INFORMATION SYSTEMS RESEARCH

Conform or Workaround? A Multilevel Analysis of the Effect of Group Cultural Tightness on Enterprise System Use

Journal:	*Information Systems Research*
Manuscript ID	ISR-2021-417.R5
Manuscript Type:	Research Article
Manuscript Category:	Regular Issue
Keywords:	Group cultural tightness, Internal workaround use, External workaround use, Conforming use, Job performance

Abstract: Enterprise Systems (ESs) embed industrial best practices into adopting organizations through the usage of their system features. Yet, employees often engage in workaround use, either internal or external to the ES, which does not conform to prescribed use, but nonetheless could be beneficial for accomplishing work tasks. Building on Cultural Tightness-Looseness (CTL) theory and research on system workarounds, we develop a model examining how group cultural tightness—characterized by strong adherence to enforced norms within a group—shapes employees' conforming and workaround use of ES, and how these different forms of usage influence job performance. To test the hypotheses, we employ a mixed-method approach with Study 1 leveraging a multilevel, longitudinal, and multi-sourced data collected from 228 employees within 57 groups in a Chinese company, along with Study 2 utilizing an online experiment involving 240 participants from the USA. Collectively, the studies provide compelling evidence supporting our research model, indicating that group cultural tightness plays an instrumental role in increasing conforming use while decreasing internal and external workaround use for individual employees across different national contexts. The findings of Study 1 further indicate that both conforming and internal workaround use have positive effects on employees' job performance, while external workaround use negatively impacts their performance. An additional study, using a comparable research design and surveying 220 employees across 59 groups within a foreign multinational corporation operating in China, yields similar results, supporting the generalizability of these findings across different organizational settings. Findings from our study thus provide generalizable insights into the relative influence of group cultural tightness on conforming and internal and external workaround use of ES, as well as the distinct effects of these different modes of system usage on job performance.

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ISR-2021-417.R5

Thank you very much for reviewing our revised submission. We deeply appreciate the review team's insightful comments and the opportunity to receive a conditional acceptance for our paper. In response to the review panel's feedback, we have carefully revised the manuscript and believe we have addressed all the remaining issues. Below, we provide detailed responses to each comment and suggestion made by the review panel.

Responses to Senior Editor's Comments

Senior Editor:
The reviews of your submission to Information Systems Research, Manuscript ID ISR-2021-417.R4, titled "Conform or Workaround? A Multilevel Analysis of the Effect of Group Cultural Tightness on Enterprise System Use," are now complete. The comments of the associate editor and reviewer(s) are included with this letter.

Before your manuscript can be accepted, some minor revisions are required. Therefore, I am conditionally accepting your manuscript and inviting you to complete the revisions according to the associate editor's and reviewer(s)' comments.

Authors: Thank you for your constructive feedback and for conditionally accepting our manuscript. We sincerely appreciate the review panel's thoughtful comments, which have significantly helped improve the quality and clarity of our work.

In line with your guidance, we have made the necessary revisions to address the remaining minor issues highlighted in the feedback. Below, we have provided our detailed responses to your comments and those of the reviewer panel, outlining how we have addressed the suggested revisions.

Thank you again for the opportunity to further revise and resubmit our work. We look forward to your feedback and hope that the revised manuscript meets your expectations for final acceptance.

No.	Comment	Response
SE-1	Specific lingering issues to address. 1) You need to minimize redundancy in the paper. R2 has identified a few in the motivation and other points in the manuscript. I encourage you to address that concern and to more broadly review the paper for issues with the motivation.	Thank you very much for this comment. We have carefully reviewed the sections identified by R2, particularly in the motivation and other key parts of the paper. We have made concerted efforts to streamline the content, eliminating unnecessary repetition and refining our arguments for clarity and conciseness. In addition to addressing the specific concerns raised by R2, we have also conducted a broader review of the entire manuscript to identify and minimize any other instances of redundancy.
SE-2	2) You need to create an appendix that justifies each of the control variables. Like R2, I worry about model overfitting. Note, this is a mechanical issue, and not a	In response to this comment, we have created an Online Appendix L that justifies the inclusion of each control variable, explaining their theoretical relevance to the

	deal breaker. A short appendix will put that concern to rest.	model. We have also clarified the rationale behind our choices to ensure transparency and demonstrate that each control variable is essential for accounting for potential confounding factors, rather than contributing to unnecessary complexity.
SE-3	3) You need to address the concern about how you report HLM. Note, this is a mechanical issue, but, like R2, I think a reader should be able to understand what you've done, with minimal effort. A little clarity here would be appreciated.	We have revised the relevant sections of the manuscript to provide a more transparent and accessible explanation of the HLM procedures used. Specifically, we have added additional details on the steps involved in model estimation and interpretation, ensuring that the methodology is straightforward and easy to follow for the reader (p. 27).
SE-4	4) Please provide more concrete examples in the implications for practice. With the renewed focus on impact in academia, we want to be sure that your work does [not] quickly look dated. Concrete examples will work to that end.	Thank you for your valuable suggestion. Following your suggestion, we have revised the implications for practice section to include more specific and concrete examples of how our findings can be applied in real-world settings (pp. 33-35).
SE-5	5) While I appreciate R2's concern about justifying your theoretical approach, I do not think there is sufficient room to further development arguments for selection of theory in the main paper. Therefore, I'm not asking you to do a long write up. If you think the concern is one you can readily put to rest, I encourage you to a include a short line appendix that does so. However, note, that this is not mandatory for the paper to be accepted.	Following your advice and that of R2, we have included a brief explanation in Online Appendix A that clarifies and justifies our choice of theory. This allows us to address the issue without significantly expanding the manuscript or detracting from its central arguments. Thank you again for your thoughtful feedback.

Responses to Associate Editor's Comments

Associate Editor:
Thanks for diligently revising the paper. I sent it back to the two reviewers from the previous round. One is quite happy with the revision and ready to sign off. The other provides more comments on some conceptual clarity issues and asks for more details on the method and practical implications. After reading the paper myself, I believe that although the remaining issues are not critical, it's important to carefully address them to further improve the paper's quality. Therefore, I would recommend to conditional accept the paper assuming that the authors are willing to tighten up the loose ends. Congratulations on the successful revision and look forward to reading the final version.

Authors: Thank you for your thoughtful feedback and for the positive assessment of our revision. We are grateful for the opportunity to further improve the paper and appreciate your recognition of the progress we've made.

Regarding the conceptual clarity issues, we have made further refinements in the relevant sections to ensure that the key concepts are more clearly defined and integrated with the existing literature. We believe these adjustments enhance the overall coherence of the theoretical framework.

In addition, we have expanded the methodological section to provide more detailed explanations, particularly regarding the report of HLM analysis (p. 27). We hope that this additional detail will address any concerns and improve the transparency of our methods.

Finally, we have worked to strengthen the practical implications by clearly linking our findings to real-world applications, ensuring that the contributions of our study are not only theoretically relevant but also practically insightful (pp. 33-35).

We believe that these revisions effectively address the remaining issues and improve the manuscript's overall quality. Thank you once again for your thoughtful feedback and guidance throughout this process.

Response to Reviewer 2's Comments

Reviewer 2:
Thank you to the authors for their extensive revisions. I see the manuscript has progressed further. However, some minor revisions are still necessary before the paper can be finally accepted for ISR. I structure my review according to the sections of the paper where I see potential for improvement.

Authors: We would like to express our gratitude to you for the careful reading of our manuscript and the constructive comments provided. We are pleased to hear that the manuscript has progressed, and we appreciate the opportunity to make further revisions to improve the paper. Below, we have addressed each of the points raised in your review, with the necessary changes made in the manuscript.

No.	Comment	Response
R2-1	1. Abstract: The abstract lacks a clear link between workaround use and cultural tightness. Why should cultural tightness influence specific forms of conforming behavior or workaround use? Additionally, the term "group cultural tightness" is central to the study but is not briefly explained in the abstract. Readers unfamiliar with Cultural Tightness-Looseness (CTL) theory may struggle to understand the concept solely from the abstract. Furthermore, the abstract presents Study 1 and Study 2 sequentially but does not clearly explain how they complement each other. The additional study is mentioned at the end but appears somewhat disconnected from the main argument. A clearer narrative on how each study contributes to the overall research goal would be beneficial.	Thank you so much for this comment. Following your suggestion, we have revised the Abstract by introducing the concept of group cultural tightness earlier and connecting it to the influence on specific forms of ES usage. It also provides a clearer narrative about how these studies (i.e., Study 1 and Study 2) complement each other and ensures the findings from the additional study are more integrated into the overall argument. The revised Abstract is as follows: "*Enterprise Systems (ESs) embed industrial best practices into adopting organizations through the usage of their system features. Yet, employees often engage in workaround use, either internal or external to the ES, which does not conform to prescribed use, but nonetheless could be beneficial for accomplishing work tasks. Building on Cultural Tightness-Looseness (CTL) theory and research on system workarounds, we develop a model examining how group cultural tightness—characterized by strong adherence to enforced norms within a group—shapes employees' conforming and workaround use of ES, and how these different forms of usage influence job performance. To test the hypotheses, we employ a mixed-method approach with Study 1 leveraging a multilevel, longitudinal, and multi-sourced data collected from 228 employees within 57 groups in a Chinese company, along with Study 2 utilizing an online experiment involving 240 participants from the USA. Collectively, the studies provide compelling evidence supporting our research model, indicating that group cultural tightness plays an instrumental role in increasing conforming use while decreasing internal and external workaround use for individual employees across different national contexts. The findings of Study 1 further indicate that both conforming and internal workaround use have positive effects on employees' job performance, while external workaround use negatively impacts their*

		performance. An additional study, using a comparable research design and surveying 220 employees across 59 groups within a foreign multinational corporation operating in China, yields similar results, supporting the generalizability of these findings across different organizational settings. Findings from our study thus provide generalizable insights into the relative influence of group cultural tightness on conforming and internal and external workaround use of ES, as well as the distinct effects of these different modes of system usage on job performance" (p. 1).
R2-2	2. Introduction: The introduction distinguishes between internal (workarounds within the ES, such as reusing fields) and external (workarounds outside the ES, such as using Excel) workarounds. However, many workarounds blend these categories; for example, an employee might first extract data from an ES, modify it externally in Excel, and then re-enter it into the ES. It would be helpful to briefly mention why these "hybrid workarounds" are not considered or, alternatively, discuss them in the limitations section as a suggestion for future research. Additionally, the introduction states that group norms shape workaround behaviors, implying that workarounds are socially regulated—a perspective with which I agree. However, it also positions workaround use as a reaction to rigid ES constraints, which suggests an individualistic adaptation. The distinction should be elaborated: when do workarounds emerge from social influence, and when are they purely individual responses to system limitations? Moreover, how does this study capture these dynamics? The introduction repeatedly defines and describes workarounds—first conceptually, then in terms of their positive and negative effects, and then again when introducing internal vs. external workarounds. Streamlining this discussion would improve clarity and readability. Finally, while the authors assert that CTL theory provides a novel lens for understanding ES use, they do not convincingly argue why this perspective is superior to existing frameworks related to social norms, control, or organizational culture. Contrasting CTL with other workplace referents (e.g., social control, policy compliance, incentives) might strengthen the justification for choosing this framework.	Thank you for your insightful comments. In the revised manuscript, we have: (1) Further explained definition of internal and external workaround use. We acknowledge that many workarounds do not fall neatly into internal or external categories but instead involve elements of both or may involve both categories sequentially. In our study, we focused on a clear conceptual distinction between internal and external workaround use to examine their unique characteristics and implications. Although we conceptualize internal and external workaround use as distinct categories, this does not imply that individuals exclusively engage in one or the other, either in general or for a specific task. In practice, individuals may engage in both, but to varying degrees. As such, the extent to which both internal and external workaround use occur can reflect "hybrid workarounds" to some extent. To clarify this, by following your suggestion, we have added a brief mention in the Section "7.3. Limitations and Future Research" and further discussed the implications of hybrid workarounds in the limitations section, suggesting avenues for future research. Specifically, we argue that "*Fifth, this study distinguishes between internal and external workaround use. However, in practice, many workarounds tend to blend these categories, whether concurrently or sequentially, creating what we term "hybrid workarounds." For example, an employee may initially bypass a company's ES by using an unauthorized third-party software (external workaround) but later integrate the output from this software into the official system through manual data entry (internal workaround), creating a hybrid workaround. Such hybrid workarounds can also represent a depiction of how employees navigate the limitations of the ES in real-world*

		settings. Due to the complexity and the diverse nature of these hybrid workarounds, they were not explicitly considered in the current study. Future research could explore these hybrid workarounds use in greater depth by investigating how employees combine internal and external workaround use and how these hybrid approaches affect job performance and organizational outcomes" (p. 36). (2) Clarified the distinctions. In our study, we do not aim to distinguish whether workarounds emerge as socially regulated behaviors shaped by group norms or as individual adaptations to system constraints. Instead, our focus is on examining how individual workaround use (as well as conforming use) is influenced by group norms, particularly group cultural tightness. That is, rather than categorizing workarounds based on their origin—whether social or individual—we investigate how the broader social environment, specifically the degree of cultural tightness within a group, shapes individuals' tendencies to engage in workarounds versus conforming use. To clarify this, we have further refined our discussion on workaround use to emphasize that our study is concerned with the impact of group norms (group cultural tightness, specifically) on individual behavior rather than the classification of workaround emergence. Specifically, workaround use is defined as employees' goal-driven attempts to search, modify, or change one or more aspects of existing system features in ways for which it was not designed, or use alternatives instead of the intended system, to bypass or overcome obstacles or exceptions to accomplish their work tasks. This definition implies that workaround use behaviors are, at their core, individual responses to system limitations. Workaround use often emerges when employees encounter rigidity in the ES, which prevents them from completing tasks as intended. In this sense, individual adaptation is the initial trigger for engaging in workaround behaviors. However, we recognize that workaround use does not occur in a vacuum. While the individual need to overcome system limitations often drives the initiation of workaround use, the form and extent of workaround use are shaped by the social context in which employees operate. This is where group

		cultural tightness come into play. Workaround use behaviors are influenced by local group practices, norms, and shared expectations about what is acceptable or permissible in the workplace. These norms, which reflect the collective agreement about system use, guide how employees approach system limitations and adapt their behaviors accordingly. In culturally tight groups, workaround use behaviors may become more standardized and group-approved, whereas in looser environments, workaround use may be more individualistic and experimental. (3) Streamlined the discussion of workaround use for better readability. Instead of defining workaround use multiple times in different sections, we have consolidated the definition. Then, we have presented the positive and negative effects of workaround use as a separate discussion to avoid redundancy and focused on the different types of workaround use (internal and external) in a more succinct and clear manner. (4) Clarified why the CTL theory offers a unique and insightful perspective in understanding ES use compared to other frameworks. CTL theory specifically emphasizes the strength of social norms within a group and how these norms regulate behaviors—this is crucial for understanding how workgroups collectively shape ES use behaviors. Following your and SE *(#SE-5)*'s suggestion, we have contrasted CTL with other workplace influences (e.g., social control, policy compliance, incentives) to highlight its distinctiveness and superiority in addressing the subtleties of social regulation and norm enforcement in the context of ES use in the Online Appendix A. Moreover, in the Section 2.3, and Online Appendix Tables D1 and G3, we have further compared group cultural tightness with other workplace influences (e.g., organizational culture, social context, social control, social influence, social norms, and group climate). Our results show that group cultural tightness can be distinguished from its related constructs both conceptually and empirically.
R2-3	3. Controls in Hierarchical Linear Modeling (HLM): The section on HLM lacks sufficient details on model specification, particularly regarding the random effects structure and the rationale for including specific control variables at different levels. Since the study includes a	Thank you for this comment. In the revise manuscript, we have clarified the model specification. (1) In the HLM analysis, we included random intercepts to account for the natural between-group variability. Moreover, we further tested whether

	large number of control variables, this can complicate analysis and interpretation. The reasoning for including each control variable is not clearly explained, raising concerns about potential overfitting of the models.	there was substantial between-group variation in individual conforming use, internal workaround use, and external workaround use by setting a null model for each construct respectively. The results revealed that 20.8% of the between-group variance was explained for conforming use (χ^2 (56) = 114.54, $p < .001$), 33.3% for internal workaround use (χ^2 (56) = 167.69, $p < .001$), and 27.6% of the variance was explained for external workaround use (χ^2 (56) = 140.16, $p < .001$). These results confirmed that there was a significant group-level effect on individual conforming use and workaround use. Consequently, we proceeded to test the subsequent models (p. 27). (2) We have further provided a rationale for including control variables in our model. The control variables at both levels were selected based on theoretical considerations and prior research suggesting their potential influence on the ES use and job performance. In response to the SE's suggestion, we have added Online Appendix L which justifies the control variables.
R2-4	4. Practical Implications: The practical implications for managers remain somewhat ambiguous. The authors suggest that managers should balance encouraging conforming use while tolerating internal workaround use and discouraging external workaround use. However, they do not provide concrete strategies or examples of how managers can achieve this balance in practice. Offering specific managerial actions, or policies would enhance the practical relevance of these findings.	By following your advice and those of the SE and AE, we have provided concrete examples of how managers can achieve this balance in practice. Specifically, we have argued that it is crucial for managers to understand the paradoxical role of group cultural tightness in influencing ES usage behaviors. While group cultural tightness can foster increased conforming use, it may also unintentionally reduce internal workaround use, which can also be beneficial to job performance. Therefore, managers should avoid an overly rigid focus on group cultural tightness that may stifle internal workaround use. To achieve a balance between promoting conforming use and tolerating internal workaround use, managers can implement several concrete actions: (1) Managers can establish regular feedback mechanisms, such as employee surveys, one-on-one interviews, or focus groups, to gain insights into how employees are using the system and why they resort to workaround use. Tracking common workaround patterns through ES usage logs can also help identify areas where employees are adapting the system to improve efficiency or solve issues. For instance, if certain features are frequently bypassed, managers can investigate whether this is due to system limitations or user preference, and then take steps to address those gaps; and (2) Creating a culture of continuous improvement can help managers strike the right balance. Managers can regularly assess how

		internal workaround use contribute to system performance, using this information to refine both the ES and related policies. By fostering a collaborative environment where employees feel their input is valued, managers can encourage conforming use while supporting system adaptations that benefit both individual performance and organizational goals (pp. 33-35). We believe these revisions effectively address the remaining issues and enhance the overall quality of the manuscript. Thank you once again for your thoughtful feedback and valuable guidance throughout this process.

