) modify Lapointe and Beaudry's (2014) typology of IT use (engaged, resigned, dissident, and deviant) rather than building conceptual archetypes of responses from the beginning. The modification leads to the classification of four responses (engaged, compliant, reluctant, and deviant), which include both emotional and behavioural responses to IT at a given point in time. These responses are further described below:

- Engaged response: users in this category are characterised by enthusiastic support and innovative use of IT. Engaged use can be reflected as IT use with positive emotion that exhibits passion and enthusiasm about IT, as a result of strong sense of comfort, ownership and control over use of IT.
- Compliant response: users in this category are characterised by sub-optimal use of IT and are generally supportive of IT, but are limited in their use of the technology.
- Reluctant response: users in this category are characterised by IT use to abide by organisational rules and are generally resistant towards the IT.
- Deviant response: users in this category are characterised by disruptive use of IT, with users viewing the IT as a threat to their work and autonomy.

Consistent with prior IT use research, Bhattacharjee et al., (2017) suggest if users anticipate benefits (opportunity appraisal) from using an IT (e.g., performance improvement), they are most likely to use that IT. As shown in figure 1, their model builds on the work of Beaudry and Pinsonneault (2005) (also based on coping theory) and suggest that if users appraise an IT as an opportunity and believe they have high control over an IT, they will respond in an engaged manner. On the other hand, if users appraise an IT as an opportunity and believe they have low control over an IT, they will respond in a compliant manner. If users appraise an IT as a threat and appraise themselves as having low control over their IT use or non-use, then they will respond in a reluctant manner. Similarly, if users appraise an IT as a threat and appraise themselves as having high control over their IT use or non-use, then they will respond in a deviant manner.

Appraisal and coping are temporal processes that continually reinforce each other (Beaudry and Pinsonneault, 2005). As users witness the outcomes of coping responses they have adopted, they may re-evaluate and adjust their prior primary and/or secondary appraisals. Therefore, Bhattacharjee et al. (2017) suggest that users who appraise IT as an opportunity, if their secondary appraisal of control over IT use changes over time from low to high, then their response may correspondingly change from compliant to engaged response. Likewise, users who appraise themselves as having low control over IT use, if their primary appraisal of IT changes over time from a threat to an opportunity, then their response may correspondingly change from reluctant to compliant responses. The authors also suggest that users who appraise IT as a threat, if their secondary appraisal of control over IT changes over time from high to low, then their response may correspondingly change from deviant to reluctant responses.

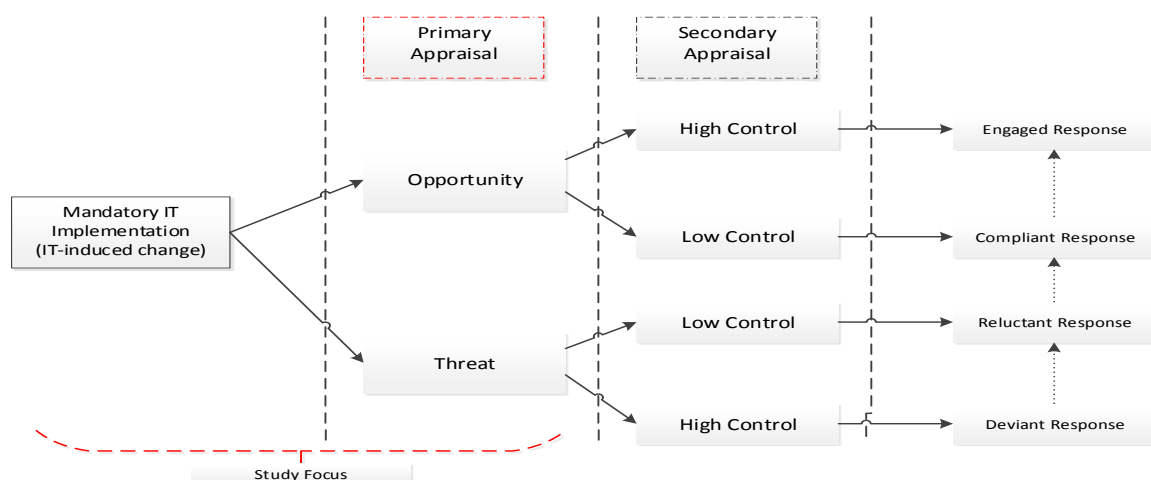


Figure 1. The Coping Theoretic Model of User Response to Mandated IT Use (adapted from Bhattacharjee et al. 2017), showing the study's research focus.

