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Organizational Resistance to Automation Success: How Status Quo Bias Influences Organizational Resistance to an Automated Workflow System in a Public Organization

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Abstract: A number of recent studies have examined the impact of advanced technologies on organizations. However, many (particularly those in developing countries) still face challenges when it comes to the adoption of mature technologies and have also continued to repeat many of the mistakes of early adopters, primarily in relation to automated workflow systems. The current paper analyses a case study of a public organization in the developing country of Saudi Arabia, with the aim of understanding its resistance to change brought about by the implementation of a mature technology, i.e., automated workflow systems. The study undertook semi-structured interviews with employees to establish the nature of this resistance, identifying their preference for familiar processes and systems, alongside their unwillingness to embrace the new system. Furthermore, the study highlighted a number of issues experienced during the implementation of automated workflow systems, including job security; changes in laws and rules; an inability to understand, and/or trust, the technology; the perceived risks and costs associated with change; and the transformation of business processes. It also cited factors related to organizational structure and power, and the discomfort involved in making difficult decisions. This study, therefore, aims to assist organizations to create a sound foundation for change prior to the adoption of more advanced technologies.

Keywords: status quo bias theory; automation; resistance; organizational change; case study

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1. Introduction

Recent studies have tended to focus on the organizational impact of immature digital technologies, including Artificial Intelligence (AI), as well as Machine Learning, Robotics, the Internet of Things (IoT), Big Data and Analytics [1–6]. However, there are also a number of mature technologies (i.e., automated workflow systems) that have been in place over a considerable length of time, many of whose issues have therefore been resolved. In addition, a proportion of developing countries have faced challenges related to the implementation and adoption of mature technologies by some types of organizations, i.e., Enterprise Resources Planning (ERP) systems [7,8]. However, as noted by Cline and Luiz [9], automated workflow system technology can prove beneficial for organizations investing in IT.

Automated workflow systems automate the flow of documents and information within an organization [10]. They can improve efficiency and accuracy, in particular by reducing the need for manual processing, so eliminating errors caused by manual data entry. Such systems have become increasingly popular over recent years, as organizations seek to reduce costs while improving their efficiency and quality of service. However, their implementation has not always proved successful, resulting in a growing body of literature focusing on barriers to adoption, including organizational resistance [11].

This research paper extends the current knowledge of Information Systems (IS), through an analysis of the impact of organizational resistance on automated workflow systems during their implementation in a single organization in Saudi Arabia. This is particularly pertinent in light of the recent tendency for developing countries to adopt workflow management technology [12] to automate their business processes, in order to fulfil the vision of a paperless organization. In addition, they seek to reduce costs and the time cycle, while simultaneously improving their productivity and quality of service. Calls to implement IS have recently led researchers to explore resistance to such technology, using novel perspectives that have now begun to appear in the literature [13]. This current study demonstrates how theoretical guidance, based on status quo bias theory, can facilitate the success of mature technologies, including during their implementation by different kinds of organizations, particularly in developing countries.

This study examines the ways status quo bias can address the resistance to automated workflow systems in a public organization in Saudi Arabia. The value of status quo bias theory lies primarily in explaining resistance to change by identifying why and how users prefer existing systems over those that are new [14]. Thus, this theory can enhance the understanding of how decisions are made and why users demonstrate a psychological preference for those already in place [15]. Most research concerning IS and resistance tends to outline the sources of resistance, and how it can be overcome, while there remain only limited studies explaining why and how resistance to change can be influenced by hesitation to adopt new systems. Thus, as demonstrated in the current study, status quo theory can offer a view of how and why organizational actors tend to resist automated workflow systems. Furthermore, status quo bias theory can also extend and improve the literature on IS by clarifying the impact of the status quo on resistance to change, in particular by taking into consideration an explanation that can help managers and organizations improve their understanding of their employees' decision to resist change, as well as overcome such resistance.

In addition, this research examines the impact of specific automated workflow systems on organizational resistance in a developing country. It reviews the current literature exploring the impact of such resistance on a mature technology (i.e., automated workflow systems), to establish a theoretical framework based on status quo bias theory. This is subsequently employed to analyse and interpret the adoption of automated workflow systems by a public organization in Saudi Arabia.

Therefore, the primary goals set out in this study are to:

1. Determine how organizational resistance impacts the implementation of automated workflow systems.
2. Create a theoretical framework, based on status quo bias theory, to assist in interpreting how organizational resistance to change can influence the implementation of automated workflow systems.
3. Gather data from a public organization, in order to create a case study capable of analysing and interpreting the impact of organizational resistance to change.
4. This paper firstly reviews the literature concerning user resistance to automated workflow systems. Secondly, it develops a theoretical framework based on status quo bias theory, followed by demonstrating how this can clarify why resistance can arise to automated workflow systems. Thirdly, there is a discussion of the methodology employed in this study. Finally, there is an analysis and discussion of the results, followed by the final conclusions.

2. Literature Review

Technologies, once they have been developed and implemented, generally follow a life cycle that includes their initial introduction to the market, followed by growth, and finally failure [14]. Mature technologies tend to be those that have achieved stabilization in the market [16,17], having been in place over a long period of time, have been able to resolve many of their issues. These technologies are consequently well established and have

become both stable and reliable. By contrast, immature technologies are those new to the market, consisting of emerging technologies, which tend to be: (1) innovative; (2) capable of rapid development: (3) contain a form of consistency; (4) have continued over a long period of time; and (5) are capable of exerting an influence. However, they can also prove vague and ambiguous in nature [18]. Immature technologies have not yet been widely adopted, with most being either in development or in the process of being tested. They are therefore generally less stable, or reliable than mature technologies, i.e., virtual reality, AI, and blockchain.

Furthermore, mature technologies have been shown to face resistance, including in studies identifying the following: firstly, the relevant reasons for resistance [19–24]; secondly, the ways resistance can occur [25–28]; and thirdly, how it can be overcome [29]. However, there remains a lack of research focusing on the nature of IS resistance to mature technologies, along with the implementation of guidance for overcoming these challenges in developing countries.

Automated workflow systems consist of computer-based systems developed to automate the management of workflow within an organization [10]. These generally employ software and hardware, as well as other technologies designed to automate processes and tasks otherwise performed manually. Their goal is to enhance both efficiency and productivity, and are therefore in the process of being adopted by the majority of industries, including manufacturing [30], healthcare [31,32], finance [33], and logistics [34]. Furthermore, automated workflow systems examples: (1) Planning (ERP) systems; (2) Supply Chain Management Systems (SCM); and (3) Customer Relationship Management (CRM).

Advances in Information Technology and computing have raised the prospect of efficient automation of workflow [32]. Automated workflow systems have therefore appeared in many sectors, including health [35] and education [36]. Moreover, workflow management systems act to automate business processes by coordinating and controlling the flow of work and information between different users. They can thus be regarded as a form of middleware, connecting separate office and legacy applications, allowing them to coalesce into an enterprise-wide system [10]. In addition, workflow automation includes recognising sequences of tasks capable of being streamlined through technology and modern computing, thus offering opportunities to address issues such as quality within the healthcare system, along with safety and efficiency [32]. Moreover, despite the presence of resistance in many organizations adopting such systems, workflow process automation is also beneficial for ensuring effective communication with stakeholders [36], [11]. This can lead to organizational members fearing that such workflow management can diminish their ability for decision-making (in particular through allowing administrators to observe processes and take decisions), while also facilitating monitoring, thus compromising their privacy [30].

Research into IS resistance has tended to describe the phenomena as complex [19]. A number of previous studies have found that resisters oppose IS in response to: firstly, a lack of involvement at the managerial level [20]; secondly, an absence of coalition building and an awareness of political mechanisms [21]; thirdly, internal factors, i.e., poor system design, and interactions between the associated issues and the organizational context of systems use [37,38]; fourthly, an absence of user involvement [22]; fifthly, a lack of sufficient consideration of political issues [39]; sixthly, a failure to consider power structures, distribution and organizational culture [40]; and finally, the use of power [41]. Newman and Noble [42] highlighted the significance of the issue of power for understanding resistance to IS, particularly in relation to conflict development and resolution, Furthermore, Hirschheim and Klein [43] associated resistance to change with the following: firstly, a view of systems development and implementation as a form of a game [23]; secondly, a lack of influence strategies [15]; thirdly, user resistance arising from a preference for retaining existing modes of working [44]. In addition, the most recent research has found that resistance to the use of IT tends to be related to its perceived usefulness and ease of use, along with effective commitment [45]. Moreover, Khaouli's [46] study identified the following five factors as

being responsible for individual resistance to organizational change during automation: (1) the role of management; (2) employees' need for engagement; (3) the system's impact on jobs; (4) motivation and the work environment; and (5) the implementation process, including related expectations and experience of stress.