Conform or Workaround? A Multilevel Analysis of the Effect of Group Cultural Tightness on Enterprise System Use

Abstract

Enterprise Systems (ESs) embed industrial best practices into adopting organizations through the usage of their system features. Yet, employees often engage in workaround use, either internal or external to the ES, which does not conform to prescribed use, but nonetheless could be beneficial for accomplishing work tasks. Building on Cultural Tightness-Looseness (CTL) theory and research on system workarounds, we develop a model examining how group cultural tightness—characterized by strong adherence to enforced norms within a group—shapes employees' conforming and workaround use of ES, and how these different forms of usage influence job performance. To test the hypotheses, we employ a mixed-method approach with Study 1 leveraging a multilevel, longitudinal, and multi-sourced data collected from 228 employees within 57 groups in a Chinese company, along with Study 2 utilizing an online experiment involving 240 participants from the USA. Collectively, the studies provide compelling evidence supporting our research model, indicating that group cultural tightness plays an instrumental role in increasing conforming use while decreasing internal and external workaround use for individual employees across different national contexts. The findings of Study 1 further indicate that both conforming and internal workaround use have positive effects on employees' job performance, while external workaround use negatively impacts their performance. An additional study, using a comparable research design and surveying 220 employees across 59 groups within a foreign multinational corporation operating in China, yields similar results, supporting the generalizability of these findings across different organizational settings. Findings from our study thus provide generalizable insights into the relative influence of group cultural tightness on conforming and internal and external workaround use of ES, as well as the distinct effects of these different modes of system usage on job performance.

Keywords: Group cultural tightness, internal workaround use, external workaround use, conforming use, job performance

1. Introduction

Organizations depend on appropriate and effective usage of Enterprise Systems (ESs), such as Enterprise Resource Planning (ERP) systems, to enhance operational efficiency and realize strategic advantage (Ke et al. 2021; Sykes 2020; Trieu et al. 2022). The global ERP software market has experienced rapid expansion, growing by 13% in 2023 to reach a total value of USD $51 billion (Gartner 2024), with further projections that the market size will exceed USD $78.4 billion by 2026[1]. By embedding industrial best practices, ESs incorporate prescribed features to standardize and regulate workflow processes (Bala and Venkatesh 2013; Sykes and Venkatesh 2017). Organizations often rely on this feature-based control to ensure employees' conforming use of prescribed features to accomplish their work tasks (Adamson et al. 2017; Sykes and Venkatesh 2017). However, the embedded "best practices" within ES may not always align with employees' actual workflow processes (Bala and Venkatesh 2013; Haag et al. 2023; van Beijsterveld and Van Groenendaal 2016). In particular, the procedural rigidity enforced by vendor ESs limits tailored approaches to completing work tasks (Bendoly and Cotteleer 2008; Tenhiälä and Helkiö 2015). As a result, employees often resort to workaround use—goal-driven attempts to bypass or overcome system obstacles or exceptions to accomplish their tasks (Alter 2014; Ejnefjäll and Ågerfalk 2019; Gasser 1986). Consequently, organizations face the challenge of balancing employees' conforming use with workaround use, as the latter may offer potential benefits during task execution.

Prior research results on the effect of workaround use on employees' job performance is, however, inconsistent (Alter 2014; Tucker et al. 2020). Whereas some researchers allege that workaround use aids in circumventing problems in the workflow process and its manifestation may be in the interests of the organization (Davison et al. 2020), others counter that workaround use may diminish the benefits of using ESs by giving rise to a lack of accountability, introducing data errors, and/or placing extra demands on employees' time and effort (Laumer et al. 2017). These mixed findings can be partly attributed to the unidimensional conceptualization of workaround use in past studies (e.g., Cram et al. 2022; Ghasemaghaei and Turel 2022; Goh et al. 2011), which tends to frame workaround use as either entirely positive or entirely negative, and also neglects distinctions between internal and external orientation

[1] Source: https://www.netsuite.com/portal/resource/articles/erp/erp-statistics.shtml [last accessed: January 6, 2025]

(Ejnefjäll and Ågerfalk 2019; Keppler 2023). For example, when employees encounter inefficiencies when using ESs, they may, on the one hand, adapt their usage of the system itself, such as using an account of those with higher levels of access, or repurposing a rarely used field for common exceptions, to circumvent system controls (i.e., internal workaround use). However, employees may also turn to alternative solutions outside of the ES, such as relying on their own Excel sheet for analyses and reports, to save time and overcome system hurdles (i.e., external workaround use) (Ignatiadis and Nandhakumar 2009). For this reason, an in-depth understanding of how internal and external workaround use, in combination with conforming use, are positively or negatively related to job outcomes will not only shed light on the inconsistent or unintended effects of workaround use, but will also help organizations to gain more benefit from the implemented ESs.

Yet, despite the pervasiveness of workaround use with ESs (Beaudry et al. 2020; Ferneley and Sobreperez 2006), the interdependent nature of tasks implies that one cannot engage in workaround use without accompanying adjustment in, or effects on, system usage among others involved in the same work arrangement (Malaurent and Avison 2016; Malaurent and Karanasios 2020). Since group norms are likely to be formed among organizational members who collaborate or work together on a day-to-day basis (Barker 1993), workaround use in ESs is not an isolated improvisation by an individual user; rather, it embodies a collective learning and improvisation process that involves the creation of shared knowledge and establishment of new practices (Malaurent and Karanasios 2020). This, in turn, attests to the importance of collective agreements regarding what constitutes permissible or appropriate usage in an ES context, a dominant but often under-explored consideration within the literature on system use. In particular, when engaging in workaround use, employees not only have to devise alternatives (whether internal or external) to bypass or overcome system obstacles to or exceptions in completing their work tasks, but they also have to contend with what others find acceptable (Choi et al. 2023). Unlike formal mechanisms such as incentives and penalties (e.g., Liang et al. 2013) or training (e.g., Bala and Venkatesh 2015), group cultural tightness—which reflects the extent to which a group adheres to strictly enforced norms (Kim and Toh 2019)—can shape how employees strike this balance (Choi et al. 2023). To this end, we posit group cultural tightness as a critical influence on the extent to which individual conforming use or workaround use would be encouraged or permitted within a collective (Bandura 2001; Kozlowski

and Bell 2013).

While previous studies on ESs have considered other workplace influences, such as cultural values (Alavi et al. 2014; Maruping et al. 2019; Srite and Karahanna 2006), social context (Zhou et al. 2022), social control (Hsu et al. 2015), and social influence (Venkatesh et al. 2023; Venkatesh et al. 2003), they tend to concentrate on policy compliance or system acceptance behaviors. The majority of the studies overlook how variations in the strength of norms across different groups shape employees' post-acceptance ES use behaviors, particularly in terms of conforming and workaround use (Section 2.3 further explains the significance of other workplace influences on ES use and the distinction between group cultural tightness and related concepts). Group cultural tightness offers a unique lens to understand the subtle yet powerful influence of workgroups on employee behavior, helping us better grasp how workgroups regulate individual deviations from organizational norms or conforming system use. In this sense, group cultural tightness encapsulates the predominance and strength of norms within a collective that translates into implicit guidelines for preferred ways of acting or behaving in the workplace (Gelfand et al. 2011; Kim and Toh 2019). For example, group cultural tightness delves deeper into the mechanisms by which workgroups not only promote conformity (e.g., adherence to prescribed system use) but also support innovative or risky behaviors (such as workaround use). This informal role of groups in shaping individual ES use that is either conforming or non-conforming is highly intriguing and adds valuable knowledge to the role of workplace influences in shaping individual ES use. By disentangling the effects of group cultural tightness on employees' conforming and workaround use, organizations can harness the strength of norms with a certain group to nudge employees to use ESs in an optimal fashion.

Against this backdrop, we draw on Cultural Tightness-Looseness (CTL) theory (Gelfand et al. 2006; Gelfand et al. 2011) (Online Appendix A further justifies why this perspective is superior to existing theoretical frameworks) to construct a research model to not only postulate group cultural tightness as an influence on conforming use as well as on internal and external workaround use, but also to elucidate how conforming use and the two types of workaround use influence job performance. This research model is subsequently validated based on a mixed-method approach (Venkatesh et al. 2016). Study 1 analyzes data from a cross-level longitudinal survey of 228 employees within 57 groups in a Chinese company. Study 2 is an online experiment involving 240 participants from the USA to further attest to the

applicability of the group cultural tightness concept across different national cultures. The findings from both Study 1 and Study 2 consistently validate our hypotheses. An additional third study (only briefly reported in the main text but detailed in online Appendix O) of 220 employees within 59 groups in a foreign multinational corporation operating in China achieves similar results.

Findings from our overall study contribute to the extant literature on three fronts. First, by introducing group cultural tightness into the ES use context, our study specifies the important yet distinctive cross-level influences of group cultural tightness on conforming and workaround use. Specifically, we find that group cultural tightness increases conforming use while decreasing workaround use. The consistent results across a Chinese company, and an online experiment with participants from the USA, shed new light on how group-level cultural norms, particularly the level of tightness, shape and guide employees' tendencies towards conforming to prescribed ES use procedures or resorting to workaround strategies across different cultural contexts (Kim and Toh 2019; Qin et al. 2021).

Second, our study contributes to system workaround literature by conceptualizing and empirically testing two types of workaround use. Our study distinguishes between internal and external workaround use (Ejnefjäll and Ågerfalk 2019), which, when considered in conjunction with conforming use, can enrich our understanding of post-acceptance ES use behaviors. Third, by contrasting the influences of conforming use and the two types of workaround use of ES on job performance, our study contributes to a deeper understanding of the inconsistent performance effects of ES use documented in past studies. Even though our results reveal a significant positive effect of conforming use on employees' job performance in general, the effects of internal and external workaround use are more nuanced, thereby contributing to the scholarly debate on the implications of workaround use on job performance (Alter 2014; Tucker et al. 2020).

2. Theoretical Background

This section explicates the theoretical foundations and distinctions of conforming use, workaround use, and group cultural tightness.

2.1. Conforming Use in Enterprise Systems

Contemporary organizations often invest substantial resources in implementing ESs with their subsequent usage being viewed as a prerequisite for improving organizational productivity and competitiveness

(Sykes and Venkatesh 2017; Zhou et al. 2022). ESs are favored by organizations as a means of upgrading workflow processes to be aligned with industrial best practices (Sykes et al. 2014), with organizations investing tremendous amounts of resources into the implementation and maintenance of such systems (Bala and Venkatesh 2013). In order to assimilate the industrial best practices embedded in ESs into existing workflow processes, and also to be able to accomplish interdependent tasks effectively, it is not uncommon for organizations to require employees to conform to the prescribed features and usage of system features (Sykes and Venkatesh 2017; Sykes et al. 2014). As a consequence, it would defeat the original intention of ES adoption and waste invested resources if organizations were to allow employees to deviate from the conforming use of such systems (Ferneley and Sobreperez 2006).

Conforming use in this study is construed as *the degree to which employees adhere to the recommended usage of ES features for accomplishing their work tasks*. Organizations, typically in collaboration with the vendor of the ES, offer operational manuals and training sessions to employees before and/or immediately following an ES implementation (Sykes 2020; Tong et al. 2015) to instruct employees about specific system features that they should use to accomplish their work tasks. For instance, hands-on training allows employees to not only acquire actual experience in working with ES, but to also learn from their peers (e.g., supervisors, coworkers, and the help desk), thereby gaining an accurate and deep understanding of the prescribed features and procedures of an ES (Bala and Venkatesh 2015; Sykes 2020). In this regard, conforming use involves employees' application of a set of required or recommended ES features on a regular basis to successfully accomplish work tasks. Departing from prior research on IT compliance that is geared toward how organizational control affects employees' compliance with mandatory IT policies and rules (Liang et al. 2013; Xue et al. 2011), especially in the domain of IT security (Bulgurcu et al. 2010; Herath and Rao 2009), conforming use in the current study does not refer to general compliance with policies or rules or regulations, but rather, accentuates prescribed usage with respect to specific system features or procedures[2].

[2] Considering that there are several aspects of "(non)compliance", we do not use the term "compliance" in order to avoid confusion with those more security/system integrity/legal/policy aspects. In the current study, what we mean by "policies or rules or regulations" are formal, auditing, or legal standards, with which organizational processes and practices must comply. Thus, we refer to "conforming" as the more relevant term for this study.

2.2. Workaround Use in Enterprise Systems

2.2.1. General Rationale for the Importance and Pervasiveness of Workaround Use

Contradictions and incongruences between ES and work/business practices culminate in tensions and localized improvisations that drive change in ES design and use (Malaurent and Avison 2016). User interpretations of how an ES can be deployed to accomplish work tasks may differ from usage patterns envisioned or required by system developers, vendors, management, or organizations (Choudrie and Zamani 2016). For this reason, there is no perfect or even necessarily stable fit between an ES and related work processes. For example, an ERP system may embed "best practices" based on industry-wide processes or vendor experiences, but those practices may not be an ideal fit with actual business processes or users' familiar approaches (van Beijsterveld and Van Groenendaal 2016). It is hence unsurprising for Gasser (1986) to allege that "[in] many cases, fitting, augmenting, and working around are so important to the integration of computing that, without them, computing services and performance would degrade very rapidly, at significant organizational cost" (p. 217). Inevitably and somewhat ironically, workaround use constitutes a routine behavioral response to nearly all ESs. However, much of IS research tends to presume that users necessarily and always comply with the implemented ES features, and treat the interaction between the system and users as a "black box," ignoring workaround use behaviors (Azad and King 2008).

2.2.2. Similarities and Differences between Workaround Use and Related Constructs

Prior research has identified a wide range of phenomena related to, but distinct from, workaround use. We summarize key discrepancies between the concept of workaround use and related concepts that have been previously considered within extant literature. These include avoidance (Bala and Venkatesh 2015), bring-your-own-device (BYOD) (Carter and Grover 2015), cyberslacking (Venkatesh et al. 2023), effective use (Trieu et al. 2022), exaptation (Desouza et al. 2007), exploration-to-innovate (Bala and Venkatesh 2015), exploration-to-revert (Bala and Venkatesh 2015), feature repurposing (Sun 2012), reinvention (Boudreau and Robey 2005), and shadow IT use (Boudreau and Robey 2005). A detailed review is available upon request.

Workaround use is not the opposite of conforming use (i.e., non-conforming use) (Malaurent and Karanasios 2020). While both non-conforming use and workaround use behaviors share some

commonalities, they have distinct emphases[3]. Non-conforming use, as theorized in previous studies, pertains primarily to *system-level* general non-conformance, manifesting as users' disregard, violation, or rejection of prescribed usage of system features or the ES overall on an ongoing day-to-day basis (Chan et al. 2005; Gwebu et al. 2020). In contrast, workaround use captures *task-level* non-conformance whereby users only engage in attempts to bypass the system or modify system features or use features in non-prescribed ways whenever they encounter system hurdles to or inefficiencies for accomplishing a given work task (Bhattacherjee et al. 2018). This means that when trying to accomplish a task, an individual can either conform to the prescribed method or, if encountering difficulties, attempt to complete it through a workaround. While workaround use may also occur at the system level (e.g., external workaround use), it is still driven by the need to accomplish the work task(s). In this sense, workaround use is situationally-driven in that it is targeted at bypassing or overcoming system hurdles that hinder the accomplishment of given work tasks (Alter 2014; Ejnefjäll and Ågerfalk 2019). Non-conforming use, on the other hand, entails a broad deviation from the prescribed usage of system features and may not necessarily address or overcome specific system hurdles for accomplishing work tasks (Ferneley and Sobreperez 2006).

Furthermore, workaround use can improve business processes by fostering learning and improvisation among users that may lead to the generation of new knowledge and/or the refinement of practices on how to best leverage system features (whether that is shared among other users and the organization or not) (Bartelheimer et al. 2023; Orlikowski 2000), while non-conforming use typically does not (Malaurent and Karanasios 2020). This is in line with the perspective presented by Malaurent and Karanasios (2020): "workarounds should not be viewed solely as undesirable resistance and non-compliance or as deviant behaviors, but rather as organized learning activities which involve the creation of new knowledge and new practices" (p. 640). Behaviorally, the motivations and underlying mechanisms for non-conforming use and the existence of workaround use differ as well. We thus argue that conforming and workaround use can coexist, with employees engaging in conforming use (for most activities) and workaround use (whenever system obstacles arise).

[3] We thank one of the anonymous reviewers for this suggestion.