4 Methodology

This research in progress presents the first phase of the study. In order to understand user responses to mandated IT-induced organisational changes, how these responses change with time and the factors that influence these changes, data will be collected in two phases at two different case sites. The first phase will be at the pre-implementation stage, with results from the first case presented in this manuscript. Our First case, a private Radio/Television broadcasting company located in Kogi state, Nigeria (referred to as the company for anonymity). The Company's broadcast service covers the North Central area of Nigeria on both TV and Radio, with about 90 employees. The management of The Company is trying to harness some of the potential benefits of their wide coverage area by implementing a new IT solution that has administrative and data analytical features. It is expected that the new IT will help The Company gain critical insights of its listening and viewing audience by identify the specific viewing and listing demographic trends of the station, using customer information to offer better customer centred content, and also streamline their administrative processes. The second phase will be at the post-implementation stage. Figure 1 shows our research focus at this stage, which investigates IT users' primary appraisal and the factors that influence their appraisals of an imminent IT implementation. An interpretive approach was adopted as it was in line with understanding the phenomena of user responses to IT. The study adopted a qualitative research design, by conducting semi-structured interviews with employees at different levels in the organization to understand their perceptions that constructed their subjective reality about the proposed IT implementation. This is in line with recommendations by Murphy et al., (1998) and Myers (2009), who state that the Qualitative research helps to gain a better understanding of the meaning of spoken words, practices adopted and also actions implemented while investigating the complex chain of meanings, feelings, beliefs and preconceptions that humans exhibit.

Semi-structured interviews were used, as this technique allows flexibility for both the interviewer and interviewee when asking and responding to questions (Bryman and Bell 2007). At this stage (pre-implementation stage), the participants interviewed were the proposed system users. 15 employees from different units within the television/radio station were interviewed. Participants included reporters, presenters, editors, program officers, station managers and data engineers. Participant selection was guided through theoretical sampling. Participants who were likely to offer theoretical insights were selected with the help of directors at the organisation. Additional participants were identified through snowballing technique. This technique involves the use of participants to contact other respondents and particularly applicable when discussing sensitive issues (Streton et al. 2004). In this study, participant number was not pre-defined, interviews will be conducted until theoretical saturation is reached (the point at which emergent learning is minimal because researchers are observing phenomena seen previously) (Glaser and Strauss 1967). Interview durations lasted between 45 minutes to an hour per interview. Extensive notes were taken during the interviews and the interviews were recorded using a Dictaphone upon interviewees consent. 15 interviews were conducted at the time of this report. The interview questions focus on identifying the participant's background (i.e., IT knowledge, years of experience in the organization and job roles & responsibilities), their perception about the proposed IT implementation, the coping resources made available to them and how their responses change at both the pre-implementation and post-implementation stage of the project.

Data collected from the interviews were transcribed and analysed following the principles of thematic analysis (Braun and Clarke, 2006). A qualitative analysis software package, Nvivo (Bazeley and Jackson, 2013) was used during the coding exercise. The first process of analysis involved the generation of 35 initial codes. For example, positive experience with legacy system and lack of User involvement. The second and third round focused on primary appraisal and the factors that influence the participants' primary appraisal. The coded primary appraisals were then linked to the factors that influenced the participants' primary appraisal, presenting chain of evidence for our preliminary findings.

5 Preliminary Findings

Consistent with prior IT use research, our preliminary findings reveal that users respond differently (i.e., opportunity and threat responses) to the same IT that brings about changes in their work environment (Bala and Venkatesh, 2016; Beaudry and Pinsonneault, 2005). Our preliminary findings also reveal 3 factors (i.e., management support, user involvement, and social influence) so far that influence a user's primary appraisal at the pre-implementation stage of the IT implementation. Data collected during the study has offered comprehensive insights for a starting point. We provide some support for our research findings from initial data analysis. Due to space constraints, selected quotes from interview participants will be presented to show their primary appraisals towards the proposed IT implementation. Open codes, sub-themes and themes are summarised below in table 1.

Open Codes	Sub-themes	Theme
Improved job performance, easier task completion, easier access to information, safer data storage, real time access.	Opportunity	Primary Appraisal
Longer learning curves, No need for change, Slowing down work, perceived increase in workload, changing job role	Threat	
perceived discouragement, perceived encouragement, supportive environment	Social Influence	Influencing Factors
Feeling involved in decision making. Lack of user involvement.	User Involvement	
Effect management communication, ineffective management communication, user group workshops and meeting.	Management support	

Table 1. Construction of primary appraisal and influencing factors themes.