Various existing studies have demonstrated the ways resistance to IS can occur. This includes Lapointe and Rivard [25], who noted that:

> "When a system is introduced, users in a group will first assess it in terms of the interplay between its features and individual and/or organizational-level initial conditions. They then make projections about the consequences of its use. If expected consequences are threatening, resistance behaviours will result. During implementation, should some trigger occur to either modify, or activate, an initial condition involving the balance of power between the group and other user groups, it will also modify the object of resistance, from system to system significance. If the relevant initial conditions pertain to the power of the resisting group vis-a-vis the system advocates, the object of resistance will also be modified, from system significance to system advocates. Resistance behaviours will follow if threats are perceived from the interaction between the object of resistance and initial condition". [25] (p. 461)

In addition, Doolin's [26] analysis of resistance to the use of clinical IS found that some doctors tended to challenge the validity of such systems, or used them to argue the need for additional resources. Furthermore, a number of other scholars (i.e., Laumer et al. [27] have revealed that personality trait resistance has a significant impact on an individual's attitude towards an information system when it is modelled on the following four dimensions: (1) the establishment of routines; (2) emotional reactions; (3) short-term focus; and (4) cognitive rigidity. Moreover, the intention to use this system was found to be determined by the subjective norms that were considered important, mediated by means of attitudes. Laumer et al. [28] found that a strong influence on user resistance during IS implementation consisted of its perceived usefulness, as well as the ease of executing work routines [28]. This indicates that cynicism, as a form of passive resistance, can easily escalate and feed new forms [47]. Recent research has also revealed that users' perceptions of Psychological Contract Breach (PCB) can lead to resistance and feelings of violation, including due to high user vigilance, and an incongruence of understanding of obligations between the users and IS [48].

Ilie and Turel [49] identified that influence tends to modulate the perceptions of users, including any resistance to the system, and ultimately ineffectiveness. Specific methods of exerting influence over users have proved beneficial for reducing resistance, although others can inadvertently lead to an increase [49]. Adams et al. [24] highlighted the importance of recognising methods of reducing resistance in end users, including appropriate training, along with enhancing workplace culture, and reducing any related anxiety [50]. Furthermore, Bateh et al. [51] identified the benefits of training leaders to overcome resistance to change, as well as the use of moral and descriptive norms [29].

Status quo bias theory has proved beneficial for explaining resistance to change by outlining how users interpret any alterations, leading them to resist new IS by focusing on the costs of switching, alongside an adverse view of its benefits [14]. This can therefore play a powerful role in clarifying the use of new IT systems [52] overlooked by many studies of IS resistance. This theory is therefore primarily useful for understanding why and how organizational actors choose to resist [53]. In addition, it clarifies the existence of bias, which forms a powerful interpretation tool to explain resistance to IS [54]. However, there are only a limited number of studies outlining how status quo bias tends to influence automated workflow systems in developing countries, which illustrates the need to develop a new theoretical understanding, in particular one supported by the empirical evidence of a case study. This aspect can be further developed to clarify the ways status quo bias theory can explain resistance to change within differing contexts and locations.

There is currently a broad range of literature focusing on organizational change and IS, with recent studies covering topics such as (1) the influence of gender diversity on decision-making [55]; (2) the impact of COVID-19 on the IT sector (particularly the IT outsourcing industry) [56]; and (3) how ethical values can impact on motives and subsequently employee performance [57]. Additionally, a recent study has demonstrated the influence of leadership on organizational change and digital transformation [58]. However, few existing studies have documented the impact of IT systems on entrepreneurship [59] including the importance of organizational readiness in the successful implementation of digital transformation [60]. This study contributes to those studies that have taken place following the COVID-19 pandemic focusing on male respondents, due to a lack of female participants. Furthermore, ethical values also can play a role in user resistance and bring different insights to the literature on IS, i.e., the use of power for resisting IS. There have been a number of recent studies taking various approaches, to organizational change and IS, which have clarified the need for additional research examining the impact of status quo bias on IS resistance, and (due to differing organizational characteristics) automated workflow systems within developing countries. Moreover, there remains a lack of interpretive case studies in this area, which indicates the need for additional case studies to inform theory and practice, as explored in this current study.

3. Theoretical Framework

3.1. The Use of the Lens of Status Quo Bias Theory

Status quo bias theory posits that individuals have a strong preference for maintaining the current state of affairs and are thus resistant to change [61]. In addition, the theory verifies why and how organizational actors prefer to avoid change, in particular, due to technological innovation. It argues that organizational leaders prefer the status quo, particularly if their options are limited and the promised change is of questionable merit and also incurs a degree of cost [62]. Samuelson and Zeckhauser [14] demonstrated that status quo bias tends to manifest itself in three forms: (1) rational decision-making; (2) cognitive misperception; and (3) psychological commitment, as discussed in detail below.

Firstly, rational decision-making describes the process of evaluating potential costs and gains prior to the implementation of a new set of processes. Status quo bias arises when the costs prove higher than the gains. In the context of rational decision-making, there are two forms of costs: (1) transition and (2) uncertainty. Thus, some financial implications can arise (along with the uncertainty of success) during the implementation and adoption of automation. This can potentially encourage organizational leaders to retain previous systems and methods of working [63]. There are various forms of transitional costs, including: firstly, transient costs, which occur when a change is enacted, and secondly, long-lasting costs derived from change. In this current research, transient costs include those involved in convincing users to adopt (and accept) new automated systems, alongside the longer-lasting costs associated with jobs that are lost, or additional work involved in the implementation process.

Transitional costs can impact the structure of an organization through the removal (or merging) of departments. If this proves greater than the anticipated gains, it can lead to status quo bias. Furthermore, uncertainty costs can result in status quo bias in response to psychological uncertainty or worries concerning the risks related to the planned automation. In addition, uncertainty costs can result in a lack of psychological commitment, in particular, whether the automation process is capable of influencing power relations within the organization, resulting in a new power structure, i.e., power is transferred to other actors. This can cause uncertainty concerning the benefits of supporting automation, potentially resulting in a preference for retaining the status quo. The element of uncertainty cost in status quo bias can emerge when automation increases the risk of a loss of power and authority, regardless of whether it is supported or opposed. Thus, the move to automation in a public organization can introduce an uncertainty that impacts employees, particularly when it comes to their concerns about the resulting benefits.

Secondly, the cognitive misperceptions inherent in status quo bias imply that any avoidance of perceived potential loss can cloud decision-making, even when greater losses may be incurred by the failure to embrace change [14]. Cognitive misperception can also arise when organizational actors are highly influential but fail to understand the benefits of automation. This is particularly relevant, due to changes in business processes and automation potentially prompt opposition and resistance, particularly if employees and managers fail to understand the potential benefits of any overall gains.

Thirdly, psychological commitment is comprised of sunk costs, social norms, and the potential loss of control experienced by employees [14]. (1) Sunk costs focus on a transfer to a new form of working, including adopting new methods. During the process of automation becoming a reality, there may be new means of working and engaging with work processes that cause difficulties for employees, due to the need to adapt to unfamiliar styles. This can therefore lead to a desire to retain traditional working methods. (2) Social norms relate to behaviours and actions accepted as the norm, which can strengthen or weaken actors within an organization, thereby creating status quo bias. (3) Loss of control (or a sense of threat) can be experienced by individuals who have adhered to specific norms prior to the implementation of automation, which can also result in status quo bias [14].

Figure 1 summarises the main issues according to status quo bias theory relating to how organizational actors resist change resulting from the adoption of automated workflow systems. These three issues form, as explained previously, the aspects leading to resistance (i.e., transition costs, uncertainty costs, cognitive misperception, and psychological commitment). Transition costs arising from the decision to adopt technological systems can lead to resistance. In addition, resistance can be prompted if there remains any uncertainty about whether the adoption of technological systems may result in greater costs than gains for users. Furthermore, a limited understanding of technological systems and their implications can also result in resistance, as can lower levels of psychological commitment due to a sense of a lessening of control during the implementation of technological systems. This theoretical framework guided the data collection and analysis of the current study to determine the issues associated with each pillar of status quo bias theory.

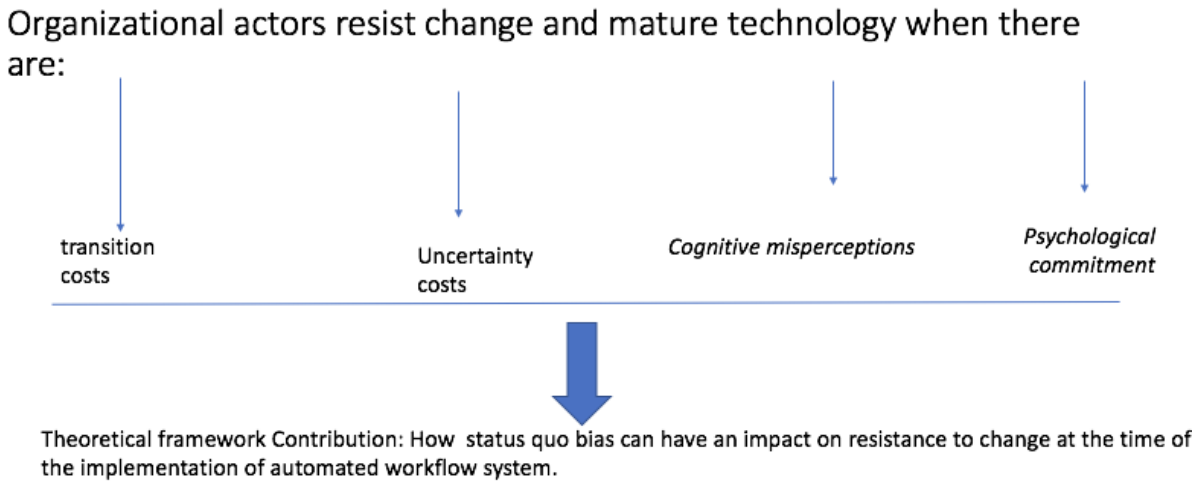

Figure 1. Theoretical Framework based on status quo bias theory [14].