2.2.3. Conceptualizing Workaround Use in Enterprise Systems

Past studies have developed conceptual process models or typologies of workaround use, based on the extent of workarounds, or a progression from standard use to internal adaptation and external procedures (Ejnefjäll and Ågerfalk 2019; Gasser 1986; Malaurent and Avison 2016). For example, Gasser (1986) conceptualized workaround use as "intentionally using computing in ways for which it was not designed or avoiding its use and relying on an alternative means of accomplishing work" (p. 216). Ejnefjäll and Ågerfalk (2019) reviewed many of these definitions and defined workaround use as "when the designed path is blocked, a workaround provides an alternative path to the same goal without completely removing the block" (p. 352). Online Appendix Table B1 lists previous definitions and typologies of workaround use.

Our review of extant literature on workaround use points to certain limitations. First, most current research has not considered differences in workaround use, treating it as a unidimensional construct (e.g., Laumer et al. 2017). Second, past studies have primarily focused on theoretical development (e.g., Alter 2014) or qualitative case studies (e.g., Wiesche et al. 2024), without quantitative empirical testing. Further, some studies have proposed typologies of workaround use in relation to specific settings such as bureaucracy, healthcare, or resistance to management policies. For example, based on their focus on user resistance, Ferneley and Sobreperez (2006) proposed a taxonomy of workaround use that comprises hindrance workaround, harmless workaround, and essential workaround. Although such a taxonomy is useful, it does not consider non-resistance contexts.

Following the suggestion of Ejnefjäll and Ågerfalk (2019) to "use a parsimonious definition that matches the common use and focuses on the parts with most divergent examples" (p. 352), we provide a more explicit conception of workaround use: *employees' goal-driven attempts to search, modify or change one or more aspects of existing system features in ways for which it was not designed, or use alternatives instead of the intended system, in order to bypass or overcome obstacles or exceptions for accomplishing their work tasks* (Alter 2014; Ejnefjäll and Ågerfalk 2019; Gasser 1986). The definition of workaround use focuses on the most central and general aspects of workarounds (internal or external) to the system that the organization intends for employees to use. First, workaround use requires intent and involves goal-driven actions (Alter 2014; Ejnefjäll and Ågerfalk 2019). Second, workaround use is

an attempted solution to bypass, or overcome obstacles or exceptions to, the designed path for accomplishing work tasks (Alter 2014; Ejnefjäll and Ågerfalk 2019). Workaround use tries to respond to infrequent, or exceptions to, regular task processes that the formal system doesn't recognize, cannot handle, or may even punish (Rice and Cooper 2010). Third, workaround use involves specific actions such as using the system features in ways for which it was not designed or for which users were not trained, or using alternatives instead of the intended system for accomplishing work tasks (Bjørn et al. 2009; Gasser 1986).

Considering whether workaround use is conducted within the required ES or not, we propose two distinct types of ES workaround uses: internal and external. This classification also aligns with the recent categorization of make-do workaround and supplemental workaround (Keppler 2023), where the former involves utilizing existing resources within the organization (i.e., internal), while the latter involves incorporating additional resources from outside the organization to overcome work obstacles (i.e., external). The distinction between internal and external workaround use is only briefly and tangentially referred to in the literature (see Burton-Jones and Grange (2013) and Wand and Weber (1995)—though they mean what is actually programmed in the system versus what users can see and use through the system's interface). However, our distinction is useful because workaround use includes both bypassing features or applying them in different ways within a given implemented ES system, as well as turning to other systems either within or outside of organizational boundaries (e.g., feral or shadow system, other organizational or non-organizational systems, or manual processes) to help overcome the obstacle.

Internal workaround use is developed within the formal ES, and thus it (at least partially) falls under the organization's control and system integration, whereas external workaround use relies on alternative systems external to the formal ES, which may escape organizational and system control and may necessitate subsequent (re)integration efforts. Indeed, internal workaround use is similar to using a system differently (Ejnefjäll and Ågerfalk 2019), or engaging in data and procedural adjustment (Gasser 1986), while external workaround use is similar to bypassing and using additional systems (Ejnefjäll and Ågerfalk 2019), to using backup systems (Gasser 1986), or to making parallel system adjustments (Malaurent and Avison 2016; Malaurent and Karanasios 2020). Further, internal and external workaround

use may differ in the amount of involvement of group members with the workaround (Bendoly and Cotteleer 2008; Tucker 2016). Internal workaround use may demand more coordination among group members, to the extent that it hinges on others' commitment to learn and participate in concerted efforts and on interdependencies of local tasks and features. Conversely, external workaround use entails fewer internal coordination efforts, as employees typically opt for their own familiar system, tool, or procedure.

In the current study, *internal workaround use* refers to employees' adaptation of the existing system features (e.g., search, modify, or change the use or application of one or more aspects of the existing system) in a way that does not conform to standard procedures, in order to bypass or overcome obstacles or exceptions for accomplishing their work tasks. The features or adaptations of the workaround are not explicitly mentioned or discussed during training, and may not be documented or even conceived of by the vendor or organization (Bala and Venkatesh 2015). In contrast, *external workaround use* refers to employees' use of alternatives to the recommended or required system to bypass or overcome obstacles or exceptions for accomplishing their work tasks. Although employees engaging in external workaround use may use specific features in other systems or resources, the important aspect is that the employees feel they have to bypass the current system to find a solution outside the system, either within or outside of organizational boundaries, so as to complete their tasks. In order to illustrate the examples and outcomes of internal and external workaround use, Online Appendix Table C1 provides a succinct review of prior workaround use studies with illustrative examples of what we would consider internal and external workaround use.

2.3. Group Cultural Tightness

2.3.1. Extending Group Cultural Tightness into ES Constructs

According to CTL theory, tightness-looseness represents an important form of cultural variation (Gelfand et al. 2006; Gelfand et al. 2011). Existing research on cultural tightness has mainly focused on levels beyond the organization, such as the national, regional, and state levels. For example, Gelfand et al. (2011) illustrate the differences between tight and loose cultures based on data from 33 nations. Harrington and Gelfand (2014) develop a tightness-looseness index to account for diversity in personality characteristics and ecological threats in the 50 states of the USA. Similarly, Chua et al. (2019) find that provinces in China with tight cultures tend to exhibit low rates of radical/substantive innovations. Although cultural

tightness has been originally conceptualized at the national level, variability in cultural tightness has also been observed in groups (Kim and Toh 2019; Qin et al. 2021). Like other social contexts (e.g., nations, states, and organizations), groups also pay attention to changing environments, identify problems, generate a set of potential solutions to the problems, select effective solutions, and enact systems that reflect the chosen solutions. Prior studies have empirically confirmed that cultural tightness tends to be consistent within a given group, but can vary among different groups. For example, Kim and Toh (2019) find that a leader's past cultural experience can influence the cultural tightness of the current group. Qin et al. (2021) report that talking about a crisis such as COVID-19 among group members can also influence group cultural tightness. *Group culture tightness*, which refers to the degree to which a group adheres to the strictly enforced norms within the group (Gelfand et al. 2011; Kim and Toh 2019), is considered a key cultural concept for examining the consequences of group cultures in the workplace.

Some cultural tightness should naturally form among organizational members when they collaborate or work together on a day-to-day basis (Barker 1993). Several factors such as the geographic background of group members, variations in local group management, or even the nationality of the group leader, can lead to differing levels of cultural tightness among different groups. As such, for different groups, there may exist different strengths of social norms and tolerance for deviant behaviors. For example, culturally tight groups have vigorous norms that stipulate the boundaries between acceptable and unacceptable behaviors (Harrington and Gelfand 2014; Talhelm and English 2020). Members in such groups often avoid deviating from strongly reinforced norms because deviance may be curtailed or punished by peer pressure and negative comments within the groups (Gelfand et al. 2011). In contrast, norms in culturally loose groups are less clear about and are more tolerant of alternative behaviors (Kim and Toh 2019; Talhelm and English 2020). Members in loose group cultures tend to experience a greater sense of freedom in expressing their own preferences (Chua et al. 2015). It is argued that the local group management, rather than the top management of an organization, takes responsibility for the use of ES, interacts directly with employees, and has the most immediate impact on the employees' behaviors (Peng and Guo 2019; Salvador et al. 2021). Therefore, group cultural tightness would regulate members' behaviors when faced with disruptive changes generally (Kim and Toh 2019; Qin et al. 2021) and employees' conforming and workaround use in the post-acceptance ES implementation in particular.

ES is often implemented in large-scale organizations consisting of many different groups (Peng and Guo 2019). Employees within a group typically use similar system features, applications, and workflow to support their work tasks. Understanding the influence of group cultural tightness in the context of ES usage is critical for unraveling the complexities associated with the implementation and adoption of these systems. ESs are designed to standardize processes, particularly relevant to culturally tight groups inclined towards prescribed workflows and adherence to norms (Gelfand et al. 2017). Moreover, members of groups may exhibit more conformity (Gelfand et al. 2017), aligning their system usage patterns with established norms. Understanding these conformity dynamics provides insights into how group cultural tightness shapes the collective behavior of ES users. Given that employees' system usage is embedded in a social system, it becomes subject to the system's social rules and norms (Bartelheimer et al. 2023), making the concept of group cultural tightness also relevant to the realm of conforming and workaround use patterns. In culturally tight groups, where adherence to norms is emphasized (Gelfand et al. 2017), the nature and frequency of workaround use may be influenced.

2.3.2. Differences between Group Cultural Tightness and Related Constructs

Previous studies have highlighted the significance of several workplace influences (e.g., cultural values, social context, social control, and social influence) on ES use. Although group cultural tightness could be associated with these related workplace influences, there are distinct differences between them, as briefly summarized below and described in more detail in Online Appendix Table D1.

Organizational culture may be a stronger influence on the success or failure of ESs than the system's technological capabilities (Petrides et al. 2004). Most cultural literature has used values as the dominant paradigm to explain cultural differences (Schwartz 1994). The values lens can help understand cultural complexity from the familiar psychological perspective and can be measured at the individual level (Bond 1997). However, despite promises provided by a values approach, some criticisms exist regarding its theoretical grounds and explanatory power (Gelfand et al. 2006). An exclusive focus on cultural values is not sufficient to capture the complex nature of culture (Gelfand et al. 2006).

In the organizational field, *social context* reflects the degree to which an organization cultivates a supportive and trustworthy environment for employees, motivating them to emulate these behaviors within the organization (Zhou et al. 2022). Given that adapting ES to dynamic environments requires

ongoing technical learning by ES users and business knowledge updates by the IT unit (Sun et al. 2012), a social context characterized by trust and support enhances collective learning and mutual collaboration between units (Eisenberger et al. 1990; Six and Sorge 2008), which are crucial for shaping collective ES compliance (Zhou et al. 2022). Essentially, social context is about the general supportive environment fostered by the organization, while group cultural tightness deals with the adherence to and enforcement of specific norms within a group.

Social control pertains to strategies that are based on social or interpersonal approaches (Eisenhardt 1985; Kirsch 1996) and encompasses four dimensions: involvement, attachment, belief, and commitment (Hsu et al. 2015). Effective social control can motivate employees to engage in desired behaviors, leading to improved outcomes (Eisenhardt 1985). For instance, Hsu et al. (2015) view an organization as a social unit and explain how social control can enhance both in- and extra-role information security policy compliance. Unlike social control, which involves more flexible, relationship-based strategies, group cultural tightness implies a more rigid and structured approach to behavior regulation.

Group cultural tightness also differs from *social influence* (also termed as social norm), which concerns the extent to which an individual believes that key people in their life expect them to use the system, and in particular ways (Venkatesh et al. 2003). Venkatesh and Davis (2000) highlight that in mandatory contexts, social influence directly affects behavioral intention due to compliance, whereas in voluntary contexts, it influences perceptions of the technology through internalization and identification. Thus, while social influence focuses on the perceived expectations of key individuals or groups personally significant to the individual, group cultural tightness is concerned with the collective enforcement of norms within a group, rather than the influence of specific individuals.

Collectively, compared to other related concepts, group cultural tightness accentuates the strength of both social norms and sanctioning within a group, which makes it useful for understanding the extent of conforming and workaround use behaviors within a collective for two reasons. First, group cultural tightness is a well-accepted concept for explaining human behaviors. For instance, prior researchers argued that members in tight group cultures prefer stability and are less creative than members in loose group cultures (Gelfand et al. 2006). Such predictive validity has been consistently replicated in several different social contexts noted above, such as 33 nations (Gelfand et al. 2011), 50 states of the USA

(Harrington and Gelfand 2014), and 31 provinces in China (Chua et al. 2019). Second, group cultural tightness can reflect the most important group processes, namely, setting, reinforcing, and enforcing norms (Bandura 2001), and thereby is relevant to studying organizational behavior generally and employees' conforming and workaround use in particular.

3. Research Model and Hypothesis Development

Online Appendix Table E1 lists the definitions of the principal constructs in this study (conforming use, internal workaround use, external workaround use, group cultural tightness, and job performance). We propose that group cultural tightness increases employees' conforming use yet reduces employees' internal and external workaround use of ES. Moreover, we posit that conforming use and internal workaround use increase employees' job performance while external workaround use reduces job performance.

3.1. Effect of Group Cultural Tightness on Conforming Use

During an ES implementation process, although the organization shapes some general norms/rules to encourage their employees to use the ES as recommended, the specific norms/rules, and their strength, may vary across groups. Groups with tight cultures have a more limited range of acceptable behaviors, less individual discretion, and greater clarity about behavioral expectations (Gelfand et al. 2004; Gelfand et al. 2011). In tight group cultures, individual members exhibit behaviors that might conform to their group expectations by effectively perceiving the group's social norms and awareness of what behaviors are more consistent with group expectations (Gelfand and Jackson 2016; Greenbaum et al. 2020). This shared understanding of adherence to norms creates social pressure to conform to established practices and guidelines when using the ES. Non-conforming to an accepted norm can incur costs—to the individual: a group member who does not conform to the suggested system usage may be perceived and labeled as a deviant (Liu et al. 2019); and to the group: members using the ES in non-normative ways can increase errors and work for the other group members. Moreover, ESs are often implemented to streamline and standardize business processes within a group. Culturally tight groups tend to value order, efficiency, and conformity (Gelfand et al. 2017), which aligns with the goals of implementing such systems. The shared cultural orientation toward conformity and adherence to established practices makes it more likely for group members to adopt and conform to the suggested usage of ES.

By contrast, in loose group cultures, individual members are less bound by existing social norms. Members in loose group cultures show less conformity (Gelfand et al. 2017). Thus, in a loose group culture, individual members will be less likely to conform to the suggested system use, even if their use is inconsistent with the normative standards and behaviors of the group.

***Hypothesis 1*:** Group cultural tightness is positively related to conforming use.

3.2 Effect of Group Cultural Tightness on Internal and External Workaround Use

Internal workaround use often requires processes and even changes beyond the formal scope covered in organizational training and documentation. Consequently, employees aspiring to engage in internal workaround use may find it essential to cultivate the necessary skills and abilities to address the difficulty (Bala and Venkatesh 2015; Tucker 2016). However, conformity pressure stemming from group cultural tightness can significantly hinder the development of new skills and abilities required to adapt, modify, and improvise the systems effectively (Bala and Venkatesh 2015; Goncalo and Duguid 2012). Moreover, within tighter culture groups, the pervasive norms emphasizing conformity and adherence to established standards can reduce individual members' feelings of personal control over the existing system (Ma et al. 2023). As a result, individuals within these cultural settings might experience constraints in their perceived autonomy to innovate or adapt the existing system according to their preferences or needs.

In contrast, within loose group cultures, individuals often encounter fewer inhibitions in fostering new skills and abilities necessary for system adaptations and improvisation, such as internal workaround use. The relaxed norms and a more permissive attitude toward unconventional approaches within loose cultures create an atmosphere where individuals feel freer to explore innovative strategies and cultivate the capabilities required for modifying processes and systems (Chua et al. 2015; Goncalo and Duguid 2012). As Li et al. (2017) indicated, "loose groups tend to be much more open to exploring new random behaviors than tight groups, which makes them adapt more easily and quickly to new norms" (p. 386). As such, working in a loose group culture, employees have a greater degree of latitude in modifying and improvising ES, and thus may engage in more internal adaptations of the ES to solve work problems when they find the formal ES cannot or does not easily support their work accomplishment.

***Hypothesis 2*:** Group cultural tightness is negatively related to internal workaround use.

External workaround use represents the extent to which employees externally find alternatives

instead of the formal ES to help accomplish their work tasks, and can be also influenced by the group's cultural tightness. Specifically, culturally tight groups often exhibit risk-averse tendencies (Higgins 1996). This risk aversion can especially extend to external solutions, where the groups might hesitate to embrace external tools or resources due to concerns about security, reliability, or compatibility (Gelfand et al. 2006). Thus, in group environments characterized by high cultural tightness, employees are less inclined to take such risks. Instead, they tend to rely on the formal ES perceived as stable and reliable, avoiding potential uncertainties linked with external tools. Moreover, culturally tight groups often prioritize stability and adherence to established norms within their formal systems (Gelfand et al. 2011; Qin et al. 2021). This emphasis on maintaining internal coherence may pose challenges when it comes to applying external solutions (personally developed, or third-party tools or services) to problems or tasks in the organization's ES, thus contributing to a reluctance to adopt external workaround use. For culturally tight groups, the uses of external, non-standard, and even otherwise unknown tools or procedures might clash with their preference for stability within their internal formal systems, creating resistance to adopting external workaround use, even though the internal formal system does not allow or makes it difficult for employees to use it to accomplish tasks.