9 out of 15 respondents appraised the proposed IT implementation as an opportunity. For example, a Producer (PD1) explained his perception towards the IT and also highlighted some factors that influenced his response:

“With the new system (i.e., proposed IT), everything will be seamless, knowing more about the market or demography I am producing for will in turn prepare me better for my task (improve job performance)... Yes, I have been part of the decision making, especially through the focus group discussions (User involvement)”

Similarly, an editor (ED2) explained: *“I believe the system will take away the tedious work of having to juggle between papers and files while working, everything will be well organised on a computer (easier task completion)...I was happy and relieved when the management fully explained the reason for the proposed change and the benefits it would come with (effective management communication)”*.

In another example, a program manager (PM1) stated: *I think there will be an improvement to my daily task with the new system... it will make my work easier and give me better access to information (improve job performance and easier access to information)... we were fully briefed on the benefits of the proposed system and Our suggestions were noted during the project meetings (effective management communication and user involvement)”*.

As shown above, IT use research suggests that user involvement (which may involve activities and behaviours that users may perform before or during an IT implementation) will have an influence on cognitive appraisal. The respondents both show that being part of the change processes has positively influenced their appraisal of the proposed system. Likewise, management support in the form of effective management communication will also influence users positively, as both respondents indicate that the proposed system implementation was communicated to them in a comprehensive manner.

6 out of 15 respondents appraised the proposed IT implementation as a threat. For example, an administrative staff (HDAdmin) appraised the proposed system as a threat and also highlighted some factors that influenced her primary appraisal:

“The current way of doing things is ok, it does not need any changing. Any change will mean we have to learn things from the beginning. We will have to waste time learning a new system, rather than getting work done (longer learning curve and no need for change)... I wasn’t aware of plans to implement the proposed system. I first heard of it at the workshop, I had no idea what it was about, so I couldn’t say much then or really understand its benefits, (Influencing factor: ineffective management communication, and lack of user involvement)”.

Similarly, a Program manager (PM2) explained: *“My boss doesn’t really think the change is a good idea, he’s been in the business for long, so I do trust his judgement and passion about our work (perceived discouragement). I think we have been doing things fine as we are, I suppose this new system will just increase our work load and disrupt our flow (perceived increase in workload)”.*

In contrast to the first three respondents’ examples, it shows that user involvement, management support in the form of ineffective communication and social influence had a negative influence on the administrative staff and program manager’s primary appraisal. Both employees expressed having little knowledge about the IT and its proposed implementation. Adding to that, they both felt threatened as they had no prior knowledge of such IT solution and could not contribute much in the decision-making process for the IT implementation.

6 Discussion, expected contributions and Conclusion

Even at this early stage of data collection, our work so far has been very productive, generating valuable experience and feedback on our research activities. Preliminary results have started revealing important themes around the area of interest. We have started seeing how employees respond to the proposed IT implementation at the pre-implementation stage and as well the emergence of factors that influence these responses. As we progress with the project, we expect the emergence of further themes to give more insights into the ways users respond to mandated IT-induced changes, and how these responses evolve with time.

Though at the first phase of our research, our initial findings are revealing important insights that may be of potential benefit to managers involved in mandatory IT implementation projects. Upon completion of this research, insights such as various user responses and influencing factors may help in guiding the design of managerial interventions aimed at improving user participation and IT engagement. Theoretically, by studying both IT acceptance and resistance together using the coping theoretic model of user response to mandated IT use, it is expected that our study will contribute to the IS literature on user responses to IT-induced organisational changes. This study also seeks to extend the work of Bhattacharjee et al. (2017) by testing and validating their model in a different context, with a different research design. This will potentially lead to the identification of more user responses (i.e., both pure and ambivalent responses) to IT and understanding the temporal factors that influence the changes of these responses with time.

The processes, feedback, and results from this study have been very useful in seeking to understand how users respond to a proposed mandated IT implementation. The next step for this study involves further interpretation of our collected data and expansion of our interview questions for the next phase of the study. The next stage involves conducting a series of in-depth follow up interviews with initial participants, and if possible identifying new participants at both case sites. The second phase will involve re-interviewing participants to identify any changes in their appraisals at the implementation stage. This will also be followed up by observations and document analysis to allow data triangulation, which hopefully will provide further insights.

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