3.2. The Benefits of the Lens of Status Quo Bias Theory for Interpreting Resistance to Change

The main benefit of adopting the lens of status quo bias theory for this research was that it facilitated an understanding of why members of organizations tend to prefer their current systems. In addition, it clarified that they tend to resist change for a number of reasons, as discussed below:

1. Organizational employees' resistance to a change of system tends to be commensurate with the level of the resulting costs i.e., changes in roles and structure. Status quo bias theory can help identify the issues related to transition costs and the reactions of employees.
2. Resistance increases when organizational members experience uncertainty concerning these costs, i.e., during the implementation of automated workflow systems. Status quo bias theory can help define how such uncertainty impacts resistance to change.
3. Status quo bias theory can assist in understanding employees' cognitive misperception of new systems, as well as how and why they resist, i.e., as a result of misunderstanding the benefits of new systems. It is, therefore, vital to acquire an in-depth understanding of the views of employees before, during and after any change, in order to recognise the processes involved in such resistance.
4. It is important to examine the psychological commitment of organizational employees during times of change, so as to demonstrate how and why resistance can occur. It can also reveal that encouraging employees' commitment to an organization can help them understand (and overcome) resistance to change.

3.3. There Are Also a Number of Further Theories Employed by Research into Information Systems Exploring Resistance to Change in Organizations, as Discussed Below

3.3.1. Work Systems Theory (WST)

Work Systems Theory (WST) is an alternative method that transforms the understanding of the system-as-technical-artifact to one that perceives organizational actors forming a segment of various business processes, not simply the use of technology. WST highlights the outcomes (including the value) of organizations shaped by such systems [64]. Laumer et al. [28] used WST to study work routines and resistance in a single organization, to evaluate the implementation of a human resources IS. Their results demonstrate that work routines can become an object of resistance during IS implementation.

This current research employed status quo bias theory due to its ability to provide a lens enabling an understanding of the organizational and psychological factors leading to resistance to change, as WST tends to focus on the design and management of work systems, as opposed to providing answers for why and how resistance may occur.

3.3.2. Political Variant of Interaction Theory

This theory [39] is used to understand and analyse the ways political behaviour and dynamics tend to shape organizational decision-making, including how organizational actors compete for power and influence. According to this theory, resistance to IS tends to be experienced when individuals or groups resist systems due to an interaction between characteristics related to both personnel and the system itself. The main drawback of this theory is that it focuses too narrowly on the power dynamics that may underlie organizational resistance to IS. However, it should be noted that the issue of power dynamics is one clarified more broadly by status quo bias theory.

3.3.3. The Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) is a model that attempts to take account of nonvolitional actions by including insights into control over performance as a further predictor of behaviour [65,66]. This theory aims to clarify the process of decision-making. Although there can be many reasons for organizational resistance, such as lack of training or job security, these are not covered by this theory, which rather focuses on examining attitudes and behaviour. This indicates that status quo bias theory can cover broader aspects rather than a narrow explanation of organizational resistance during times of change.

3.3.4. The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is considered the most influential and commonly employed theory for describing individual acceptance of IS. It was adapted

from the Theory of Reasoned Action [67] and originally proposed by Davis [68] and assumes that an individual's IS acceptance is determined by two major variables: firstly, Perceived Usefulness (PU) and secondly, Perceived Ease of Use (PEOU). In addition, TAM is a widely used framework for understanding and predicting user acceptance of new technologies. However, this theory also overlooks a number of organizational factors, i.e., changes in organizational structure or processes. These can be provided by status quo bias theory in relation to organizational resistance.

4. Methods

This research followed the interpretive tradition in IS research [69,70]. It adopted an ontological principle based on constructivist ideology, due to this being considered the most appropriate method for a study of organizational resistance to automated workflow systems in a public organization. Moreover, due to focusing on resistance by organizational actors, this study adopted a social constructivist position. It, therefore, recognises that the social reality of the influence of status quo bias on organizational resistance to automated workflow systems can relate to interactions between the actors involved. This facilitated the interpretation of automation resistance in a public organization [71].

In addition, the researchers applied a qualitative methodology to understand how and why status quo bias can explain organizational resistance to automated workflow systems in a public organization in a developing country, i.e., Saudi Arabia. This required data from a public organization experiencing organizational resistance to automated workflow systems. The researchers, therefore, examined employees and organizational actors at different levels within the organizational structure of the case study. The aim was to identify the behaviours relating to IT, in order to understand both the automation and the consequent resistance.

The qualitative case study in this research focused on a specific public organization in Saudi Arabia, consisting of a major public body founded in the 1960s, which was selected due to its implementation of automated workflow systems across many business processes. This made it a valuable case study for exploring the transition to automated workflow systems, including how (and why) status quo bias has created organizational resistance. It also provided evidence of the challenges brought about by automated workflow systems in a public organization.

Thus, the researchers targeted this public organization with the aim of enhancing understanding of the nature of resistance in public organizations in a developing country. The organization was selected in order to: firstly, explore how organizational actors in a public organization can resist change and secondly, determine how and why status quo bias can play a role in resistance to the introduction of a mature technology in an automated workflow system. This is particularly relevant as public organizations in Saudi Arabia are currently in the process of digitizing many of their services, including applying for appropriate government investment. Therefore, this study provides an opportunity to identify the resistance that can occur in one of its departments. This has the potential to contribute a better understanding of the factors prompting resistance and how they may be overcome, thus assisting in the fulfilment of the current plans and targets for the public sector. The main characteristics of this organization are that it is part of a main ministry responsible for forming and executing government policies regarding work, labour and social development affairs in the country. Its leadership has been appointed by the King and it contains deputies and departments led by managers. In addition, it has different technological systems platforms that aim to provide services to residents and citizens.

The organization being studied has adopted many different IT systems throughout its history to serve different purposes, with the most recent being automated workflow systems, which were introduced in 2016. As these were implemented prior to the date of the current research, this is a retrospective study. It, therefore, provides an opportunity for the participants to consider the relevant events in hindsight, and discuss the challenges they encountered during the implementation process. Furthermore, it considers how

organizational resistance was manifested and played a role in the success (or failure) of automated workflow systems from the perspective of status quo bias theory. Therefore, in order to understand the organizational resistance to automation, the case study undertook an in-depth examination of both the organization and its actors, yielding a significant degree of relevant data.

The research process commenced in 2022, thus offering a new oversight of the many events that had taken place throughout the implementation and development phase. One of the limitations of non-longitudinal studies is their short-time frame, which is generally spent in data collection. Moreover, participants in retrospective studies can experience difficulties in clearly recalling certain events, or may misrepresent them, due to now having new knowledge [72].

This study employed semi-structured interviews for data collection, as this provided an opportunity to develop an in-depth understanding of how status quo bias can explain organizational resistance to automated workflow systems [73]. The data were gathered in September 2022, over a period of approximately one month. This study followed a snowball sampling method for data collection. The researchers chose to interview specific individuals and those holding particular positions within the organization, while also giving the participants the opportunity to recommend further potential subjects. This process commenced with an automation engineer heavily involved in the implementation, who was offered the opportunity to recommend a participant with knowledge of the focus of this research. This process was then followed with each interviewee [74]. The main advantage of snowball sampling is interviewing those who are more familiar with the subject of the research questions and aims. This meant that the interviews were conducted with a sample population of twelve actors involved in the automation process. These included four automation engineers, three users, three managers, and two automation consultants. This, therefore, gave a comprehensive impression of why, and how, organizational resistance can influence automation in a public organization. The interviews lasted between one and one and a half hours and offered detailed data to help shape the researchers' understanding and fulfil the research objectives. The questions were guided by the following schedule, which was developed to examine the main pillars of status quo bias theory, in connection with organizational resistance to automation:

The interview questions (See Table 1) were primarily derived from, and guided by, the main principles of status quo bias theory, as outlined above in the section concerning the theoretical framework of this study. The first three questions were designed to set the scene for interviewees, informing them of the following aspects. Firstly, the history of automation in the organization; secondly, how it was implemented (i.e., the implementation process); thirdly, how resistance influenced the implementation of workflow systems; and fourthly, how resistance influenced the success of automated workflow systems. These four questions were vital for determining the context, in order to assist the analysis of the questions related to resistance. A number of questions were derived from status quo bias theory, including: firstly, issues surrounding uncertainty; secondly, the potential loss of jobs; thirdly, changes of business processes and the impact on organizational structure; fourthly, the influence of psychological commitment and power relations during the implementation of workflow systems; and finally, the creation of new forms and styles of working. These were all derived from the possible impact of this process, as well as examples of uncertainty costs related to the transition, along with cognitive misperceptions and psychological commitment potentially leading to resistance to automated workflow systems.