By contrast, in loose group cultures, there is more tolerance for violating a norm, and members might take risks and break the norms without suffering as many possible negative consequences (Gelfand et al. 2006). This higher tolerance for risk allows individuals in loose group cultures to explore and adopt external solutions more readily, potentially leveraging their benefits. Moreover, loose group cultures often exhibit a more fluid structure that encourages experimentation and innovation with external alternatives (Li et al. 2017). This flexible nature creates an environment where applying external solutions to their existing systems and tasks might be less challenging. As such, when members in loose group cultures find that the formal ES does not easily support the accomplishment of their work, they might find it easier and more flexible to resort to external workaround use due to their openness to change and innovation (Gelfand et al. 2006; Uz 2015).

Hypothesis 3: *Group cultural tightness is negatively related to external workaround use.*

3.3. Effects of Conforming and Workaround Use on Job Performance

3.3.1. Effect of Conforming Use on Job Performance

As noted above, an ES is implemented to support best practices and improve individual and organizational performance. So, at the most basic level, conforming use of an ES should aid job performance and achieving task and organizational goals. Further, when employees engage in conforming use, they become more proficient in using these prescribed features and can better and more appropriately apply them to their work, enhancing their efficiency and effectiveness (Bala and Venkatesh 2015). Moreover, if employees follow and apply the recommended features and procedures, they do not need to exert other efforts and time to modify or bypass the system to support their tasks, or worry about unauthorized negative consequences or outcomes. Such features have been designed to accomplish organizational business processes and associated workflows and thus can better support employees to perform their tasks (Sykes et al. 2014). Accordingly, employees can leverage their cognitive and physical resources to concentrate on accomplishing their tasks, which will have a positive effect on individual performance (Zhang 2017). Besides, for employees who engage in conforming system use to perform their day-to-day tasks, the common nature of the system and procedures may make it easier to receive help from their organizations, leaders, and coworkers if they encounter system-related problems, which is also helpful for them to fulfill their job requirements.

***Hypothesis 4*:** Conforming use is positively related to job performance.

3.3.2. Effect of Internal and External Workaround Use on Job Performance

Organizations seek to implement the features of the ES that best support the employees' tasks. However, as described earlier, these features may not always fit or support the employees' actual work processes and requirements, especially for exceptions or procedures highly specific to the group. Internal workaround use involves adapting or bypassing the formal constraints of the ES to better align with local work processes (Beaudry and Pinsonneault 2005; Johnson and Rice 1987). The user anticipates that this customization will result in more efficient and effective task execution. When employees can tailor the system to fit their specific needs, they are likely to perform their tasks with greater efficiency even though such use is not recommended by the organization (Beaudry and Pinsonneault 2005).

In addition, engaging in internal workaround use may require employees to develop new skills or deepen their understanding of the ES's features and functionalities (Bala and Venkatesh 2015). In particular, employees need to identify challenges or inefficiencies within the system and take proactive

steps to overcome them, a harder task that might require learning more content than easier ones (e.g., external workaround use) (Kc et al. 2020). Continuous learning and skill development associated with these adaptations can enhance an employee's competence (Bala and Venkatesh 2013; Sykes 2020). Increased competence often translates to higher job performance, as individuals become more adept at utilizing the system and gain new skills or challenge themselves to think deeply about how to leverage the ES to optimize their tasks (Kc et al. 2020).

Furthermore, internal workaround use, being rooted in the existing ES, is more likely to provide sustainable and scalable solutions than external workaround use. Since these adaptations utilize the system's inherent capabilities (even if in unusual or unforeseen ways), they are better poised to withstand changes in organizational needs or system updates, or interdependencies with other systems and processes. This sustainability contributes to consistent and reliable job performance over time. Moreover, internal workaround use empowers employees with a sense of control over their work environment within the ES (Bala and Venkatesh 2013; Sykes 2020). This increased job control allows employees to navigate the system more effectively, leading to a reduction in job demands and an overall improvement in job performance.

***Hypothesis 5*:** Internal workaround use is positively related to job performance.

We argue that external workaround use is likely to negatively affect job performance for several reasons. First, external workaround use may involve the use of third-party tools or services that are not vetted or approved by the organization. Although it may support individuals' job performance in some specific contexts (Haag et al. 2023), it may inhibit their (or other workers') performance in other situations (Bartelheimer et al. 2023). In particular, external workaround use introduces security and compliance risks, as external solutions may not align with the organization's standards or regulations (Morrison 2015; Oliva and Sterman 2001). As such, we believe that quality and accuracy of work in particular and job performance in general may suffer when employees resort to external workaround use (Morrison 2015).

Second, compared with internal workaround use, external workaround use likely entails less effort (i.e., easier tasks). When employees use external workarounds via a system they are already familiar with to keep the task moving, they will focus on the specific task subgoal, so they may keep their focus there and not reallocate their attention to broader or unrelated goals possible through leveraging the ES (Kc et

al. 2020). Thus, external workaround use may hinder the accumulation of knowledge, impede ES improvement, and limit organization-wide learning (Fiol and Lyles 1985). Consequently, as employees persist in employing external workaround use, the positive effects of a deployed ES are likely to diminish (Laumer et al. 2017).

Third, the ES is designed to provide standardized processes and workflows across the organization. External workaround use disrupts established workflows and processes designed to maximize efficiency within the ES (Pine and Mazmanian 2017), and also may not be easily (if at all) integrated with the organization's internal systems or workflows (Morrison 2015). By bypassing the system, employees deviate from these standardized procedures, resulting in inconsistencies and difficulties in collaboration (Park et al. 2020). This lack of integration can lead to data silos, communication breakdowns, dysfunctional feedback, and difficulties in tracking and managing tasks (Rice and Cooper 2010), which can hinder collaboration and coordination among employees, thereby negatively affecting job performance.

Fourth, external workaround use may create the illusion that a dysfunctional ES is indeed functioning, thus masking the underlying system weakness, leading to the organization having an inaccurate view of system performance and usage (Morrison 2015). This false feeling of compatibility between ES and work processes may lead organizations to make important decisions based on incomplete or inaccurate information. Thus, organizations may change performance evaluation standards and expect employees to perform tasks more effectively and efficiently by leveraging the ES (Xue et al. 2011). Taken together, we propose that external workaround use would more likely reduce job performance.

***Hypothesis 6*:** External workaround use is negatively related to job performance.

4. Overview of Studies

To evaluate our hypotheses, we adopted a multi-method, multi-study approach. In Study 1, we conducted a multilevel, longitudinal, and multi-sourced survey from a Chinese company to examine how group cultural tightness influences employees' conforming and workaround use of ES, and how these different usage patterns affect job performance (To assess the replicability of those results in a different organizational context, we conducted a similar study in a multinational organization in China, described in Online Appendix O). In Study 2, we conducted an online experiment via Amazon Mechanical Turk

(MTurk) with participants from the USA to explore whether the effect of group cultural tightness on conforming and workaround use varies across different national cultures.

5. Study 1: Survey Study

5.1. Pretest Development and Validation for Group Cultural Tightness and Workaround Use

Before proceeding with Study 1, we conducted a preliminary study in April 2020 to validate the measures of the three ES use constructs. As shown in Online Appendix Tables F2 and F3, the measures of conforming use, internal workaround use, and external workaround use all exhibited well-accepted psychometric properties. Furthermore, we conducted a confirmatory factor analysis (CFA) to test whether group cultural tightness empirically differs from its respective related constructs. As shown in Online Appendix Tables G2 and G3, group cultural tightness is distinguishable from its related constructs. Moreover, we empirically tested the differences between workaround use and its related constructs. These results are available upon request. Taken together, group cultural tightness and workaround use can be differentiated from their related constructs both conceptually and empirically. We thus proceeded to test our research model in Study 1.

5.2. Sampling Procedure

To test our research model, in Study 1, a field study was conducted in a large electricity service company in China. The company was implementing an SAP ERP system including financials (FI), human resource management (HR), and customer & sales (CS) modules. These modules were implemented in a staggered manner. We surveyed the employees using the FI module, since it was suggested as the most complex of the ERP system modules (Sasidharan et al. 2012) and also involved the largest number of users within the electricity service company. A total of 395 employees, who utilized the FI module on a daily basis as part of their job responsibilities, were invited to participate in the current study. In the company, these employees were organized into 92 groups responsible for their respective districts to accomplish their tasks. Each group consists of four to six accountants who collaborate and work together on a daily basis to fulfill their tasks. The group serves as their primary work unit, where they spend the majority of their time, and each accountant is associated with only one group.

The company implemented the same ERP FI module across the 92 groups so as to unify and streamline finance and accounting management. The ERP FI module provides support for business

processes in the following areas: 1) financial and management accounting, 2) financial supply chain management, and 3) corporate governance. The implemented ERP thus enabled employees to standardize financial information, integrate financial information from multiple locations, and store and track financial and accounting data. The company provided training to all employees before the system implementation. The training sessions included two-day on-site sessions that each employee was required to attend about one month before the implementation of the ERP. To ensure employees had a clear and accurate understanding of the recommended (or not) features, a minimum competency test was required before granting access to the ERP system. This helped facilitate their comprehension and perception of the system's functionalities, underscoring what constituted conforming and workaround use.

By the time we began data collection, the company had implemented the system across all the groups for more than four months. Employees typically need several months to get familiar with the system. In this stage, employees began to use the recommended features to help accomplish work tasks. Meanwhile, employees may experience some difficulties or obstacles in using the system to get the work tasks done in a familiar way, so they may have to come up with some alternative ways to conduct specific aspects of their tasks. Such an implementation stage is also consistent with prior studies with similar contexts (e.g., Bala and Venkatesh 2015; Ke et al. 2021). As such, it is appropriate to conduct conforming and workaround use-related research in this system implementation stage. During the data collection period, the use of the system was not mandatory but was strongly encouraged, because the organization, following the advice of the consultants and vendors, wanted to ensure the continuity of the operations in case the newly implemented system failed to support certain operations or processes.

We first conducted a qualitative study in the focal company to gain a comprehensive contextual understanding and assist in the development of hypotheses (Section 5.3). Then, we conducted three waves of multi-sourced data surveys as the main study to test our research model (Section 5.4).

5.3. Qualitative Data Collection

We employed various techniques, including on-site observations, interviews, and related document collection, to gather the qualitative data. On-site observations were conducted across four groups situated in different districts in May 2020. Each group consisted of four employees and one group leader. The average duration of each observation was three hours, with the longest observation lasting approximately

four and a half hours. During the observations, we utilized short breaks to address any questions or confusion that arose, providing clarity on certain matters for both the employees and the group leader. We conducted eight formal interviews with the employees to further understand their system use behaviors and their perceptions of cultural tightness within their respective groups. Some of our interviewees indicated that they had made some changes to the formal ES that were not suggested by the company. They further noted that because of these changes, they become more efficient and effective in accomplishing their assigned tasks and could also work on multiple tasks concurrently. For example, some participants mentioned that they needed to enter payment terms during the receivable and collections management processes; however, such information may not be available at that time or even could evolve over time. As such, they used unused data fields to enter/store such information which was not initially accommodated in the system. Some other participants noted that they used paper files and spreadsheets to manage information about accounts receivable and accounts payable and generate reports, as the system involved multiple applications that made the information difficult to interpret and compare.

We also observed varying cultural tightness across different groups in the focal company. For instance, within two of the four groups, participants emphasized the expectation for their group members to adhere to multiple social norms. However, in the remaining two groups, participants highlighted that even if certain group members engaged in inappropriate behaviors, other members did not explicitly confront or oppose them. Our on-site observations further validated these statements. Additionally, we collected some documents including their user manuals and detailed workflows.

Through the combined efforts of observations, interviews, and documentation activities, we obtained an in-depth understanding of the context under study. All three types of ES use-related activities (i.e., conforming use, internal workaround use, and external workaround use) were observed in the qualitative data collection process. Online Appendix Table H1 provides illustrative examples of these activities. Moreover, our interviews with the participants also indicated that they could engage in both internal and external workaround use, in addition to their conforming use of the system. These observations and information are instrumental in enhancing our comprehension of the key constructs within our research context, facilitating the development of the research model, and aiding in the formulation of survey items.

5.4. Quantitative Data Collection

In the quantitative study, we collected three waves of multi-sourced (employees and group leaders) data from June to December 2020, resulting in a final over-time total of 228 employees comprising 57 groups at this large electricity service company in China. We first asked the manager of the human resource (HR) department to provide a list of all group leaders (92) and the group members (395) and their email addresses. We then sent a customized invitation email to each member with a unique survey URL. When a member clicked on the URL, their unique ID was recorded by the survey software. We used this ID to match the data from the subsequent surveys and to match the performance ratings of the group members from their group leaders. The employees were invited to participate voluntarily in the survey, and the procedures were approved by the Institutional Review Board. We also informed the participants that the survey data would be only used for academic research and the company had no access to any identifying information. During each wave of data collection, we sent one reminder two weeks later.

In the first wave of data collection (*T1*), we asked the respondents to provide their demographic information, perception of their group's cultural tightness, and control variables. We received 266 usable responses from 66 groups. Three months later, in the second wave (*T2*), we asked the respondents to provide information on their conforming use, internal workaround use, and external workaround use. We received 242 usable responses from 61 groups. Another three months later, in the third wave (*T3*), we asked the leader of each group to complete performance evaluations for the members who responded to both the first- and second-round questionnaires. The collection of job performance data also coincided with the employees' annual job performance assessment. The leaders were informed that the ratings of their members would be confidential, and also that they would not know whether these members actually participated in the survey or not. Similarly, the members also had no information about their leader-rated performance data. Finally, we received 228 usable responses from 57 groups, yielding individual-level and group-level response rates of 57.7 percent and 62 percent respectively. The number of respondents for each group ranged from three to five members, with an average of four. Online Appendix Table I1 shows the demographic information of the sample.

5.5. Measures

Most measurement items were adapted from prior established and validated scales. We used seven-point Likert scales for all perceptual measures, with employees' job performance being rated by their respective group leaders. Online Appendix Table J1 presents the measurement items.

Following the procedures of DeVellis (2016), we developed the items for *conforming use*, *internal workaround use*, and *external workaround use*, and validated them in the pretest study. The factor loadings of the items were very high and thus suggested the content domain well (see Venkatesh et al. 2003). Consequently, we used three items for each of the three constructs in the main study. We adapted the five-item scale of group cultural tightness from Kim and Toh (2019). Specifically, the ratings of individual group members were aggregated at their group level to generate the measure of the *group cultural tightness*. To justify aggregation, we examined the intraclass correlation coefficient (ICC). The ICC(1) estimate was .25, and the ICC(2) estimate was .57. We also calculated the r_{WG} to evaluate the within-group agreement; the average was .88. Those estimates are higher than the cut-offs suggested by LeBreton and Senter (2008). Therefore, it was appropriate to aggregate cultural tightness as a group-level variable. *Job performance* was assessed using four items adapted from Sykes (2020). These items for each group member were obtained from that group's leader to assess the member's quantity, quality, and accuracy of work as well as how well the member works with others. Considering our final wave (T3) of data collection coincided with the time when the company conducted employees' annual job performance assessment, we also asked the HR managers to provide the employees' job performance assessment for a robustness check of the group leaders' assessment of individual job performance. The company used grades of A, B, C, and D (from high to low) to evaluate the employees' annual job performance through a 360-degree methodology. We recorded those into the score of 4, 3, 2, and 1.

5.6. Common Method Bias and Multicollinearity Test

To reduce common method bias, we conducted a longitudinal research design by using three waves of data (Podsakoff et al. 2003) measuring different constructs and variables at each time. Moreover, we randomly assigned the items within blocks in the survey and collected responses anonymously (MacKenzie et al. 2011; Podsakoff et al. 2003). We also adopted the marker variable technique to assess possible common method bias (Lindell and Whitney 2001). A three-item scale, which asked the respondents about their intentions to purchase from an online platform (e.g., Taobao), adapted from

Pavlou and Gefen (2004), was selected as a method variance (MV) marker to estimate common method bias. We used the lowest positive correlation between the MV marker and other variables (r = .004, with internal workaround use) to adjust the correlations among all constructs. As shown in Table 1, when comparing observed and corrected correlations, only one insignificant correlation became significant after correction. Taken together, common method bias was not an issue in our study.

----------Table 1----------

Multicollinearity was tested by using the variance inflation factor (VIF). The results indicated that the value of the highest VIF was 2.23, lower than the threshold of 10 (Mason and Perreault 1991); therefore, multicollinearity was not an issue for this study.

5.7. Data Analysis and Results

5.7.1. Preliminary Analysis

Table 2 shows the composite reliability, Cronbach's alpha, and average variance extracted (AVE) of the constructs. The values of composite reliability and Cronbach's alpha were all above .70, thereby suggesting good reliability. Online Appendix Table K1 provides the loadings and cross-loadings of the measures via factor analysis with varimax rotation. The AVEs were above the .50 recommended level and the loadings were above .60, indicating a good convergent validity. As shown in Table 1, the square roots of AVEs for constructs were greater than the correlations between constructs. Online Appendix Table K1 shows that items loaded well on their respective constructs but poorly on other constructs. These results suggested good discriminant validity (Carmines and Zeller 1979; Fornell and Larcker 1981).