Table 1. The interview questions.

The Interview Questions	
1.	Why was implementing automation an important decision for the organization?
2.	How was the automation implemented?
3.	What did the participants know about organizational resistance?
4.	In what ways did they believe that organizational resistance influenced the automation process?
5.	In what ways did they believe, or not believe, that organizational resistance exerted an influence on the success of the automation?
6.	When implementing and adopting automation, was there any kind of uncertainty affecting the success of the technology's implementation? If so why, and how?
7.	Why, and how, can the potential loss of jobs and work influence the success of automation?
8.	Why, and how, can automating business processes impact organizational structure?
9.	Why, and how, does psychological uncertainty, or the view of risk, relate to the new options resulting from automation?
10.	Why, and how, can automation influence power relations, power structure and authority in the organization, as a result of automating business processes?
11.	How can automation clarify resistance to change within an organization?
12.	How can moving to new form of working, learning new methods and new norms in an organization lead to resistance?

The interviews were conducted in a conversational format, thus ensuring that all topics were addressed in the appropriate order to obtain the required data. In addition, the interviewer probed for further details, as necessary.

The analysis (See Table 2) followed Creswell's [75] systematic six-stage technique of data analysis. Firstly, the data was formed and prepared, including the transcribing of the interviews. Secondly, the data was scanned to highlight the key points made by the interviewees pertaining to the research questions. Thirdly, the analysis involved coding the interview data, i.e., portioning data into pieces of text, before explaining the meaning of the specific sections [75]. Fourthly, the interview data were arranged into categories and classified according to the type of participant. Fifthly, the coding was used to develop themes for analysis, including elements focusing on how status quo bias theory can clarify resistance to automation in public organizations. Finally, the researcher interpreted the meaning of the data by associating the key findings with the existing literature. In addition, the data were analysed using the qualitative analysis techniques proposed by Creswell [75], in combination with the theoretical understanding of status quo bias theory, as discussed in the previous section. This involved clarifying the outcomes according to definite themes, with the use of theory segmented into an iterative procedure of data collection and analysis [69]. The data analysis procedure followed in this research contains a number of advantages, as indicated by Creswell [75], including detailed explanations for the process of qualitative analysis, which is flexible and easily followed [76].

Table 2. Examples of analysis and interpretation.

Theme	Evidence (Examples From Interviews)	Support for Analysis and Interpretation
Job security	However, resistance can arise because the employees in the organization want to keep their jobs . . . (Software Automation Engineer).	Supported by the literature and lens of status quo bias theory
Changes in laws and rules	We faced strong resistance to rules on the legal front. We also had arguments in terms of interpreting the rules and laws . . . (Automation Consultant).	Supported by the literature and lens of status quo bias theory

5. Analysis and Discussion

This research recognises that automated workflow systems have, during their development, been subject to considerable resistance, with many previous studies demonstrating that such resistance tends to take place across multiple contexts [11].

5.1. How Employees' Resistance Impacted by the Adoption of Automated Workflow Systems

5.1.1. Job Security

Automated workflow systems have prompted resistance for a number of reasons, including fear of losing jobs, and a reduction in managers' authority, as well as the downgrading of certain roles. Overcoming such resistance can introduce hidden costs, as it is vital, in order to ensure the successful implementation of automation, to facilitate the compliance of employees with organizational change. Thus, fears can be seen to represent a powerful bias, as individuals prefer to work in a familiar environment and follow previous work styles. In this study, these fears were found to result in unrealistic and irrational responses, including the hope of maintaining the status quo against the 'threat' of automation, as expressed in the following responses.

"Yes, I think automation can lead to resistance. However, resistance can arise because the employees in the organization want to keep their jobs. But I think this kind of worrying about a possible loss of jobs emerges once managers point out that there will be no need for certain services in the same way as before automation. However, jobs will differ. Yes, it's true some jobs will disappear, but other kind of jobs will be created, such as in systems development, operations, or support. The nature of work will change and require a new set of skills." (Software Automation Engineer)

When employees felt that they would gain only limited benefits from automation, their fears increased, reflecting anxiety related to losing their jobs, which (according to status quo bias theory) also raised uncertainty concerning the costs, so reducing both their psychological commitment and support for the project and consequently increasing resistance.

> "Job and work losses can be a result of automation, and thereby influence resistance in the workplace. Thus, many jobs will be automated and there will be no requirement for people to do specific tasks. However, there will be a change in the skills and jobs required . . . I remember one manager I dealt with while automating a number of processes in an organization, said: 'If we automate, what is the need for managers and employees anymore?'". (Software Automation Engineer)

This indicates that resistance to automated workflow systems can be partially driven by concerns relating to job security. This accords with studies indicating an increased feeling of anxiety among employees related to the possibility of losing their jobs as a result of automation [77], which can lead to lower job satisfaction [78] and psychological well-being [79]. These can all, therefore, impact organizational performance. In addition, automated systems have the potential to replace human labour, leading to fears of subsequent unemployment. In contrast, automation can also lead to increased efficiency and productivity, creating new job opportunities [80], or allowing existing workers to focus on more highly skilled tasks.

5.1.2. Changes in Laws and Rules

This study found that resistance to automation tends to emerge when senior managers and employees attack developers and implementers, suggesting that this development will fail, due to contravening the rules and laws applied within the organization. This can be understood in divergent ways by the parties involved in the development and implementation, as well as in relation to the intended use of automated systems. Thus, rules and laws proved an important area cited by those demonstrating a status quo bias, particularly when facing proposed automation within a long-established public organization.

> "We faced strong resistance to rules on the legal front. We also had arguments in terms of interpreting the rules and laws. In addition, the old school did not like to see any changes, and preferred to continue with the same methods and approaches at work. We faced difficulties with the infrastructure, as well as the integration required and its extension. Every party has a view and these are all

> correct, if a suggestion is not strong enough and cannot be supported, it will fail and face resistance." (Automation Consultant)

As noted by Kuziemski and Misuraca [81], rules and regulations can influence the adoption of automated systems, which can be subject to resistance when employees perceive that these are not being followed, or are unfairly applied. Overall, an understanding of the regulations governing the adoption of automated systems can help demonstrate why resistance may occur, so informing strategies for addressing and managing this aspect within organizations.

5.1.3. Lack of Understanding or Knowledge of the Technology

This study found that it was not only the above fears that led employees and managers to highlight issues with the development and implementation of automation. They also revealed a lack of understanding of automated workflow systems, including their benefits. This influenced their conclusion that it was not possible to resolve the issues related to technology, with a negative impact on their subsequent output. The decision to present automation in this manner is also a means of evading the organizational costs required to achieve the operational success of automated workflow systems, resulting in status quo bias.

> "Some resisters try to stress the problems arising from automation and sometimes out of fear for the future, including the need to learn new skills and tools and a lack of understanding of the technology. People take an adversarial stance towards things they don't know about." (Software Automation Engineer)

During this research, it became evident that the development of resistance can, at times, be due to a form of cognitive misperception. Thus, both employees and managers preferred to maintain the status quo, due to misunderstanding the benefits of automation, resulting in some managers feeling that their services might, in future, be dispensed with, particularly when the organization intended to change their job description in accordance with the new developments. This revealed that their resistance tended to arise as a result of cognitive misperception.

> "As there used to be implementers who fought hard to stop us, and they may have felt uncertain about the results of automation, we had to explain our intention and plans clearly." (Automation Consultant)

This reveals that a lack of familiarity with the technology behind automated systems can result in employees becoming uncertain about how such innovations may work and are capable of achieving [82]. This can lead to fear (or mistrust) of the technology, further contributing to resistance to its adoption. Such misconceptions [83] were found to result in employees fearing that such technology was likely to prove unreliable, or to replace them, thus contributing to resistance. This was further compounded by some employees lacking the knowledge required to employ automated systems in an effective manner, which resulted in frustration and anxiety that they would be prevented from fulfilling their jobs efficiently [84].

5.1.4. Lack of Trust in the Technology

The process of automating services in organizations tends to be lengthy, requiring considerable involvement from developers, implementers, and users, and thus demanding a considerable degree of financial and workforce resources. This can lead to uncertainty, or a lack of trust in the technology, therefore highlighting the benefits of retaining the status quo, and supporting resistance to change.

> "There is a level of uncertainty in the adoption of automation, and this uncertainty exists when employees fear that they might have to follow a lengthy process to ensure the success of automation, even if they support it. They also fear that the

> organization may replace them with those who already have the skills required post-automation." (Software Automation Engineer)

There are several reasons why a lack of trust in technology may influence resistance to automated workflow systems, in particular the need for employees to be properly trained and supported [85], in order to prevent them from feeling overwhelmed and unsure of how to use the technology, resulting in a consequent lack of trust. Thus, employees may feel that automated workflow systems that require fewer members of staff [86] are being implemented to replace them, rather than to improve efficiency. In addition, a lack of trust in technology can arise from resistance to change itself, as well as a preference for traditional ways of working, resulting in difficulties in introducing new technologies (including automated workflow systems) [87].

5.1.5. Perceived Risks and Costs Associated with Change

A further issue is that of cost, due to the expense involved in changing organizational work processes and workflows, both for users and managers, who must adapt to new tools and working methods. This can cause organizational members impacted by automated systems to make the decision (as in the current case study) to resist any potential change. This reveals the need for high-level support to provide the appropriate infrastructure to overcome attachment to the status quo, along with resistance to change.

> "We saw that managers and employees were reluctant to adopt the new work methods and processes, because they had to adapt to a new situation. So yes, employees understand that there are costs involved when moving to a new working setting." (Automation Engineer)

In the current case study, this resistance manifested itself in the form of both users and managers opposing all efforts to implement change, in particular by taking the decision not to support efforts to ensure the success of automation. The highest cost paid for a loss of status involved training employees to use the new tools and methods, particularly when some members preferred to uphold the status quo.

> "Resistance happens when users, employees, or managers in an organization refuse to work with the new business processes, due to lacking the required skills, or in the absence of the necessary infrastructure or tools. The developer and implementer are required to coordinate with many parties in the organization. So, they refuse for the reasons just mentioned and say they need training, or don't have the skills needed; or that the previous working methods were successful, so there is no need to automate. This can result in many risks." (Software Automation Engineer)

In addition, status quo bias can arise (as in the current case study) when there are psychological uncertainty costs associated with automation. This was demonstrated by those within the organization who avoided engaging with change (and offered erroneous involvement and incorrect guidance to help analysts, developers, and implementers in their work) tending to maintain the previous situation. This presents an example of how uncertainty can influence status quo bias and decisions concerning automation resistance. One interviewee provided the following example of how this took place:

> "Yes, we saw a kind of psychological uncertainty and risks relating to what automation brings to the organization. We previously worked with the employees, but if we asked certain questions they tended to give false answers. Today, the tools make the decisions instead of them. So, automation reduces the need for these kinds of decisions to be taken by employees, and the systems perform this for many tasks at work. Therefore, we raised this with senior management, who supported us in overcoming this issue." (Automation Consultant)

This demonstrates how psychological uncertainty costs influenced resistance to automation. When employees realised that there would be a change in the methods and tools

used for carrying out their work, they also understood that they would be required to learn new skills. This led them to resist, but appropriate management of change and the application-related principles helped to transform such resistance and overcome this status quo bias.

> "Some people resist due to the fear that they can't learn and adapt to new methods and skills. We applied change management thinking in the organization, and delivered training and sent emails and workshops. We also arranged events with employees, in order to encourage them to support our efforts towards automation." (Automation Consultant)

And:

> "There is a kind of psychological uncertainty. I noticed someone who used to work as a supervisor of business functions was using manual tools. When a decision was taken to automate these processes, he opposed the management's vision for over three years. This resulted in conflict between different parties within the organization and fears of a loss of work." (Software Automation Engineer)

And:

> "It is possible to learn to use new tools and methods in work, but there is now an increasing awareness that people have to become better educated. However, there is still a kind of resistance to learning new skills and tools." (Software Automation Engineer)

This study found that employees tended to resist the implementation of an automated workflow system when they felt it might remove their control over their work or limit their autonomy [10]. This indicates that employees can prove resistant to using a system perceived as inflexible, or are unable to adapt to changing circumstances [88]. In addition, it identified issues relating to the potential disruption of existing processes [89].

5.1.6. Change of Business Processes, Alongside Organizational Structure and Power

Automation is designed to advance business processes within an organization and improve the effectiveness of its organizational structure. This is apparent in the merging (and removal) of multiple processes, in order to reduce the level of paperwork. The costs are considered transient costs, and reveal how the actors feel about moving to the current use of technologies. Transient costs are essential in times of change, including when upgrading the methods, tools and structures required to enable employees to adapt to changes in the running of an organization. However, the current study found that status quo bias prevented the complete achievement of gains anticipated by both managers and employees. However, the transient costs at this level were contingent upon transforming business processes and automating services, resulting in higher levels of changes to business processes and structures and commensurate degrees of resistance during the period of transition. Thus, transient costs were found to be higher than gains, leading to some managers and employees preferring to retain existing methods. However, some automation champions experienced success in accordance with the power they had accumulated within the organization, resulting in a consideration of transient costs as resulting from fears of losing power, status and a change in power relations in the organization. This was not only relevant for those working in IT but also for individuals demonstrating status quo bias.

> "The influence of automation on business processes will be merged, resulting in the removal of paperwork. There will be automation for archives and services and databases and categorization." (Software Automation Engineer)

And:

> "It depends on whether the new business processes will require full automation. You need management that controls what comes first. I believe it will look

> different in future, with the IT department being very powerful once most of the business processes in the organization have been automated." (Software Automation Engineer)

The data suggests that the managers were concerned about the uncertainty costs associated with automation, resulting in doubts over their psychological commitment. Automation also led to changes in power relations, which impacted those working in IT, along with marketing teams and operations gaining power from the project. This led to higher levels of resistance from managers desiring to maintain their existing power, thus explaining their status quo bias.

> "The IT department and implementers of automation will be the first to benefit from automation in organizations. Let me give you this example: in banks, there are branches and the main administration. The opening of accounts, along with most services, are now automated and take place online. This reduces the power of branches in favour of the main administration, who still have power over the banks." (Software Automation Engineer)

And:

> "IT people, support, technical teams and marketing are the new powerful personnel in an automated organization. They generally benefit from the potential of automation in the market, and automation will be the backbone for the organization, which will empower certain personnel with specific tasks." (Software Automation Engineer)

This study found that changes in business processes, organizational structure, and power, can influence organizational resistance to automated workflow systems in the following ways:

Firstly, in order to be effective, automated workflow systems require significant changes to business processes. However, employees tend to be resistant to the technology when not made fully aware of these changes, or when they lack an understanding of how the new processes will work [90]. This indicates the need for changes to organizational structure, (i.e., the creation of new roles or the reassignment of responsibilities), with employees resisting the technology if they believe this may exert a negative impact on their job security or their status within the organization [11]. In addition, this study found that automated workflow systems resulted in a change of power dynamics within the organization, with some employees gaining more, and others less, influence. It became clear that a number of employees resisted new technology when they considered it was being implemented to benefit specific individuals or groups at the expense of others [37,44,76].

5.1.7. Discomfort of Making Difficult Decisions

In this study, as highlighted by a number of employees, resistance to change was overcome through an identification of the organization's real problem concerning whether automation could provide a solution, due to organizational actors facing difficult decisions during the implementation. Thus, a key factor in overcoming resistance and status quo bias was found to consist of undertaking steps to ensure the support of senior management.

> "There used to be resistance to automation, and we confronted this by taking the business as it is and performing a gap analysis to correctly understand the problems. We found that specific processes were performed by certain people, which we changed, after raising the awareness of senior management, in order to ensure their support. One reason for resistance at the individual level was that they wished to continue working as they had done previously." (Automation Consultant)

The study also found that the main reason for discomfort with difficult choices arose from fear of making a wrong decision [91]. This led to employees being hesitant to adopt

an automated workflow system, in response to concerns that they may make mistakes, or the system could make decisions that are not in the best interests of the organization.

Figure 2 summarises the theoretical framework developed as a result of using the lens of status quo bias theory for the current case study. This reveals that organizational actors tend to resist change and automated workflow systems when they fear losing work. In addition, changes in organizational structure and processes tend to increase the potential for resistance, because of the effort required to adapt to the new realities, and the implementation of automated workflow systems may therefore require changes to regulations. All of these issues infer the need for both actors and organizations to deal with the resulting transition costs, which can thus enhance a choice to remain with the status quo. For example, psychological uncertainty can arise from changes to power relations, along with a lack of trust in the technology and awareness of any risks associated with the change, and the discomfort experienced while making difficult decisions to support this transformation. Moreover, a form of cognitive misperception can arise during the implementation of mature technology, resulting from a failure to grasp the benefits of automation to the organization, as well as an understanding of the technology. These factors can also lead to status quo bias and resistance to change. Finally, it is vital that organizational actors are psychologically committed to the developments, and demonstrate a positive attitude toward the new working styles and methods resulting from automation, along with addressing the potential for a proportion to lose their customary level of control. If any of these issues are overlooked, actors will tend to prefer the status quo and resist any change arising from the implementation of mature technology.