----------Table 2----------

5.7.2. Hierarchical Linear Modeling (HLM)

We measured variables at two levels: conforming use, internal workaround use, external workaround use, and job performance at the individual level, and group cultural tightness at the group level. Thus, we used HLM to analyze our data (Kang et al. 2012). We applied group mean centering to all predictors before conducting the analysis to minimize the possible multicollinearity bias. We first tested whether there was substantial between-group variation in individual conforming use, internal workaround use, and external workaround use by setting a null model for each construct respectively. The results revealed that 20.8% of the between-group variance was explained for conforming use (χ^2 (56) = 114.54, p < .001), 33.3% for

internal workaround use (χ^2 (56) = 167.69, $p < .001$), and 27.6% of the variance was explained for external workaround use (χ^2 (56) = 140.16, $p < .001$). These results confirmed that there was a significant group-level effect on individual conforming use and workaround use, and we thus proceeded to test the subsequent models.

Table 3 displays the results of the HLM analysis. We entered level 1 control variables (i.e., gender, age, education level, tenure, perceived usefulness, perceived ease of use, personal innovativeness with IT, promotion focus, prevention focus, system inadequacy, task autonomy, training, and social influence) and level 2 control variables (i.e., group size and group age) in Model 1. For Model 2, we entered conforming use, internal workaround use, and external workaround use as influences on job performance. For Models 6, 9, and 12, the main effects of the level 2 factor (i.e., group cultural tightness) and level 1 control variables and level 2 control variables were entered. The justification for the inclusion of each control variable is presented in Online Appendix L.

Group cultural tightness had a *positively* significant cross-level impact on conforming use (Model 6: $\beta = .58$, $p < .001$). Hence, Hypothesis 1 was supported. Group cultural tightness had a *negatively* significant cross-level impact on both internal workaround use (Model 9: $\beta = -.61$, $p < .001$) and external workaround use (Model 12: $\beta = -.53$, $p < .01$). Hence, Hypotheses 2 and 3 were supported. These results implied that an increase of one standard deviation in group cultural tightness would generate an increase in conforming use by 63.22%, a decrease in internal workaround use by 66.49%, and a decrease in external workaround use by 57.77%.

Conforming use *positively* influenced job performance (Model 2: $\beta = .06$, $p < .05$), supporting Hypothesis 4. The 0.06 coefficient implied that an increase of one standard deviation in conforming use would generate an increase in individual job performance by 9.72%. Moreover, internal workaround use *positively* influenced job performance (Model 2: $\beta = .07$, $p < .05$), while external workaround use *negatively* influenced job performance (Model 2: $\beta = -.07$, $p < .01$), supporting Hypotheses 5 and 6. The results suggested that an increase of one standard deviation in internal workaround use would lead to a 10.01% increase in individual job performance, while an increase of one standard deviation in external workaround use would lead to a 10.08% decrease in individual job performance. We recomputed the model using the individual job performance measures collected from the HR managers during the annual

assessment and reran the model. As shown in Model 4 of Table 3, the results generally remained the same, which further confirmed Hypotheses 4, 5, and 6, providing support for the validity of leader-reported performance.

----------Table 3----------

6. Study 2: Online Experiment

Although the findings of Study 1 are compelling, it is plausible that the dynamics between group cultural tightness and workaround use may exhibit distinct patterns in countries characterized by loose national cultural tendencies and in different ES contexts (Bala and Venkatesh 2015). For example, culturally loose nations generally encounter fewer external threats (Gelfand et al. 2011), which might make discussions or considerations about circumventing system constraints more evident, leading to potentially more pronounced fluctuations in cultural tightness concerning workaround use. We thus conducted Study 2 by employing an online experiment in January 2024 via MTurk with participants from the USA involving using business intelligence system (BIS) to test whether the effect of group cultural tightness on conforming and workaround use varies across different national cultures[4].

6.1. Participants

We recruited 240 participants from the USA on MTurk. To mitigate the potential influence of extraneous factors, such as ethnicity, we targeted Caucasian Americans. We then randomly assigned 120 participants into each of two conditions: tightness group and looseness group.

6.2. Procedure and Measures

We manipulated group cultural tightness by adapting a prior validated experimental design (Chen et al. 2021; Chen et al. 2024). The participants were initially introduced to an immersive scenario that appeared to be virtual but held genuine and meaningful implications. They were instructed to vividly imagine themselves working as marketing analysts in a telecommunications service company's group. The company has implemented a (BIS across different groups, which is touted to support complex marketing data analytics modeling and analyses. To ensure operational continuity in case of system failure, using the new BIS is not mandatory but highly encouraged. To better leverage BIS for enhancing competitive

[4] We thank one of the anonymous reviewers for this suggestion.

advantage, different groups establish different cultures. We present the details of group cultural tightness manipulation in Online Appendix M.

To measure conforming use, internal workaround use, and external workaround use, participants were asked to indicate the extent to which they will engage in the respective activities while working in the group. As control measures, participants were also asked to indicate their perceived social influence, as well as their gender, age, educational level, income, work experience, and ES use experience. We used seven-point Likert scales for all measures.

6.3. Results

To check the manipulation of the group cultural tightness, we used a five-item manipulation check scale (7-point Likert scale) from Kim and Toh (2019). The ANOVA results showed that participants in the tight group culture condition perceived the culture of their groups to be tighter than those in the loose group culture condition (M_T = 5.69, SD = 0.79, M_L = 5.18, SD = 1.36, F (1, 238) = 12.251, $p < 0.001$). Thus, the manipulation of the group cultural tightness was successful.

To test the effect of the different scenarios (tight vs. loose) on the participants, they were also asked whether they were able to form a vivid image of themselves working in this group and whether they were able to imagine how they would think, feel, and act. The results showed that there was no difference (F (1, 238) = 0.039, $p > 0.05$) in the participants' ability to form a vivid image in the tight group culture scenario (M = 5.68, SD = 0.99) and the loose group culture scenario (M = 5.70, SD = 0.98). Also, there was no difference (F (1, 238) = 0.203, $p > 0.05$) in participants' ability to imagine themselves in the workplace, whether tight group (M = 5.43, SD = 1.26) or loose group (M = 5.51, SD = 1.32). Furthermore, there were no significant differences for gender (F (1, 238) = 0.422, $p > 0.05$), age (F (1, 238) = 0.029, $p > 0.05$), educational level (F (1, 238) = 0.484, $p > 0.05$), income (F (1, 238) = 0.278, $p > 0.05$), work experience (F (1, 238) = 0.306, $p > 0.05$), and system use experience (F (1, 238) = 1.095, $p > 0.05$) between the two experimental conditions, thereby confirming the random assignment. The descriptive statistics of the variables are shown in Online Appendix N.

The ANOVA results showed that participants in the tight group condition exhibited a significantly higher degree of conforming use compared to those in the loose group condition (M_T = 5.68, SD = 0.95, M_L = 5.20, SD = 1.46, F (1, 238) = 9.126, $p < 0.01$), thus supporting the positive relationship of group

cultural tightness and conforming use. As expected, we also found that participants in the tight group condition had a significantly lower degree of internal workaround use (M_T = 4.60, SD = 1.64, M_L = 5.06, SD = 1.48, F (1, 238) = 5.152, $p < 0.05$) and a significantly lower degree of external workaround use (M_T = 4.88, SD = 1.61, M_L = 5.35, SD = 1.29, F (1, 238) = 6.368, $p < 0.05$) compared to those in the loose group condition. These results suggested that greater group cultural tightness reduced both internal and external workaround use.

We also conducted regression analyses to test the effect of the group cultural tightness scenario on employees' conforming and workaround use when controlling for social influence, gender, age, educational level, income, work experience, and ES use experience. We first assessed common method bias, construct reliability, validity, and multicollinearity, all of which met acceptable criteria.

Table 4 presents the regression results. As shown in Models 2, 4, and 6, the group cultural tightness scenario (0 = loose group culture, 1 = tight group culture) exhibited a significantly positive effect on conforming use (Model 2: β = .143, $p < .01$) and significantly negative effects on internal workaround use (Model 4: β = −.189, $p < .01$) and external workaround use (Model 6: β = −.216, $p < .001$), while controlling for social influence, gender, age, educational level, income, work experience, and ES use experience.

Taken together, these results largely support the generalizability of our findings across the culturally different contexts. This implies that the overall model, particularly the role of group cultural tightness, applies to some extent regardless of variations in national culture and ES contexts (e.g., ERP and BIS).

----------Table 4----------

7. Discussion, Implications, and Future research

Although organizations encourage employees to use the features prescribed by the ES to support their work tasks, the recommended features may not fit with the employees' existing work processes (Bala and Venkatesh 2013; Sykes and Venkatesh 2017). In particular, Sykes et al. (2014) note that "ES implementations require the interpretation and enactment of best practices, as well as configuration of technology, that are subject to improvisations and change at the enterprise level as well as local adaptations" (p. 65). We find that group cultural tightness has a significant effect on employees' conforming and workaround use behaviors of ES. Specifically, group cultural tightness positively

influences employees' conforming use of ES, while it negatively influences both internal and external workaround use of ES. These findings confirm the importance of group-level cultural factors generally, and group cultural tightness in particular, in shaping employees' ES use (Maruping et al. 2019). By conceptualizing cultural tightness at the group level and examining its effect on employees' post-acceptance ES use, our study also complements prior ES studies using other workplace influences, such as cultural values (Maruping et al. 2019), social context (Zhou et al. 2022), social control (Hsu et al. 2015), and social influence (Venkatesh et al. 2023; Venkatesh et al. 2003), and further highlights the important yet distinctive roles of the strength of social norms within a group in shaping employees' conforming and workaround use.

Furthermore, we have observed that conforming use and the two types of workaround use of ES yield varying effects on employees' job performance. Conforming use, specifically, has a positive effect on job performance. Conversely, the two types of workaround use exhibit distinct effects on job performance. Internal workaround use enhances job performance, whereas external workaround use has a detrimental influence on job performance. Our results challenge prior views that workarounds are in general either solely beneficial (Morrison 2015) or harmful (Tucker 2004). Prior studies typically examine workaround use in an unidimensional way, confounding the two different types (e.g., Laumer et al. 2017). Our study finds that employees' internal adaptations to the ES and trying out different ways of using some features (although not recommended by the company) to overcome or bypass system obstacles might be beneficial for improving employees' performance, presumably because it might help employees to better finish their work tasks. However, bypassing the ES and using external alternatives might lead to more risks and pose more issues for collaboration with other group members and thus harm their job performance.

7.1. Contributions to Theory

Our study contributes to the IS literature in three significant ways. First, by introducing cultural tightness into the ES use context, our study specifies the important yet distinctive cross-level influences of group cultural tightness on conforming and workaround use. Given that employees' conforming and workaround use behaviors are embedded in a social system, they are subject to the system's social rules and norms (Bartelheimer et al. 2023). Most previous studies on cultural tightness have been applied to

national, state, or regional levels (Chua et al. 2019; Gelfand et al. 2011; Harrington and Gelfand 2014), little attention has been paid to the group level analysis (for exceptions, see Kim and Toh (2019) and Qin et al. (2021)). This study addresses Gelfand et al.'s (2006) call for more research on cultural tightness in organizations, and takes a first step toward empirically verifying the cross-level effect of group cultural tightness on conforming and workaround use behaviors of ES, and subsequent job performance. Based on a mixed-method approach, our study theorizes and analyzes the dual roles of group cultural tightness in shaping conforming and workaround use (i.e., it increases conforming use but decreases internal and external workaround use). Approaches to studying ES use that are solely situational or dispositional in nature are both theoretically and statistically underspecified (Durcikova et al. 2011; Li et al. 2013; Liang et al. 2013). Adopting a multilevel approach to achieve a better understanding of how group cultural tightness can elicit more motivating or inhibiting states that influence ES use, which reinforces Orlikowski and Robey's (1991) proposition that employees do not work in a vacuum; instead, they are affected by the context they are in. This cross-level examination sheds new light on how group-level cultural norms, particularly the level of tightness, shape and guide employees' tendencies towards conforming to established norms or resorting to workaround strategies.

Second, our study contributes to system workaround literature by conceptualizing and empirically testing different types of workaround use. Prior IS literature on workaround use has either offered theoretical propositions (e.g., Ejnefjäll and Ågerfalk 2019), or provided a single conceptualization or measure of workaround use (e.g., Laumer et al. 2017), not making salient theoretical or empirical distinctions between different main types of workaround use. Possibly due to these limitations, previous studies have reported mixed findings with respect to whether workaround use has positive or negative effects (Alter 2014; Koppel et al. 2008; Laumer et al. 2017). The conceptualization of new important constructs has been considered as a high-level theoretical contribution to subsequent empirical studies (Colquitt and Zapata-Phelan 2007). Our study conceptually and empirically distinguishes between internal and external workaround use, and thus echoes calls to examine what, why, and how of workarounds in ES use (Ejnefjäll and Ågerfalk 2019; Orlikowski and Barley 2001; Spierings et al. 2017). It is crucial to note that, to the best of our knowledge, these specific terms have not been employed in previous literature to categorize workaround use behaviors. We believe that having clear and distinct

types—internal workaround use and external workaround use—provides a solid foundation for future researchers and practitioners to analyze and address these behaviors systematically.

Third, our study contributes to ES use literature by elaborating on the different effects of conforming and workaround use on job performance. In the causal chain from the implementation of ES to individual job performance, the use of the ES is one of the crucial factors (Li et al. 2013; Zhang 2017). Prior research has provided insights on factors that affect job outcomes in the context of post-acceptance of ES usage behaviors, such as technology characteristics (e.g., Zhang and Venkatesh 2017), job characteristics (e.g., Bala and Venkatesh 2013; Morris and Venkatesh 2010), and network characteristics (e.g., Sykes and Venkatesh 2017; Sykes 2020). However, there is a gap in the current understanding of how both conforming and workaround use may affect employees' job outcomes. By considering conforming use and two types of workaround use in a single model, we find that conforming and internal workaround use improve employees' job performance, whereas external workaround use lowers their job performance. By elucidating the nuanced impacts of conforming and different workaround use on employees' performance within ES-utilizing organizations, our study enriches the ES literature, providing a holistic perspective into the distinct effects of the multifaceted nature of ES use behaviors on job performance outcomes. In particular, the opposite effects of internal and external workaround use on job performance highlights the importance of differentiating different types of workaround use and also offers a plausible explanation for the discrepancies found in existing workaround use literature (Alter 2014).

7.2. Implications for Practice

Our study provides several practical implications for managers that can help them navigate the complexities of ES use in the workplace. By recognizing the existence and nature of workaround use alongside conforming use, managers can make more informed decisions to shape and manage these behaviors effectively. First, our findings emphasize the role of group cultural tightness in shaping employees' ES conforming and workaround use. Managers can employ cultural interventions such as training programs, change management initiatives, and communication campaigns that align with the group's cultural tightness. By incorporating system features and functionalities that are in harmony with the group cultural norms and expectations during the ES implementation, organizations can increase user acceptance, reduce resistance to change, and promote smoother integration of the ES into daily operations.

However, it is crucial for managers to understand the paradoxical role of group cultural tightness in influencing ES usage behaviors. While group cultural tightness can foster increased conforming use, it may also unintentionally reduce internal workaround use, which can also be beneficial to job performance. Therefore, managers should avoid an overly rigid focus on group cultural tightness that may stifle internal workaround use. To achieve a balance between promoting conforming use and tolerating internal workaround use, managers can implement several concrete actions. For example, managers can establish regular feedback mechanisms, such as employee surveys, one-on-one interviews, or focus groups, to gain insights into how employees are using the system and why they resort to workaround use. Tracking common workaround patterns through ES usage logs can also help identify areas where employees are adapting the system to improve efficiency or solve issues. If certain features are frequently bypassed, managers can investigate whether this is due to system limitations or user preference, and then take steps to address those gaps. Moreover, managers can also create a culture of continuous improvement that may help strike the right balance. Managers can regularly assess how internal workaround use contribute to system performance, using this information to refine both the ES and related policies.

Second, managers should actively monitor instances of workaround use behavior, as these can highlight areas for improvement in the ES design or identify systemic issues employees are trying to overcome. For example, if employees frequently engage in certain workarounds to bypass inefficient system features, it signals the need for system updates or process adjustments. Managers can address these issues by setting up regular channels for feedback—such as user groups or pilot testing of system updates—to ensure that workaround use are understood and addressed. In the case of internal workaround use, which can often enhance job performance by allowing employees to adapt the system to their needs, managers should develop a structured process to gather insights and refine the system or retrain employees based on these practices. For instance, after identifying common internal workaround use, managers might incorporate these insights into system design improvements or offer targeted retraining sessions to better align users with the prescribed features of the ES.

Third, managers should not adopt a one-size-fits-all approach when dealing with workaround use. While conforming use has clear benefits for job performance, workaround use can have mixed outcomes. Managers should focus on differentiating between internal and external workaround use. This approach

can be supported by creating a policy framework that recognizes the value of internal workaround use, while clearly communicating the risks of relying on external workaround use. For example, internal workaround use that help employees navigate challenges without compromising system security or performance could be viewed as a form of innovation, and managers could reward these behaviors with recognition or by integrating effective workaround use into system updates. Conversely, managers should provide training and support to discourage external workaround use that may bypass system security protocols or cause inefficiencies, perhaps through targeted workshops on system features or by emphasizing the importance of using official channels for troubleshooting. Encouraging open dialogue about the advantages and drawbacks of workaround use can help managers create a flexible yet controlled environment where ES usage is optimized, and organizational goals are met. Through these specific actions, managers can effectively manage ES use, ensuring both compliance and adaptation to unique workplace needs.

7.3. Limitations and Future Research

This research has some limitations and raises several important directions for future research. First, group cultural tightness may be influenced by the management culture of the organization (Chua et al. 2019; Harrington and Gelfand 2014), which can jointly influence employees' ES use behaviors. We thus conducted an additional study by analyzing similar data from a foreign multinational corporation operating in China with different organizational culture contexts (see online Appendix O for details). Our findings confirm that the cross-level roles of group cultural tightness in shaping conforming and workaround use of ES are similar in both the Chinese and the foreign multinational companies, which further support that cultural tightness operates meaningfully as a group-level construct.