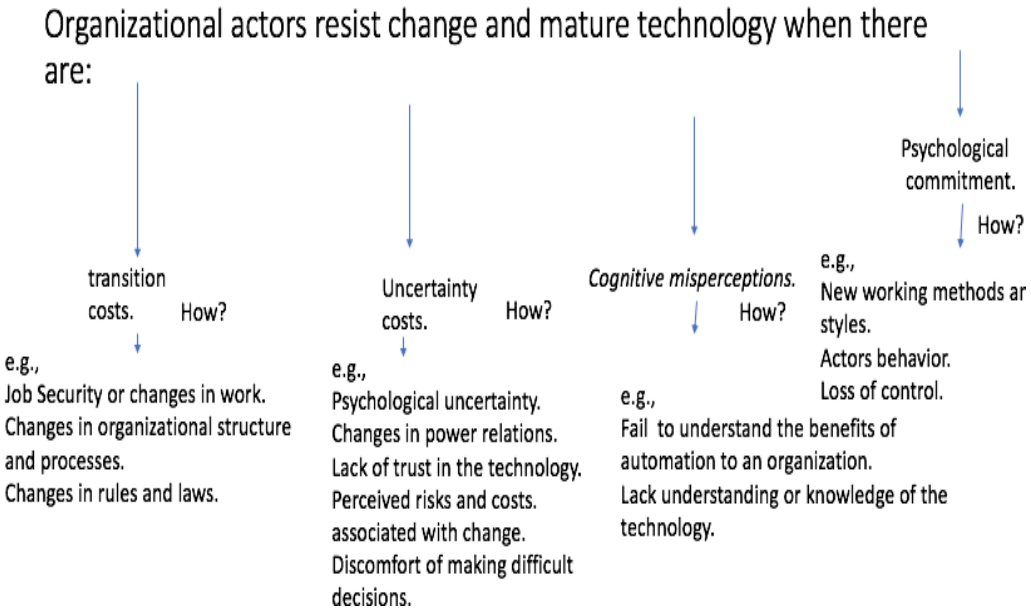

Figure 2. The developed Theoretical Framework.

This case study contributes to the body of existing literature, particularly that found in journals such as Systems. For example, a recent case study focused on the impact of technological systems on issues such as innovation and culture [92], while a second explored solutions for the implementation of new digital products [93], and a third examined the development of new IS for asset management [94]. These represent the kinds of studies published in Systems that contribute to the exploration of IS and management. This case study adds to this knowledge by showing how potential resistance to IS can be overcome, as well as examining issues influencing resistance from the perspective of status quo bias theory. As such a journal focuses on many issues related to systems theory and practice, including IS and management, this study contributes to this domain by bringing a new

understanding of why and how resistance to IS tends to arise, as well as offering advice on how it can be avoided in a developing country.

5.2. Implications for Research, Practice and Society

Overall, our findings suggest that status quo bias, and the associated fear of change, form significant factors in organizational resistance to automated workflow systems. Therefore, in order to ensure such systems can be implemented effectively, it is vital organizations address these concerns and provide clear communication and support to their employees during the transition process. This may include addressing worries relating to job security, as well as offering adequate training and resources, and involving employees in the decision-making process. Organizations, therefore, need to be assisted in minimising any resistance, while maximising the benefits of automated workflow systems. Other practical solutions are to take care to explain to employees that the new systems will benefit both themselves and their fellow citizens and (although they will experience a degree of change),these systems will improve their working processes, thus enabling them to fulfil their tasks. In addition, the managers of public organizations should understand power relations within departments capable of determining sources of resistance to automated workflow systems. Moreover, they need to become aware of rules and laws relating to processes and work in the public sector, in order to establish solutions, as well as understand the need to raise issues regarding rules with the leadership.

When it comes to the implications for academic discussion and research, this study offers an example of a case study demonstrating how and why status quo bias theory can explain resistance to IS, both on the part of the user and organizations. Furthermore, it has the potential to be used in comparison with other case studies within differing environments and countries. The current research can therefore be extended by the use of additional case studies to confirm the issues leading to resistance to change identified in the current research, as well as within other types of public or private organizations. This study, therefore, contributes to the development of status quo bias theory by demonstrating how certain issues create its foundations, i.e., the wish for job security impacts decision-making concerning a desire to retain the status quo (see the discussion of additional contributions in 5.1). This study thus provides a deeper understanding of how resistance takes place during the implementation of automated workflow systems.

In addition, this study has offered society in general an example of how resistance and status quo bias can impact development in organizations. This understanding can assist in creating community awareness of the need to address the issue of resistance, in order to ensure future success in the implementation of IS.

6. Conclusions

This study has explored the impact of status quo bias on organizational resistance to the implementation of automated workflow systems in a public organization within a developing country, i.e., Saudi Arabia. The researcher utilised in-depth interviews with employees at various levels of a single organization, in order to identify the perceived risks associated with a new automated system as a major factor in resistance to change. The employees expressed concerns relating to the potential impact on their job security, as well as the need for extensive training to adapt to the new system. This study also found that resistance to change was prompted by a lack of trust in, and knowledge of, the technology. Furthermore, due to the organization's perceived focus on maintaining the status quo, the employees were hesitant to disrupt established procedures, particularly those who had been with the organization over a long period of time and were comfortable with its established methods. In addition, the research identified that resistance was also prompted by the discomfort of making difficult decisions concerning the implementation of the automated system. Moreover, it highlighted that many employees felt that they were inadequately informed or consulted, about the changes, leading to confusion and mistrust.

The current researcher recognises a number of limitations potentially influencing the results and conclusions of this qualitative research paper, including the following:

1. This research consisted of a qualitative interpretive case study analysing semi-structured interviews that led to effective answers and interpretations of why and how resistance can occur during the process of automation in a public organization. However, it focused on a previous implementation (i.e., prior to 2016), inferring the possibility that, due to the length of the intervening time, the reflections of the interviewees may differ from their actual experiences during the implementation.
2. This study employed semi-structured interviews with those involved in the implementation process. However, it experienced difficulties in obtaining alternative sources of data (i.e., documents or focus groups), which can strengthen both the analysis and interpretation.

In addition, this study identified several potential areas for future research into how status quo bias can influence organizational resistance to automated workflow systems and automation, including:

1. How resistance to emerging technologies in both developed and developing countries tends to differ from that opposed to the traditional mode of IS within organizations.
2. How to develop a clear theory of resistance by a critical review of the current theorizing concerning this subject in the IS field.
3. How to include a number of theoretical perspectives borrowed from disciplines including sociology and organizational sciences (i.e., innovation theory) into the understanding of technological systems in organizations, in order to promote interesting results and interpretations of organizational resistance to IS.
4. To examine whether mature technologies are generally resisted in different public and private organizations in both developed and developing countries, followed by suggesting relevant solutions.

This study provides partial answers to these questions, due to its application of a theoretical perspective concerning how decisions are made when it comes to resistance to IS. However, further studies will have the ability to continue to develop the theoretical framework (see Figure 2), and test it both qualitatively and quantitatively, as well as through additional case studies.

In addition, this current study can contribute to future developments, including by highlighting the need to educate organizational actors and leadership when it comes to the consequences of resistance to public organizational investments and the implementation of technological systems. It further suggests that IT champions should provide workshops and communicate with all related actors so as to determine the actions necessary to avoid failure and resistance. This study has also raised the need for organizations to clearly communicate the fact that technological and information systems do not necessarily imply a reduction in the workforce, but rather have the potential to enhance working structures and processes, as well as improve legislation and rules. This, therefore, demonstrates the benefits of IS. Furthermore, it promotes an understanding of how to utilise power relationships to support organizational initiatives arising from the implementation of IS. Finally, this study has sought to enhance awareness of these technological systems and increase the level of trust placed by organizational actors in the implementation of IS.

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References

1. Mikalef, P.; Gupta, M. Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Inf. Manag.* **2021**, *58*, 103434. [CrossRef]
2. Loureiro, S.M.C.; Guerreiro, J.; Tussyadiah, I. Artificial intelligence in business: State of the art and future research agenda. *J. Bus. Res.* **2021**, *129*, 911–926. [CrossRef]
3. Balasubramanian, N.; Ye, Y.; Xu, M. Substituting human decision-making with: Implications for organizational learning. *Acad. Manag. Rev.* **2022**, *47*, 448–465. [CrossRef]
4. Vrontis, D.; Christofi, M.; Pereira, V.; Tarba, S.; Makrides, A.; Trichina, E. Artificial intelligence, robotics, advanced technologies and human resource management: A systematic review. *Int. J. Hum. Resour. Manag. Rev.* **2022**, *33*, 1237–1266. [CrossRef]
5. Brous, P.; Janssen, M.; Herder, P. The dual effects of the Internet of Things (IoT): A systematic review of the benefits and risks of IoT adoption by organizations. *Int. J. Inf. Manag.* **2020**, *51*, 101952. [CrossRef]
6. Popovič, A.; Hackney, R.; Tassabehji, R.; Castelli, M. The impact of big data analytics on firms' high value business performance. *Inf. Syst. Front.* **2020**, *20*, 209–222. [CrossRef]
7. Albarghouthi, M.; Qi, B.; Wang, C.; Abbad, M. ERP adoption and acceptance in Saudi Arabia higher education: A conceptual model development. *Int. J. Emerg. Technol. Learn. (Ijet)* **2020**, *15*, 110–120. [CrossRef]
8. ElFarmawi, W. Challenges affecting the implementation of Enterprise Resource Planning (ERP) system: An analysis. *J. Syst. Integr.* **2019**, *10*, 35–43.
9. Cline, G.B.; Luiz, J.M. Information technology systems in public sector health facilities in developing countries: The case of South Africa. *BMC Med. Inform. Decis. Mak.* **2013**, *13*, 13. [CrossRef]
10. Stohr, E.A.; Zhao, J.L. Workflow automation: Overview and research issues. *Inf. Syst. Front.* **2001**, *3*, 281–296. [CrossRef]
11. Dykman, C.A.; Davis, C.K. Addressing resistance to workflow automation. *J. Leadersh. Account. Ethics* **2012**, *9*, 115–123.
12. Van der Aalst, W.M.; Jablonski, S. Dealing with workflow change: Identification of issues and solutions. *Comput. Syst. Sci. Eng.* **2000**, *15*, 267–276.
13. Samhan, B. Revisiting technology resistance: Current insights and future directions. *Australas. J. Inf. Syst.* **2018**, *22*, 1–11. [CrossRef]
14. Samuelson, W.; Zeckhauser, R.A. Status quo bias in decision making. *J. Risk Uncertain.* **1988**, *1*, 7–59. [CrossRef]
15. Iacovou, C.L.; Benbasat, I.; Dexter, A.S. Electronic data interchange and small organizations: Adoption and impact of technology. *MIS Q.* **1995**, *19*, 465–485. [CrossRef]
16. Kim, B. Managing the transition of technology life cycle. *Technovation* **2003**, *23*, 371–381. [CrossRef]
17. De Oliveira-Dias, D.; Marín, J.M.M.; Moyano-Fuentes, J. Lean and agile supply chain strategies: The role of mature and emerging information technologies. Lean and agile supply chain strategies: The role of mature and emerging information technologies. *Int. J. Logist. Manag.* **2022**, *33*, 221–243. [CrossRef]
18. Rotolo, D.; Hicks, D.; Martin, B.R. What is an emerging technology? *Res. Policy* **2015**, *44*, 1827–1843. [CrossRef]
19. Hirschheim, R.; Newman, M. Information systems and user resistance: Theory and practice. *Comput. J.* **1988**, *31*, 398–408. [CrossRef]
20. Dickson, G.W.; Simmons, J.K. The behavioral side of MIS Some aspects of the "people problem". *Bus. Horiz.* **1970**, *13*, 59–71. [CrossRef]
21. Keen, P.G. Information systems and organizational change. *Commun. ACM* **1981**, *24*, 24–33. [CrossRef]
22. Baroudi, J.J.; Olson, M.H.; Ives, B. An empirical study of the impact of user involvement on system usage and information satisfaction. *Commun. ACM* **1986**, *29*, 232–238. [CrossRef]
23. Leidner, D.E.; Kayworth, T. A review of culture in information systems research: Toward a theory of information technology culture conflict. *MIS Q.* **2006**, *30*, 357–399. [CrossRef]
24. Adams, B.; Berner, E.S.; Wyatt, J.R. Lying strategies to overcome user resistance in a group of clinical managers to a business software application: A case study. *J. Organ. End User Comput. (JOEUC)* **2004**, *16*, 55–64. [CrossRef]
25. Lapointe, L.; Rivard, S. A multilevel model of resistance to information technology implementation. *MIS Q.* **2005**, *29*, 461–491. [CrossRef]
26. Doolin, B. Power and resistance in the implementation of a medical management information. *Inf. Syst. J.* **2004**, *14*, 343–362. [CrossRef]
27. Laumer, S.; Maier, C.; Eckhardt, A. Why Do They Resist?—An Empirical Analysis of an Individual's Personality Trait Resistance Regarding the Adoption of New Information Systems. In Proceedings of the 18th European Conference on Information System, Pretoria, South Africa, 7–9 June 2010.
28. Laumer, S.; Maier, C.; Eckhardt, A.; Weitzel, T. Work routines as an object of resistance during information systems implementations: Theoretical foundation and empirical evidence. *Eur. J. Inf. Syst.* **2016**, *25*, 317–343. [CrossRef]
29. Merhi, M.I.; Ahluwalia, P. Examining the impact of deterrence factors and norms on resistance to information systems security. *Comput. Hum. Behav.* **2019**, *92*, 37–46. [CrossRef]
30. Abollado, J.R.; Shehab, E.; Bamforth, P. Challenges and benefits of digital workflow implementation in aerospace manufacturing engineering. *Procedia CIRP* **2017**, *60*, 80–85. [CrossRef]

31. Zayas -Cabán, T.; Haque, S.N.; Kemper, N. Identifying opportunities for workflow automation in health care: Lessons learned from other industries. *Appl. Clin. Inform.* **2021**, *12*, 101–105. [CrossRef]
32. Zayas-Cabán, T.; Okubo, T.H.; Posnack, S. Priorities to accelerate workflow automation in health care. *J. Am. Med. Inform. Assoc.* **2023**, *30*, 195–201. [CrossRef] [PubMed]
33. Doherty, P.; Perry, I. The cultural impact of workflow management systems in the financial services sector. *Serv. Ind. J.* **2001**, *21*, 147–166. [CrossRef]
34. Wang, Z.; Liffman, D.Y.; Karunamoorthy, D.; Abebe, E. Distributed ledger technology for document and workflow management in trade and logistics. In Proceedings of the 27th ACM International Conference on Information and Knowledge Management, Italy, Torino, 22–26 October 2018.
35. Gordon, W.J.; Blood, A.J.; Chaney, K.; Clark, E.; Glynn, C.; Green, R.; Laurent, J.S.; Mailly, C.; McPartlin, M.; Murphy, S.; et al. Workflow Automation for a Virtual Hypertension Management Program. *Appl. Clin. Inform.* **2021**, *12*, 1041–1048.
36. Lohman, L. Connecting and Communicating with Faculty through Workflow Automation Platforms. *J. Fac. Dev.* **2022**, *36*, 73–76.
37. Markus, M.L. Power, politics, and MIS implementation. *Commun. ACM* **1983**, *26*, 430–444. [CrossRef]
38. Alsulaimi, A.; Abdullah, T. Management of Stakeholder Communications in IT Projects. In Proceedings of the 2020 3rd International Conference on Computer Applications & Information Security (ICCAIS), Riyadh, Saudi Arabia, 19–21 March 2020; pp. 1–6.
39. Markus, M.L. The politics of implementation: Top management support and user involvement. *Syst. Object. Solut.* **1981**, *1*, 203–215.
40. Markus, M.L.; Pfeffer, J. Power and the design and implementation of accounting and control systems. *Account. Organ. Soc.* **1983**, *8*, 205–218. [CrossRef]
41. Markus, M.L.; Bjørn-Andersen, N. Power over users: Its exercise by system professionals. *Commun. ACM* **1987**, *30*, 498–504. [CrossRef]
42. Newman, M.; Noble, F. User involvement as an interaction process: A case study. *Inf. Syst. Res.* **1987**, *1*, 89–113. [CrossRef]
43. Hirschheim, R.; Klein, H.K. Four paradigms of information systems development. *Commun. ACM* **1989**, *32*, 1199–1216. [CrossRef]
44. Kim, H.W.; Kankanhalli, A. Investigating user resistance to information systems implementation: A status quo bias perspective. *MIS Q.* **2009**, *33*, 567–582. [CrossRef]
45. Sıcakyüz, Ç.; Yüregir, O.H. Exploring resistance factors on the usage of hospital information systems from the perspective of the Markus's Model and the Technology Acceptance M. *J. Entrep. Manag. Innov.* **2020**, *16*, 93–131. [CrossRef]
46. Khaouli, E.A. Employees' Resistance to Organizational Change in the Case of Automation. Ph.D. Thesis, Notre Dame University-Louaize, Koura, Lebanon, 2018.
47. Selander, L.; Henfridsson, O. Cynicism as user resistance in IT implementation. *Inf. Syst. J.* **2012**, *22*, 289–312. [CrossRef]
48. Lin, T.C.; Huang, S.L.; Chiang, S.C. User resistance to the implementation of information systems: A psychological contract breach perspective. *J. Assoc. Inf. Syst.* **2018**, *19*, 306–332. [CrossRef]
49. Ilie, V.; Turel, O. Manipulating user resistance to large-scale information systems through influence tactics. *Inf. Manag.* **2020**, *57*, 103178. [CrossRef]
50. Imihi, M.; Ouiddad, S.; Ouchane, K.; Elouidani, A.O. Determinants of resistance to the use of ERP in the context of farms in Morocco. *Electron. J. Inf. Technol.* **2020**, *12*, 1–13.
51. Bateh, J.; Castaneda, M.E.; Farah, J.E. Employee resistance to organizational change. *Electron. Int. J. Manag. Inf. Syst. (IJMIS)* **2013**, *17*, 113–116. [CrossRef]
52. Shirish, A.; Batuekueno, L. Technology renewal, user resistance, user adoption: Status quo bias theory revisited. *J. Organ. Chang. Manag.* **2021**, *34*, 874–893. [CrossRef]
53. Li, J.; Liu, M.; Liu, X. Why do employees resist knowledge management systems? An empirical study from the status quo bias and inertia perspectives. *Comput. Hum. Behav.* **2016**, *65*, 189–200. [CrossRef]
54. Lee, K.; Joshi, K. Examining the use of status quo bias perspective in IS research: Need for re-conceptualizing and incorporating biases. *Inf. Syst. J.* **2017**, *27*, 733–752. [CrossRef]
55. Dimitropoulos, P.E.; Koronios, K. Board gender diversity and cash holdings: Empirical evidence from the European sport and leisure sector. *Int. J. Financ. Stud.* **2021**, *9*, 64. [CrossRef]
56. Ntasis, L.; Koronios, K.; Pappas, T. The impact of COVID-19 on the technology sector: The case of TATA Consultancy Services. *Strateg. Chang.* **2021**, *30*, 137–144. [CrossRef]
57. Koronios, K.; Dimitropoulos, P.; Kriemadis, A.; Douvis, J.; Papaloukas, M.; Ratten, V. Empowerment and performance in SMEs: Examining the effect of employees' ethical values and emotional intelligence. In *A Guide to Planning and Managing Open Innovative Ecosystems*; Emerald Publishing Limited: West Yorkshire, UK, 2020; pp. 83–98.
58. Weber, E.; Büttgen, M.; Bartsch, S. How to take employees on the digital transformation journey: An experimental study on complementary leadership behaviors in managing organizational change. *J. Bus. Res.* **2022**, *143*, 225–238. [CrossRef]
59. Steininger, D. M Linking information systems and entrepreneurship: A review and agenda for IT-associated and digital entrepreneurship research. *Inf. Syst. J.* **2019**, *29*, 363–407. [CrossRef]
60. Lokuge, S.; Sedera, D.; Grover, V.; Dongming, X. Organizational readiness for digital innovation: Development and empirical calibration of a construct. *Inf. Manag.* **2019**, *56*, 445–461. [CrossRef]