Second, our experimental results in Study 2 revealed that group cultural tightness increased conforming use while reducing both internal and external workaround use, largely supporting the generalizability of our findings across culturally different contexts and different ES contexts. Even so, we remind that managers should be cautious when extending our findings to encompass other cultural contexts or ERP contexts, and it is crucial to consider the specific characteristics of each nation's and organization's cultural orientation for a more nuanced understanding of how these cultural dynamics might affect conforming and workaround use in the contexts of other types of ESs (e.g., customer

relationship management and supplier relationship management system).

Third, this study focuses on group cultural tightness, rather than traditional cultural values approaches, such as individualism/collectivism, uncertainty avoidance, power distance (Hofstede et al. 2005), or other values (Schwartz 1994) or social norms (Venkatesh et al. 2003). Thus, it is unknown whether those kinds of cultural values and social norms play the same role as group cultural tightness in influencing conforming and workaround ES use. As such, it will be interesting to apply national-level cultural values at the group level or social norms and examine how they jointly affect group members' different ES use.

Fourth, our model's relationships may be influenced by other exogenous variables. As shown in Online Appendix P, we tested for several relevant moderators (i.e., individuals' prevention focus, system inadequacy, and task autonomy) of the relationships between group cultural tightness and conforming and workaround use, and found some significant effects. For example, task autonomy weakened the positive relationship between group cultural tightness and conforming use (see Table 3, Model 7: $\beta = -.29$, $p < .05$). Prevention focus strengthened and system inadequacy weakened the negative relationship between group cultural tightness and internal workaround use (see Table 3, Model 10: $\beta = -.42$, $p < .01$; $\beta = .32$, $p < .01$). Prevention focus also strengthened the negative relationship between group cultural tightness and external workaround use (see Table 3, Model 13: $\beta = -.30$, $p < .05$). However, other relevant moderators, such as network characteristics (Sykes 2020) may also affect the relationships. Future studies might provide a richer and more comprehensive understanding of the contexts under which group cultural tightness influences conforming and workaround use.

Fifth, this study distinguishes between internal and external workaround use. However, in practice, many workarounds tend to blend these categories, whether concurrently or sequentially, creating what we term "hybrid workarounds." For example, an employee may initially bypass a company's ES by using an unauthorized third-party software (external workaround use) but later integrate the output from this software into the official system through manual data entry (internal workaround use), creating a hybrid workaround. Such hybrid workarounds can also represent a depiction of how employees navigate the limitations of the ES in real-world settings. Due to the complexity and the diverse nature of these hybrid workarounds, they were not explicitly considered in the current study. Future research could explore these

hybrid workarounds use in greater depth by investigating how employees combine internal and external workaround use and how these hybrid approaches affect job performance and organizational outcomes.

Finally, although we theorize and empirically test the internal and external workaround use and believe that such clear and distinct categories can provide a solid foundation for future researchers and practitioners, there are other classifications of workaround use behaviors. For example, it is interesting to conceptualize workaround use by distinguishing the use of technological properties (desired vs. undesired) and the corresponding outcome (constructive, destructive, and uncertain) (Haag et al. 2023). We call for future research to further develop and unpack the nature of workaround use for better understanding and classifying different types of workaround use behaviors within the organizational context.

8. Conclusion

The current study serves as an initial step in conceptualizing and differentiating different types of workaround use (internal and external) and enriches our understanding of the relative influences of group cultural tightness on conforming use and workaround use and thereby job performance. Based on a mixed-method approach, we find that group cultural tightness plays a significant cross-level role in increasing employees' conforming use of ES while decreasing their workaround use. We show that differentiating internal and external workaround use reveals varying influences on job outcomes, providing a bit more clarity to prior inconsistent results. Our study provides a basis for future study to adopt a multilevel and more nuanced and contextualized perspective to examine employees' ES use in general and conforming use and workaround use in particular.

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Table 1. Correlations and Discriminant Validity of Constructs

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Individual-level																				
1. Gender	--	.079	−.117	−.112	−.131*	−.122	.116	−.004	−.006	−.036	−.147*	−.092	.121	−.001	.175**	.143*	.255**	−.141*	.025	−.010
2. Age	.083	--	−.638**	.662**	−.087	−.155*	−.195**	−.116	−.091	.026	−.129	−.031	−.063	−.096	.007	−.018	−.054	−.049	−.048	.085
3. Education	−.113	−.631**	--	−.463**	−.019	.176**	.231**	.116	.080	−.039	.103	−.041	.178**	.097	.016	−.027	.061	.069	.081	−.075
4. Tenure	−.108	.663**	−.457**	--	−.077	−.045	−.109	−.059	−.016	.064	.013	.030	−.146*	.088	.028	−.056	−.140*	.061	−.129	.089
5. Perceived ease of use	−.126	−.083	−.015	−.073	**.872**	.058	−.047	.261**	.106	−.411**	.010	.187**	.017	.210**	−.311**	−.336**	−.006	.259**	−.107	.076
6. Perceived usefulness	−.118	−.150*	.179**	−.041	.062	**.728**	.555**	.528**	.568**	−.072	.200**	.550**	.407**	.097	.014	.060	.029	.318**	.078	−.047
7. Personal innovativeness with IT	.120	−.190**	.234**	−.105	−.043	.557**	**.748**	.414**	.469**	.031	.054	.276**	.451**	.112	.259**	.256**	−.013	.168**	.009	−.001
8. Promotion focus	.000	−.112	.120	−.055	.264**	.530**	.416**	**.755**	.436**	−.055	.398**	.479**	.425**	.257**	−.112	−.036	.039	.545**	−.002	−.110
9. Training	−.062	−.087	.084	−.012	.110	.570**	.471**	.438**	**.781**	−.051	.173**	.523**	.331**	.168**	.102	.006	−.052	.272**	.042	−.003
10. Social influence	−.032	.030	−.035	.068	−.405**	−.068	.035	−.051	−.047	**.794**	.218**	−.036	−.097	−.009	.272**	.258**	−.153*	.009	.059	−.016
11. Prevention focus	−.142*	−.124	.107	.017	.014	.203**	.058	.400**	.176**	.221**	**.768**	.278**	.118	.244**	−.010	−.095	−.216**	.607**	.041	−.174**
12. System inadequacy	−.088	−.027	−.037	.034	.190**	.552**	.279**	.481**	.525**	−.032	.281**	**.849**	.341**	.189**	−.030	−.073	−.057	.378**	.038	−.017
13. Task autonomy	.125	−.059	.181**	−.141*	.021	.409**	.453**	.427**	.334**	−.093	.122	.344**	**.806**	.097	.105	.120	.112	.254**	.097	.046
14. Conforming use	.003	−.092	.101	.092	.213**	.101	.116	.260**	.171**	−.005	.247**	.192**	.101	**.911**	.065	−.123	−.009	.348**	−.110	−.023
15. Internal workaround use	.178**	.011	.020	.032	−.306**	.018	.262**	−.108	.106	.275**	−.096	−.026	.109	.069	**.831**	.498**	−.021	−.233**	.005	.062
16. External workaround use	.146*	−.014	−.023	−.052	−.331**	.064	.259**	−.032	.010	.261**	−.091	−.069	.124	−.119	.500**	**.843**	−.110	−.169**	.028	.051
17. Job performance	.258**	−.050	.065	−.135*	−.002	.033	−.009	.043	−.048	−.148*	−.211**	−.053	.116	−.005	−.017	−.106	**.954**	−.095	−.113	−.072
Group-level																				
18. Group cultural tightness	−.136*	−.045	.073	.065	.262**	.321**	.171**	.547**	.275**	.013	.609**	.380**	.257**	.351**	−.228**	−.164*	−.091	**.714**	.049	−.043
19. Group size	.029	−.044	.085	−.124	−.103	.082	.013	.002	.046	.063	.045	.042	.101	−.106	.009	.032	−.109	.053	--	.024
20. Group age	−.006	.089	−.071	.093	.080	−.043	.003	−.106	.001	−.012	−.169*	−.013	.050	−.019	.066	.055	−.068	−.039	.028	--
21. Marker variable	−.026	.108	−.039	.068	.035	.043	−.044	.040	.029	.150*	.171**	.076	.049	.115	.004	.051	−.081	.103	−.067	.074

Notes:
(1) Unadjusted correlations appear below the diagonal; correlations adjusted for the common method appear above the diagonal.
(2) The diagonal elements are the square root of the AVE.
(3) $^{*}p < .05$, $^{**}p < .01$

Table 2. Results of Confirmatory Factor Analysis

Construct	Composite Reliability	Cronbach's Alpha	AVE (Average Variance Extracted)	Mean	S.D.
Conforming Use	.94	.95	.83	4.43	1.62
Internal Workaround Use	.87	.88	.69	2.94	1.43
External Workaround Use	.88	.90	.71	3.08	1.44
Group Cultural Tightness	.84	.89	.51	5.19	1.09
Prevention Focus	.88	.88	.59	4.93	1.20
System Inadequacy	.88	.95	.72	5.03	1.30
Task Autonomy	.88	.89	.65	4.50	1.24
Job Performance	.98	.97	.91	5.87	1.00
Perceived Ease of Use	.90	.92	.76	4.84	1.42
Perceived Usefulness	.77	.93	.53	4.98	1.27
Personal Innovativeness with IT	.79	.86	.56	4.55	1.25
Promotion Focus	.87	.92	.57	5.13	1.14
Training	.82	.87	.61	4.82	1.25
Social Influence	.87	.78	.63	4.06	1.25
Purchase Intentions	.95	.92	.85	3.96	0.79

Table 3. Results from Hierarchical Linear Modeling

Dependent variable	Job Performance (Leader-rated)		Job Performance (HR-rated)		Conforming Use			Internal Workaround Use			External Workaround Use		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13
Intercept	**5.83*** **	**5.82*** **	**2.97*** **	**2.97*** **	**4.46*** **	**4.46*** **	**4.46*** **	**2.95*** **	**2.94*** **	**2.94*** **	**3.05*** **	**3.05*** **	**3.05*** **
Level 1 control variables													
Gender	.15*	.07	.15*	.08	.63*	.63*	.61*	.55*	.55*	.55*	.07	.07	.07
Age	−.08*	−.04	−.02	.00	−.49**	−.49**	−.48**	−.04	−.04	−.06	.02	.02	−.00
Education level	.08	.06	.03	.02	.23	.23	.21	−.01	−.01	.01	−.06	−.06	−.04
Tenure	.00	.01	.01	.00	.31	.31	.33*	−.09	−.09	−.05	−.01	−.01	.04
Perceived ease of use	.01	−.02	−.00	−.02	.31**	.31**	.34**	−.15*	−.15*	−.15	−.23*	−.23*	−.24*
Perceived usefulness	.06	.05	.04	.03	.00	.00	.01	.08	.08	.07	−.09	−.09	−.10
Personal innovativeness with IT	−.11**	−.10**	−.02	−.01	−.04	−.04	−.05	.16	.16	.16	.29	.29	.28
Promotion focus	.07	.08	.03	.04	.04	.04	.03	−.18	−.18	−.18	.01	.01	.01
Training	−.06	−.07	−.03	−.04	.05	.05	.07	.03	.03	.04	−.04	−.04	−.02
Social influence	.07	.06	.02	.01	.14	.14	.12	.24*	.24*	.21*	.18	.18	.16
Prevention focus	−.06	−.07	−.01	−.02	.18	.18	.21	.15	.15	.14	.17	.17	.18
System inadequacy	−.07	−.06	−.03	−.02	−.03	−.03	−.09	−.07	−.07	−.11	−.02	−.02	−.08
Task autonomy	.06	.04	.02	.01	.15	.15	.22	.06	.06	.10	−.13	−.13	−.06
Level 2 control variables													
Group size	−.15	−.15	−.07	−.07	−.23	−.30*	−.30*	−.00	.07	.07	−.04	.03	.03
Group age	−.15	−.15	−.15	−.15	−.16	−.06	−.06	.24	.14	.14	.32	.24	.24
Level 2 predictor													
Group cultural tightness	−.22	−.22	−.06	−.06		**.58*** **	**.58*** **		**−.61*** **	**−.61*** **		**−.53****	**−.53****
ES use behaviors													
Conforming use		**.06***		**.05****									
Internal workaround use		**.07***		**.06****									
External workaround use		**−.07****		**−.06***									
Interactions (Post-Hoc Exploratory Analysis)													
Group cultural tightness * Prevention focus							.08			**−.42****			**−.30***
Group cultural tightness * System inadequacy							−.03			**.32****			.33
Group cultural tightness * Task autonomy							**−.29***			.05			−.06
Model Fit													
Chi-square	1160.39***	1254.22***	818.67***	876.81***	132.65***	113.54***	114.58***	195.01***	152.99***	155.09***	157.47***	130.01***	133.05***
Deviance	453.64	456.38	381.87	386.76	843.43	833.69	836.67	775.83	764.41	764.13	792.40	783.45	785.14

Notes: Individual-level Sample $N = 228$; Group-level Sample $N = 57$; * $p < .05$, ** $p < .01$, *** $p < .001$; **bolded** values are significant influences of model concepts (not control variables)

Table 4. Results of Regression Analyses

Dependent variable	Conforming Use		Internal Workaround Use		External Workaround Use	
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Gender	.003	.016	.050	.033	−.075	−.095
Age	.011	.008	.025	.028	−.152*	−.149*
Educational level	−.033	−.034	.072	.074	.014	.016
Income	−.038	−.032	−.027	−.035	.001	−.007
Work experience	−.066	−.082	−.039	−.018	.074	.098
System use experience	.064	.091	−.054	−.090	−.027	−.068
Social influence	.631***	.610***	.326***	.353***	.408***	.439***
Group cultural tightness [a]	--	**.143****	--	**−.189****	--	**−.216*****
R^2	.390	.409	.116	.151	.186	.231
F	21.179***	20.024***	3.369***	5.129***	7.562***	8.653***

Notes: (1) [a] Group cultural tightness: 0 = loose group culture; 1 = tight group culture. (2) $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Online Appendices

Conform or Workaround? A Multilevel Analysis of the Effect of Group Cultural Tightness on Enterprise System Use

Online Appendix A: Appropriateness of Cultural Tightness-Looseness Theory

While existing theoretical frameworks in the literature, such as social control, information policy compliance, and incentives, offer valuable insights into system use behavior, they do not fully account for the subtleties of group-level dynamics that shape how employees navigate prescribed system usage. *Cultural Tightness-Looseness* (CTL) theory, which examines the strength and rigidity of norms within groups, provides a more nuanced understanding of the social forces influencing individual behaviors in a way that existing frameworks do not.

Specifically, *social control theory* (SCT), introduced by Hirschi (1969), has been extensively used in criminology to explore the causes of behaviors that deviate from social rules, such as delinquency. SCT, also referred to as *social bond theory*, suggests that strong social bonds—such as connections to family, peers, and community—serve as a deterrent to criminal behavior (Hsu et al. 2015). This theory posits that individuals are less likely to engage in criminal activities when their bonds to society are strong. Conversely, as these social bonds weaken, the likelihood of deviant behavior, including criminal involvement, increases (Hsu et al. 2015). Hirschi (1969) identified four key components of social bonds that inhibit unwanted behaviors: commitment, attachment, belief, and involvement. However, SCT primarily addresses individual connections to societal institutions and does not capture the nuances of group-level influences within organizational contexts, particularly when behaviors are subtle, such as workaround use in ESs. In contrast, CTL theory provides a more comprehensive framework by emphasizing the role of group norms in regulating behavior within a collective. It focuses on how shared cultural expectations within a group shape individual actions, making it better suited for understanding workplace behaviors driven by group cohesion and conformity. This makes CTL theory more applicable in contexts where behaviors deviate from norms, but not necessarily in a criminal sense.

The information policy compliance perspective focuses on adherence to specific security policies, procedures, or guidelines, often framed as a binary measure of compliance versus violation (Moody et al. 2018). CTL theory addresses broader cultural dynamics that influence behavior within a group or an organization. CTL theory emphasizes the strength of societal or organizational norms, which shape individuals' actions in a more holistic and contextual manner. It can explain not only the adherence to formal policies but also how social pressures, group cohesion, and cultural expectations within a given environment impact behavior, even when those actions don't directly align with formal policies. Therefore, CTL theory provides a deeper, group-level perspective on the regulation of behaviors, including policy adherence and potential violations, that goes beyond mere compliance and captures the cultural and social forces at play.

An *incentive-based framework* typically focuses on positive incentives (a gain versus non-gain situation) and negative incentives (a non-loss versus loss situation) as tools to align individual behavior with organizational goals (Liang et al. 2013). While incentives are effective in motivating behavior, they often operate on a transactional basis, framed in terms of gains or losses. However, CTL theory delves deeper into the cultural and social context within which behaviors occur, highlighting the influence of group norms and cultural expectations. Unlike incentives, which can be reactive and context-dependent, CTL theory emphasizes the role of shared cultural norms in shaping behaviors proactively. It accounts for both formal and informal controls, capturing the broader social forces that influence compliance or deviation from organizational objectives. This makes CTL theory superior in explaining not just the implementation of incentives but also how cultural cohesion and the strength of societal norms create a more sustainable framework for guiding behavior, independent of external rewards or punishments.

Online Appendix B: Definitions and Typologies of Workaround Use

Table B1. Definitions and Typologies of Workaround Use by Previous IS Studies

Reference	Definition	Typology	Refers to Internal Workaround	Refers to External Workaround	Methodology
Alter (2014)	Goal-driven adaptation, improvisation, or other change to one or more aspects of an existing work system in order to overcome, bypass, or minimize the impact of obstacles, exceptions, anomalies, mishaps, established practices, management expectations, or structural constraints that are perceived as preventing that work system or its participants from achieving a desired level of efficiency, effectiveness, or other organizational or personal goals	Overcome inadequate IT functionality; Bypass an obstacle built into processes or practices; Respond to a mishap or anomaly with a quick fix; Substitute for unavailable resources; Design and implement new resources; Prevent future mishaps; Pretend to comply; Lie, cheat, steal for personal benefit; Collude for mutual benefit	√	√	Theoretical development
Alvarez (2008)	No clear definition	None			Semi-structured interviews
Azad and King (2008)	Deviations from rules	None			Case study
Azad and King (2012)	A variety of socio-material actions around IT artifacts, which actions may not be consistent with the designed uses and official rules	Decoupled actual system use; Loosely coupled actual system use; Decoupled actual rule compliance; Loosely coupled actual rule compliance		√	Comparative case study
Bjørn et al. (2009)	Intentionally using computing in ways for which it was not designed or avoiding its use and relying on an alternative means of accomplishing work	None	√	√	Action research
van Beijsterveld and Van Groenendaal (2016)	Intentionally using the functionality of the ERP systems in ways for which it was not designed	None	√		Case study

Choudrie and Zamani (2016)	Deviation from designed system use and/or rules	Decoupled actual system use; Loosely coupled actual system use; Decoupled actual rule compliance; Loosely coupled actual rule compliance		√	Qualitative approach
Davison et al. (2021)	Actions devised by employees to ensure that they can get work done, yet do not involve either conforming with or deviating from the standard organizational practice	None			Case study
Parks et al. (2017)	Alternative path to goal when the path is blocked	Legitimate; Less legitimate; Illegitimate		√	Qualitative research method based on grounded theory
Ejnefjäll and Ågerfalk (2019)	When the designed path is blocked, a workaround provides an alternative path to the same goal without completely removing the block	Use differently; Use additional; Bypass		√	Theoretical review
Ferneley and Sobreperez (2006)	Action derived from resistance	Hindrance workaround; Harmless workaround; Essential workaround			Case study
Gasser (1986)	Intentionally using computing in ways for which it was not designed or avoiding its use and relying on an alternative means of accomplishing work	Data adjustment; Procedural adjustment; Backup systems	√	√	Case study
Goh et al. (2011)	Alternative ways to obtain the same goal	None		√	Field study
Laumer et al. (2017)	Alternative way to goal when the designed path is blocked	None		√	Survey
Malaurent and Avison (2016)	Users create their own special practices to address local requirements	Data adjustments; Process adjustments; Parallel system adjustments	√	√	Canonical action research
Malaurent and Karanasios (2020)	No clear definition	Data adjustments; Process adjustments; Parallel system adjustments	√	√	Case study
Spierings et al. (2017)	No clear definition	None			Case study
Zamani and Pouloudi (2021)	Employing software-based and hardware-based solutions to address the technology's perceived shortcomings	None		√	Blogposts based on grounded theory
This study	Employees' goal-driven attempts to search, modify or change one or more aspects of an existing system in ways for which it was not designed, or use alternatives instead of the	Internal workaround use; External workaround use	√	√	Survey, qualitative approach, experiment

	intended system, in order to bypass or overcome obstacles or exceptions for accomplishing their tasks				

Online Appendix C: Examples and Outcomes of Workaround Use

Table C1. Examples and Outcomes of Internal and External Workaround Use

Reference	System Type	Obstacles or Exceptions of Designed Path	Internal Workaround Use	External Workaround Use	Outcomes
Beerepoot and Van De Weerd (2018)	Hospital information system	Immediate demands and interruptions of providing patient care, and inconsistent access to physicians for authorization	Entering the data into the formal system when more convenient (or intending to) through a different stage or process than formally required or offered by the system	Recording data on paper, personal devices, spreadsheets, etc.	The outcomes can be neutral, positive, and negative. Take the workaround of "not adequately performing the second check…" for example, its impact on cost is neutral, as there are no costs involved. Its impact on time is positive, as all activities involved omitted. Its impact on the flexibility of the worker is positive, as the second nurse is available to do other tasks. However, the impact on quality is negative, as errors may not be identified
van Beijsterveld and Van Groenendaal (2016)	ERP system	Misfit between the organizational needs and the extent to which an 'off-the-shelf' enterprise resource planning (ERP) system can meet these	Use the functionality of the ERP system differently than the developers intended in order to achieve the functionality required	Other software was implemented to resolve the misfit	Although workarounds often have negative effects on organizational controls and productivity and undermine potential benefits from integration, and often slow down processes and increase the possibility of making errors, a workaround can help solve an actual misfit because it provides an acceptable–not optimal–solution, and customization is not needed, indicating that a workaround is a cheaper but less flexible alternative
Davison et al. (2021)	Enterprise system	Enterprise system does not fit with the work process dictated by local realities		Extract data from Navision, and manipulate it with Excel to generate customized business analysis	Workarounds allowed the Hong Kong warehouse employees to work efficiently, support customer needs, and provide

				and forecasting reports that processes are designed by the employees themselves. Coordinate/share information across the stores and the warehouse using phone, email, WhatsApp, USB drives, and shared Drives	information that was needed by headquarters. The study did not report negative consequences related to not complying fully with corporate standards
Gasser (1986)	Computing system	Unreliability in hardware, software, or operations; data inaccuracy; system changes; poor documentation; inappropriate designs; etc.	Use of system features or processes out of their formal sequence, while waiting for the system or other entity to provide necessary information, as a way to accomplish the overall task more quickly	When a user backs up their own data in general, or during a long and complex task, because the system occasionally but irregularly freezes or crashes	Workarounds are ad-hoc strategies to solve immediate and pressing problems, and they often conflict with the formal ideology of system use. The outcomes of workarounds are situation-specific and linked to the ecology of working relationships in the organization at a particular time
Haag et al. (2023)	Novel information technologies (ITs) (e.g., mobile devices and third-party cloud services)	Tension for employees who are expected to conform to organizational IT policies but also expect to support their own goals by using such prohibited cloud services		An unapproved personal cloud storage account affords a user the sharing of large company files with co-workers	The use of third-party cloud services supports job performance while threatening data security
Huuskonen and Vakkari (2013)	Client information system (CIS)	Insufficient linking of modules; Insufficient filtering; Organizational block; Limited time resources	Collect the contact information of the families on the top of case reports instead of using a family module meant for this type of information.	The summation of child welfare assessment, did not have a specific place in CIS yet. Therefore, it was written in MS-Word and copied to a case report	The use of a workaround can have both positive (e.g., continuous story, support for reading, and saving time) and negative consequences (e.g., possible harm to compiling statistics, hiding information, and extra work and time effort)
Ignatiadis and Nandhakumar (2009)	ERP system	While different levels of access were possible through setting up profiles, there were no formal rules, leading to inappropriate and ambiguous access. Further,	Some used the prior user's open account, while others used accounts of those with higher access	Some used their own Excel sheet for analyses and reports to save time and complexity associated with the	Workarounds were seen in a negative light and decreased organizational control

		terminals were limited, and login took time	levels	ERP system, or to have access to data (such as tasks and schedules) when not working in the building	
Keppler (2023)	Insufficient resources such as computers and books	Bringing in additional resources from outside the organization to overcome work obstacles		Resource-supplementing workarounds through partnerships with nonprofit organizations (NPOs)	Partnering workarounds are differentially productive at poorer versus wealthier schools, and the difference in partnering productivity translates to educational inequities
Koopman and Hoffman (2003)	User-hostile system	Users may find that a system does not technically support or is inadequate or inefficient for a specific task, or they may not be aware of the appropriate solution	A user may conceptualize (reinvent) an existing function in the system in a new way to accomplish that task	A user may turn to an external program or resource to do so	Not discussed
Malaurent and Avison (2016)	5 modules of a global ERP system	Top-down requirements of headquarters vs. bottom-up local needs in the context of global information systems	Data adjustments, and process adjustments	Parallel-system adjustments	From the local users' point of view, workarounds were necessary to deal with Chinese legislation and cultural practices, but from the French headquarters' point of view, they meant that many of the potential gains of global standards were lost
Malaurent and Karanasios (2020)	Global enterprise system based on SAP	A contradiction emerges between local expectations and the global HQ template	Users figured out how to use a field (initially empty) to put payment information in the system	Users were obliged to calculate local tax within a third system (spreadsheet)	Workarounds considered as "critical" improvements through having a major positive impact were formally implemented; workarounds considered "harmless" were permitted to continue; workarounds considered a "hindrance" due to their effect on the accuracy of data but not the business workflow was blocked through the implementation of

					additional controls
Petrides et al. (2004)	Educational information system	The system was time-consuming and difficult to use, involving a variety of applications, making the data difficult to interpret or compare	In some cases, users had to manipulate or reenter data that was available from, but not usable within, the formal system	In other cases, they entered the data into their own, idiosyncratic programs for analysis	Workarounds can be viewed as both inventive solutions to pressing organizational needs and over time, costly alternatives to a robust and flexible information system
Yang et al. (2012)	Electronic medication administration system (EMAS)	The system did not have sufficient or contextualized dosage for some kinds of patients; Problems of poor connectivity, uncharged batteries, or inability to fit in some spaces	Physicians might engage in the internal workaround of manually editing the recommendation	Due to the problems of poor connectivity, uncharged batteries, or inability to fit in some spaces, physicians have to engage in an external workaround by writing down information from the trolley-mounted laptop (called computer-on-wheel or COW), leaving the EMAS outside the patient area, and writing down more information to enter later (if at all)	Workarounds have both positive and negative impacts. Positive impacts: reduced medication errors as physicians unfamiliar with EMAS may be prone to mistakes as compared to using paper medical record Negative impacts: increased medication errors due to illegibility of handwriting, missing paper medical records and errors in transcribing; additional time required to enter handwritten orders in EMAS subsequently

Online Appendix D: Distinctions Between Group Cultural Tightness and Related Concepts

Table D1 summarizes differences between the concept of group cultural tightness and related concepts, such as cultural values (Maruping et al. 2019), social context (Zhou et al. 2022), social influence (Venkatesh et al. 2003), social norms (Van der Linden 2011; Venkatesh et al. 2023), and group climate (for innovation) (Liang et al. 2010). This review further suggests that group cultural tightness focuses on the strength of social norms and sanctioning within a group, which are both unique and complementary to these related concepts.

Table D1. Distinction of Group Cultural Tightness from Related Concepts

Construct	Definition	Distinction from Group Cultural Tightness	Measures
Cultural Values	The extent to which an individual embraces specific cultural values, that is, espoused cultural values (Maruping et al. 2019). It can be classified into individualism/ collectivism, uncertainty avoidance, power distance, masculinity/ femininity, and long-term orientation	1. Cultural values reflect the values and belief systems that individuals possess (Maruping et al. 2019), while cultural tightness captures the strength of social norms. That means that cultural tightness can vary across different cultural contexts and values; 2. Cultural tightness captures unique cultural variance and is distinct from other cultural values dimensions. For example, *individual/collectivism* relates to how behavior is influenced by one's in-group and/or family, *power distance* relates to how behavior is influenced by authorities, and *uncertainty avoidance* relates to how behavior is influenced by stress and uncertainty, whereas cultural tightness relates to how behavior is influenced by the strength of social norms and sanctioning.	*Individualism-collectivism: the degree to which people in a society are integrated into groups.* 1. Being accepted as a member of a group is more important than having autonomy and independence. 2. Group success is more important than individual success. 3. Being loyal to a group is more important than individual gain. *Uncertainty avoidance: the level of comfort people have with uncertain or ambiguous situations.* 1. Rules and regulations are important because they inform workers what the organization expects of them. 2. Order and structure are very important in a work environment. 3. It is important to have job requirements and instructions spelled out in detail so that people always know what they are expected to do. *Power distance: the extent to which individuals with less power are willing to acknowledge differentials of power and inequality.*

			1. Managers should make most decisions without consulting subordinates. 2. Managers should not ask subordinates for advice, because they might appear less powerful. 3. Decision making power should stay with top management in the organization and not be delegated to lower level employees. *Masculinity/femininity: masculinity describes individuals' degree of preference for achievement, assertiveness, and material success, a conceptualization that is not bounded by biological gender differences.* 1. It is preferable to have a man in a high-level position rather than a woman. 2. It is more important for men to have a professional career than it is for women to have a professional career. 3. Solving organizational problems requires the active forcible approach which is typical of men. *Long-term orientation: indicates people's plan and consideration for the future.* 1. In your private life, personal steadiness and stability is important. 2. In your private life, thrift is important. 3. In your private life, respect for tradition is important.
Social Context	The degree to which an organization cultivates a supportive and trustworthy environment for employees, motivating them to emulate these behaviors within the organization	Social context describes the extent to which employees voluntarily strive to achieve the organization's expectations and objectives, lend assistance and countenance to others, and/or rely on the commitments of each other, whereas cultural tightness highlights the strength of social norms and the degree of sanctioning within groups.	The extent to which an organization encourages people at their level to... 1. Devote considerable effort to developing their subordinates. 2. Give everyone sufficient authority to do their jobs well. 3. Push decisions down to the lowest appropriate level. 4. Give ready access to information that others need.

			5. Work hard to develop the capabilities needed to execute our overall strategy/vision. 6. Base decisions on facts and analysis, not politics. 7. Treat failure in a good effort, as a learning opportunity, not something to be ashamed of. 8. Are willing and able to take prudent risks. 9. Set realistic goals.
Social Influence or Subjective Norm	The degree to which an individual perceives that important others believe he or she should use the system (Venkatesh et al. 2003)	1. Social influence captures a person's perception that most people who are important to him/her think he/she should or should not perform the behavior in question, whereas cultural tightness is about how a given, identifiable culture constrains deviation from the cultural values or norms; 2. Social influence does not capture the level of tolerance for deviant behaviors.	1. People who influence my behavior think that I should use the system. 2. People who are important to me think that I should use the system. 3. The senior management of this business has been helpful in the use of the system. 4. In general, the organization has supported the use of the system.
Social Norms-Descriptive Norm	Descriptive social norms describe the behavior of significant others (Van der Linden 2011)	1. Descriptive social norms focus on what referent others do. However, the mere perception of what significant others do does not necessarily mean that one feels socially pressured to engage in the behavior; 2. Descriptive social norms do not relate to the strength of the norm or the strength of sanctioning.	1. My co-workers have used the system. 2. My supervisors have used the system. 3. My colleagues have used the system.
Social Norms-Prescriptive (or Injunctive) Norm	Social norms: the belief held by specific individuals or groups regarding the appropriateness of specific behaviors (Venkatesh et al. 2023). It can be classified into prescriptive and descriptive social norms. Prescriptive social norm reflects how significant others think a person ought to behave (prescribing behavior) (Van der Linden 2011)	1. Prescriptive norm focuses on what referent others say is acceptable behavior, whereas cultural tightness focuses on how strong, clear, and pervasive norms are within groups; 2. Prescriptive norm does not involve the degree of sanctioning within the groups.	1. My co-workers think that I should use the system. 2. My supervisors think that I should use the system. 3. My colleagues think that I should use the system.
Group Climate (for Innovation)	Group climate refers to an implicit frame that shapes individual perceptions, attitudes, and behaviors within the group context (Liang et al. 2010). Group climate for innovation is an important source of social influence (Liang et al. 2010). Group	Compared with cultural tightness, climate is a more specific construct that generally focuses on individual members' perceptions of their group's orientation toward a particular referent idea or thing (e.g., innovation) (Leidner and Kayworth 2006). In contrast, cultural tightness focuses on the strength of more	*Shared vision:* 1. How clear are you about what your group's objective of using the system is? 2. How far [much?] are you in agreement with these objectives?

	climate for innovation has four aspects: *shared vision, participative safety, support for innovations,* and *task orientation*	general norms and patterns of behaviors.	3. To what extent do you think these objectives can actually be achieved? 4. How worthwhile do you think these objectives are to the group? *Participative safety:* 1. We share information generally in the group rather than keeping it to ourselves. 2. People feel understood and accepted by each other. 3. Everyone's view is listened to even if it is in a minority. *Support for innovations:* 1. People in my group are always searching for fresh, new ways of looking at problems. 2. People in my group co-operate in order to apply the system in our job. 3. Group members provide practical support for the application of the system. *Task orientation:* 1. My group colleagues provide useful ideas and practical help to enable me to do the job to the best of my ability. 2. My group critically appraise potential weaknesses in what it is doing in order to achieve the best possible outcome. 3. Members of my group build on each other's ideas in order to achieve the best possible outcome.

Online Appendix E: Key Constructs and Their Descriptions

Table E1. Principal Constructs and Their Definitions

Constructs	Definition
Conforming Use	The degree to which employees adhere to the recommended usage of ES features for accomplishing their work tasks
Internal Workaround Use	Employees' adaptation of the existing system features (e.g., search, modify, or change the use or application of one or more aspects of the existing system) in a way that does not conform to standard procedures, in order to bypass or overcome obstacles or exceptions for accomplishing their work tasks
External Workaround Use	Employees' use of alternatives to the recommended or required system to bypass or overcome obstacles or exceptions for accomplishing their work tasks
Group Cultural Tightness	The degree to which a group adheres to the strictly enforced norms within the group
Job Performance	Assessment of employees' overall job effectiveness

Online Appendix F: Preliminary Survey for Validation of Workaround Use Constructs

A preliminary study was used to help develop and validate the measures of conforming use, internal workaround use, and external workaround use. To do so, we collected the data from a Chinese financial service company that had implemented business intelligence systems (BIS) about two years prior. According to previous studies, it typically takes more than one year after the system implementation for employees to get familiar enough with the system and become capable of adapting/changing their system feature usage (e.g., Li et al. 2013; Liang et al. 2015).