61. Kahneman, D.; Tversky, A. Prospect theory: An analysis of decision under risk. *Electron. Econom.* **1979**, *47*, 263–291. [CrossRef]
62. Anderson, C.J. The psychology of doing nothing: Forms of decision avoidance result from reason and emotion. *Psychol. Bull.* **2003**, *129*, 139–167. [CrossRef]
63. Polites, G.L.; Karahanna, E. hackled to the status quo: The inhibiting effects of incumbent system habit, switching costs, and inertia on new system acceptance. *MIS Q.* **2012**, *36*, 21–42. [CrossRef]
64. Alter, S. Work system theory: Overview of core concepts, extensions, and challenges for the future. *J. Assoc. Inf. Syst.* **2013**, *14*, 72. [CrossRef]
65. Ajzen, I. *Attitudes, Personality, and Behavior*; Dorsey Press: Chicago, IL, USA, 1988.
66. Ajzen, I. The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 179–211. [CrossRef]
67. Ajzen, I.; Fishbein, M. *Understanding Attitudes and Predicting Social Behavior*; Prentice-Hall: Englewood Cliffs, NJ, USA, 1980.
68. Davis, F.D. *Technology Acceptance Model for Empirically Testing New End-User Information Systems Theory and Results*; Unpublished Doctoral Dissertation; MIT: Cambridge, MA, USA, 1986.
69. Walsham, G. Interpretive case studies in IS research: Nature and method. *Eur. J. Inf. Syst.* **1995**, *4*, 74–81. [CrossRef]
70. Walsham, G. Doing interpretive research. *Eur. J. Inf. Syst.* **2006**, *15*, 320–330. [CrossRef]
71. Orlikowski, W.J.; Baroudi, J.J. Studying information technology in organizations: Research approaches and assumptions. *Inf. Syst. Res.* **1991**, *2*, 1–28. [CrossRef]
72. Farrall, S. What Is Qualitative Longitudinal Research. In *LSE Methodology Institute's Discussion Paper No. 11*; London School of Economics: London, UK, 1996.
73. Harrell, M.C.; Bradley, M.A. *Data Collection Methods: Semi-Structured Interviews and Focus Groups*; Rand National Defense Research Institute: Santa Monica, CA, USA, 2009.
74. Parker, C.; Scott, S.; Geddes, A. *Snowball Sampling*; SAGE Research Methods Foundations: London, UK, 2019.
75. Creswell, J.W. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 2nd ed.; Sage: Thousand Oaks, CA, USA, 2013.
76. Almatrodi, I. The Power/Knowledge of Consultants and Project Management Office in Enterprise System Implementation: A Case Study of a Saudi Arabian University. Ph.D. Thesis, University of East Anglia, Norwich, UK, 2015.
77. Coupe, T. Automation, job characteristics and job insecurity. *Int. J. Manpow.* **2019**, *40*, 1288–1304. [CrossRef]
78. Schwabe, H.; Castellacci, F. Automation, workers' skills and job satisfaction. *PLoS ONE* **2020**, *15*, e0242929. [CrossRef]
79. Nazareno, L.; Schiff, D.S. The impact of automation and artificial intelligence on worker well-being. *Technol. Soc.* **2021**, *67*, 101679. [CrossRef]
80. Tschang, F.T.; Almirall, E. Artificial intelligence as augmenting automation: Implications for employment. *Acad. Manag. Perspect.* **2021**, *35*, 642–659. [CrossRef]
81. Kuziemski, M.; Misuraca, G. AI governance in the public sector: Three tales from the frontiers of automated decision-making in democratic settings. *Telecommun. Policy* **2020**, *44*, 101976. [CrossRef]
82. Tariq, M.U.; Poulin, M.; Abonamah, A.A. Achieving operational excellence through artificial intelligence: Driving forces and barriers. *Front. Psychol.* **2021**, *12*, 68662. [CrossRef]
83. Lee, J.D.; Seppelt, B.D. Human factors in automation design. In *Springer Handbook of Automation*; Springer: Berlin/Heidelberg, Germany, 2009; pp. 417–436.
84. Delgado, J.M.D.; Oyedele, L.; Ajayi, A.; Akanbi, L.; Akinade, O.; Bilal, M.; Owolabi, H. Robotics and automated systems in construction: Understanding industry-specific challenges for adoption. *J. Build. Eng.* **2019**, *26*, 100868. [CrossRef]
85. Plesums, C. Introduction to Workflow. In *Workflow Handbook*; Fischer, L., Ed.; Future Strategies Inc.: Lighthouse Point, FL, USA, 2002; pp. 19–38.
86. Kobielus, J.K. *Workflow Strategies*; IDG Books Worldwide: Foster City, CA, USA, 1997.
87. Warren, J.; Myungsin, C. Culture, organizational dynamics and workflow implementation: The case of a failed implementation. *J. Inf. Technol. Case Appl. Res.* **2007**, *9*, 20–37. [CrossRef]
88. Zammuto, R.F.; O'Connor, E.J. Gaining advanced manufacturing technologies' benefits: The roles of organization design and culture. *Acad. Manag. Rev.* **1992**, *17*, 701–728. [CrossRef]
89. Cardoso, J.; Sheth, A. Adaptation and Workflow Management Systems. In Proceedings of the International Conference WWW/Internet, Lisbon, Portugal, 19–22 October 2005; Volume 2005, pp. 356–364.
90. Mlay, S.V.; Zlotnikova, I.; Watundu, S. A quantitative analysis of business process reengineering and organizational resistance: The case of Uganda. *Afr. J. Inf. Syst.* **2013**, *5*, 1–26.
91. Pap, K.; Pavlović, T.; Sabati, Z.; Barišić, M.; Koren, A. Digital workflow system in graphic production. In Proceedings of the 10th International Design Conference DESIGN, Dubrovnik, Croatia, 19–22 May 2008; p. 1459.
92. Ng, W.K.; Hsu, F.T.; Chen, C.L. The Impacts of Digital Technology on Service Design and Experience Innovation: Case Study of Taiwan's Cultural Heritage under the COVID-19 Pandemic. *Systems* **2022**, *10*, 184. [CrossRef]

93. Jansen, M.; Meisen, T.; Plociennik, C.; Berg, H.; Pomp, A.; Windholz, W. Stop guessing in the dark: Identified requirements for digital product passport systems. *Systems* **2023**, *11*, 123. [CrossRef]
94. Carriço, N.; Ferreira, B.; Antunes, A.; Grueau, C.I.; Barreira, R.; Mendes, A.; Covas, D.I.; Monteiro, L.; Santos, J.F.; Brito, I.S. An Information System for Infrastructure Asset Management Tailored to Portuguese Water Utilities: Platform Conceptualization and a Prototype Demonstration. *Systems* **2023**, *11*, 85. [CrossRef]