We developed an English survey instrument for data collection and then invited two professional translators to translate and back-translate between English and Chinese to ensure equivalent meanings. We first recruited 40 employees in the pilot study. After some minor modifications of the item wording based on the respondents' feedback, we then randomly selected 600 respondents who used the BIS on a daily basis as part of their jobs. Eventually, we obtained 215 valid responses (response rate of 35.8%). Table F1 provides the sample demographic information.

Table F1. Demographic Information of Respondents

Demographics	Categorization	Percentage
Gender	Male	30.3
	Female	69.3
Age	18-25	4.2
	26-35	34.4
	36-45	34.4
	46-55	21.9
	56 or above	5.1
Education	Below College	9.3
	Junior College	23.3
	Bachelor's degree	49.3
	Master's degree or above	18.1
Tenure (years)	1 or below	0.5
	1-2	4.7
	2-5	18.1
	5-10	14.4
	10 or above	62.3
Note: Sample N = 215		

We present the descriptive statistics, composite reliability, Cronbach's Alpha, and average variance extracted (AVE) for conforming use, internal workaround use, and external workaround use. As Table F2 shows, the composite reliability and Cronbach's Alpha were all above the benchmark of 0.7 (MacKenzie et al. 2011), indicating good reliability. Regarding convergent validity, the AVEs were

above the 0.50 recommended level and the loadings were above 0.7, indicating good convergent validity (Fornell and Larcker 1981) (Table F2). Discriminant validity was also established because the square roots of AVEs for all constructs were greater than the correlations between constructs (Fornell and Larcker 1981) (Table F2). The cross-loadings shown in Table F3 indicate that the items loaded well on their own constructs but poorly on any other constructs, further confirming good discriminant validity. The above evidence established sound psychometric properties for the three types of ES use (i.e., conforming use, internal workaround use, and external workaround use).

Table F2. Descriptive Statistics

Construct	Mean	S.D.	Conforming Use	Internal Workaround Use	External Workaround Use
Conforming Use	4.95	1.47	**.95**		
Internal Workaround Use	3.72	1.73	.14	**.89**	
External Workaround Use	3.68	1.74	−.07	.56	**.91**
Composite Reliability			.96	.92	.93
Cronbach's Alpha			.94	.93	.95
AVE (Average Variance Extracted)			.90	.79	.82
Notes: (1) The diagonal elements are the square root of AVEs. (2) The off-diagonal elements are the correlations among factors.					

Table F3. Item Loadings and Cross-Loadings

Construct	Measure	CU	IWU	EWU
Conforming Use (CU)	CU1	**.91**	.17	−.02
	CU2	**.96**	−.01	−.08
	CU3	**.96**	.05	−.03
Internal Workaround Use (IWU)	IWU1	.07	**.90**	.26
	IWU2	.06	**.91**	.26
	IWU3	.10	**.86**	.33
External Workaround Use (EWU)	EWU1	−.03	.27	**.92**
	EWU2	−.06	.27	**.93**
	EWU3	−.06	.31	**.87**

Online Appendix G: Preliminary Survey for Discriminant Analysis of Group Cultural Tightness

We developed a different English survey for testing the differences between group cultural tightness and its related constructs, and then invited two professional translators to translate and back-translate between English and Chinese to ensure equivalent meanings. We collaborated with a marketing company, which helped us to recruit respondents who used an ES on a daily basis as part of their jobs. Eventually, we obtained 226 valid responses. Table G1 provides the demographic information for the sample.

Table G1. Demographic Information of Respondents for Group Cultural Tightness (N = 226)

Demographics	Categorization	Percentage
Gender	Male	42.0
	Female	58.0
Age	18-25	8.0
	26-35	75.2
	36-45	15.0
	46-55	1.3
	56 or above	0.4
Education	Junior College	7.5
	Bachelor's degree	83.6
	Master's degree or above	8.8
Tenure (years)	1 or below	4.9
	1-2	11.1
	2-5	29.6
	5-10	42.0
	10 or above	12.4
Enterprise System Use Experience (years)	1 or below	4.9
	1-2	27.4
	2-3	23.0
	3 or above	44.7

We report the descriptive statistics, composite reliability, Cronbach's Alpha, and average variance extracted (AVE) for all the constructs. As Table G2 shows, the composite reliability and Cronbach's Alpha were all above the benchmark of 0.7 (MacKenzie et al. 2011), indicating good reliability. Moreover, the AVEs were above the 0.50 recommended level and the loadings were above 0.6, indicating a good convergent validity (Fornell and Larcker 1981) (Table G2). Discriminant validity was also established because the square roots of AVEs for all constructs were greater than the correlations between constructs (Fornell and Larcker 1981) (Table G2). The cross-loadings shown in Table G3 indicate that the items loaded well on their own constructs but poorly on any other constructs, further

confirming good discriminant validity. Taken together, group cultural tightness can be distinguished from its related constructs both conceptually and empirically.

Table G2. Descriptive Statistics and Discriminant Validity

Construct	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Group cultural tightness	6.02	.91	**.82**														
2. Social influence	5.84	.83	.26**	**.83**													
3. Prescriptive norm	5.91	.86	.36**	.45**	**.80**												
4. Descriptive norm	6.32	.68	.27**	.31**	.32**	**.87**											
5. Group climate-Shared version	6.02	.79	.23**	.35**	.35**	.22**	**.88**										
6. Group climate-Participative safety	5.45	1.14	.34**	.24**	.31**	.12	.29**	**.85**									
7. Group climate-Support for innovation	4.49	1.35	.16*	.13*	.18**	−.04	.12	.36**	**.89**								
8. Group climate-Task orientation	5.83	.83	.33**	.33**	.28**	.20**	.34**	.37**	.21**	**.79**							
9. Performance management context	4.92	1.23	.17**	.14*	.11	.04	.19**	.26**	.14*	.16*	**87**						
10. Social context	5.97	.72	.36**	.31**	.20**	.21**	.29**	.35**	.18**	.46**	.12	**.74**					
11. Culture-Individualism/collectivism	5.46	1.17	.25**	.33**	.22**	.23**	.19**	.33**	.37**	.33**	.21**	.35**	**.89**				
12. Culture-Uncertainty avoidance	6.12	.90	.26**	.25**	.28**	.21**	.37**	.36**	.04	.31**	.12	.26**	.24**	**.87**			
13. Culture-Power distance	3.43	1.55	−.19**	−.08	−.18**	−.18**	−.13	−.09	.07	−.18**	.15*	−.11	−.02	−.11	**.79**		
14. Culture-Masculinity/femininity	3.08	1.72	−.10	.00	−.07	−.17*	−.03	−.12	.13*	−.06	.11	−.04	.07	−.06	.58**	**.89**	
15. Culture-Long-term orientation	5.60	.94	.16*	.23**	.26**	.15*	.25**	.22**	.19**	.29**	.21**	.23**	.27**	.17**	.05	.16*	**.79**
Composite Reliability			.91	.90	.84	.90	.93	.89	.92	.84	.95	.92	.92	.91	.83	.92	.84
Cronbach's Alpha			.92	.91	.87	.90	.95	.97	.89	.88	.95	.92	.97	.93	.87	.93	.79
AVE (Average Variance Extracted)			.68	.69	.64	.76	.77	.73	.79	.63	.75	.55	.80	.76	.62	.79	.63

Notes: (1) Diagonal elements are the square root of AVEs. (2) The off-diagonal elements are the correlations among factors. (3) *$p < .05$; ** $p < .01$

Table G3: Item Loadings and Cross Loadings for Group Cultural Tightness and Its Related Constructs

Construct	Items	CT	SoI	PN	DN	SV	PS	SI	TO	PMC	SC	IC	UA	PD	MF	LTO
Group Cultural Tightness (CT)	CT1	**.84**	.07	−.01	.05	.00	.12	.00	−.05	.09	.17	.10	.11	−.09	−.02	.01
	CT2	**.76**	.04	.26	.11	.11	.11	.10	.06	.05	.17	.05	.07	−.03	−.01	.02
	CT3	**.80**	.06	.12	.06	.12	.00	.10	.18	.10	.09	.09	.00	−.03	−.11	−.01
	CT4	**.82**	.06	.06	.06	-.03	.11	.01	.04	.10	.18	.02	.11	−.05	.02	.07
	CT5	**.89**	.09	.06	.11	.09	.06	.01	.14	.01	.17	.00	.02	−.05	−.04	.07
Social Influence (SoI)	SoI1	.07	**.80**	.14	.19	.12	.15	−.02	.06	.06	.06	.14	.09	.06	.00	.10
	SoI2	.09	**.91**	.15	.07	.17	−.06	.03	.11	.11	.11	.07	.01	−.03	.01	.01
	SoI3	.09	**.68**	.11	.11	.05	.21	.07	.03	−.06	.31	.13	.16	−.06	.03	.11
	SoI4	.09	**.91**	.15	.07	.17	−.06	.03	.11	.11	.11	.07	.01	−.03	.01	.01
Prescriptive Norm (PN)	PN1	.16	.25	**.84**	.13	.20	.07	.07	.11	−.01	−.02	.09	.06	−.04	−.07	.08
	PN2	.23	.10	**.81**	.04	.04	.14	.06	.01	.14	.03	.06	.13	−.05	.02	.08
	PN3	.09	.28	**.74**	.21	.21	.09	.10	.06	−.09	.17	−.01	.06	−.11	.00	.11
Descriptive Norm (DN)	DN1	.12	.14	.08	**.92**	.11	.02	−.04	.09	−.03	.04	.05	.07	−.04	−.09	.03

	DN2	.22	.07	.13	**.85**	.07	.03	−.05	−.04	.03	.13	.11	.05	−.04	−.07	.00
	DN3	.01	.14	.07	**.84**	.04	-.01	.00	.07	.01	.11	.08	.08	−.06	−.07	.11
Group Climate-Shared Version (SV)	SV1	.06	.08	.09	.08	**.92**	.04	.11	−.17	.11	.14	.03	.13	−.06	−.01	.10
	SV2	.07	.19	−.01	.03	**.87**	.08	.03	−.03	.12	.07	.04	.17	.01	−.05	.08
	SV3	.04	.14	.16	.02	**.86**	.08	.03	−.09	.10	.18	−.01	.15	−.08	.02	.04
	SV4	.10	.09	.15	.12	**.86**	.06	.18	−.11	.09	.14	.07	.08	−.03	−.01	.07
Group Climate-Participative Safety (PS)	PS1	.16	.04	.11	.00	.08	**.84**	.20	.12	.23	.12	.09	.19	.01	−.09	.06
	PS2	.13	.07	.13	−.01	.09	**.86**	.16	.08	.15	.23	.10	.15	−.04	−.06	.03
	PS3	.13	.06	.08	.04	.12	**.87**	.18	.15	.16	.19	.11	.14	−.01	−.10	.07
Group Climate-Support for Innovation (SI)	SI1	.03	.06	.05	−.03	.06	.16	**.86**	.05	.08	.10	.15	.02	.00	.10	.03
	SI2	.06	.03	.06	−.05	.02	.08	**.87**	.05	.06	.07	.13	−.03	.03	.05	.06
	SI3	.08	.02	.05	−.03	.03	.14	**.86**	.06	.04	.06	.14	−.03	.05	.03	.06
Group Climate-Task Orientation (TO)	TO1	.15	.14	.10	.06	.11	.07	.06	**.82**	−.01	.22	.11	.08	−.07	−.05	.11
	TO2	.14	.09	.04	.01	.16	.06	.08	**.76**	.13	.27	.18	.15	−.06	−.09	.10
	TO3	.10	.10	.03	.07	.10	.21	.11	**.80**	.07	.26	.00	.05	−.07	.07	.08
Performance Management Context (PMC)	PMC1	.09	.06	.06	.05	−.01	.06	.02	.06	**.88**	−.01	.13	.06	.04	−.02	.09
	PMC2	.01	.07	.01	.01	.02	.07	−.01	.04	**.91**	.05	.13	.02	.08	.05	.02
	PMC3	.10	.08	.01	.02	.01	.03	.04	.08	**.86**	.02	.05	.07	.00	−.02	.08
	PMC4	.05	.02	.06	−.03	.10	.11	.06	.01	**.94**	.03	.04	.06	.05	.04	.02
	PMC5	.01	.05	.05	−.03	.06	.10	−.10	−.01	**.73**	.07	.04	−.10	−.21	.11	.00
	PMC6	.08	−.03	−.06	.00	.13	.02	.12	.02	**.89**	.05	−.01	.03	.10	.04	.02
	PMC7	.04	.00	−.01	.00	.05	.03	.09	−.02	**.84**	.03	−.05	.01	.19	.03	.12
Social Context (SC)	SC1	.08	.09	−.11	.07	.11	.20	.18	.01	.11	**.70**	.10	−.12	−.05	.02	.00
	SC2	.08	.05	.01	−.01	.09	−.01	.04	.04	.01	**.79**	.13	.14	−.05	.00	.01
	SC3	.19	−.02	−.03	.02	.17	.13	.00	.02	−.05	**.68**	.14	−.04	−.01	.10	−.05
	SC4	.13	.03	−.01	.09	−.02	.21	.05	.14	−.01	**.74**	.05	.05	.02	−.08	−.01
	SC5	.06	.11	.03	.05	.20	.22	-.03	.00	.06	**.69**	.11	−.08	−.14	.11	.08
	SC6	.01	.12	.06	.05	−.04	−.07	.05	.18	.02	**.82**	.08	.18	−.03	−.02	.02
	SC7	.01	.12	.06	.05	−.04	−.07	.05	.18	.02	**.82**	.08	.18	−.03	−.02	.02
	SC8	.17	.06	.11	.06	.10	.01	−.01	.13	.16	**.72**	.01	.03	.01	−.08	.12
	SC9	.26	.02	.10	.01	.09	.04	.06	.08	.09	**.68**	−.08	.06	.13	−.11	.21
Culture-Individualism/ Collectivism (IC)	IC1	.10	.18	−.03	.08	.04	.10	.17	.06	.12	.18	**.89**	.07	.04	.01	.08
	IC2	.07	.10	.15	.08	.07	.11	.19	.09	.11	.17	**.88**	.13	−.03	.05	.10
	IC3	.09	.10	.04	.12	.03	.07	.16	.12	.11	.23	**.91**	.03	-.01	.05	.09
Culture-Uncertainty Avoidance (UA)	UA1	.09	−.01	.12	.08	.18	.13	−.03	.16	.05	.15	.05	**.86**	−.07	.02	.08
	UA2	.11	.16	.02	.04	.14	.15	.01	−.01	.09	.05	.06	**.88**	.02	−.04	.02
	UA3	.10	.05	.09	.11	.21	.11	−.03	.09	.01	.16	.11	**.88**	−.06	−.01	.04
Culture-Power Distance	PD1	−.13	−.02	−.11	.01	−.04	.02	.06	−.05	.08	−.06	.03	−.13	**.85**	.27	−.07

(PD)	PD2	−.04	−.08	−.10	−.12	−.07	−.01	.17	−.05	.14	−.02	.03	.01	**.83**	.31	.01
	PD3	−.13	.05	.03	-.06	−.06	−.06	−.11	−.11	.15	−.07	−.09	.03	**.67**	.38	.14
Culture-Masculinity/Femininity (MF)	MF1	−.03	−.01	−.02	−.08	.00	−.08	.06	.02	.10	.00	.05	−.04	.27	**.88**	.10
	MF2	−.03	.05	.02	−.06	−.01	−.02	.07	−.01	.09	−.04	.05	.02	.17	**.88**	.09
	MF3	−.06	−.01	−.05	−.08	−.03	−.10	.04	−.05	.05	−.02	.00	−.02	.24	**.90**	.04
Culture-Long-Term Orientation (LTO)	LTO1	.09	.04	.05	.06	.07	−.02	−.10	.10	.13	−.02	.07	.05	.04	.15	**.81**
	LTO2	−.01	.12	.11	.01	.08	.14	.21	.06	.08	.11	.15	.10	−.10	.02	**.71**
	LTO3	.04	.03	.06	.07	.11	.03	.12	.08	.05	.17	.04	−.02	.09	.06	**.86**

Online Appendix H: Examples of ES Use and Group Cultural Tightness

Table H1. Examples of ES Use-Related Activity and Group Cultural Tightness

Key Construct	Example
Conforming use	*Employees use the suggested system features to present financial statements in accordance with prescribed formats and guidelines, such as balance sheets, income statements, and cash flow statements. This is a conforming use that ensures consistency in financial reporting and facilitates meaningful analysis and comparison.*
Internal workaround use	*Employees need to enter payment terms during the receivable and collections management processes; however, such information may not be available at that time or even could evolve over time. Some employees then use unused data fields to enter/store such information which was not initially accommodated in the system.* *Some employees create duplicate records or backups as an extra layer of protection and for information retrieval in case of system failures or data loss, which is actually not recommended by the company.* *Some employees write custom SQL queries or utilize built-in reporting tools to extract and manipulate data when they need to generate tailored reports or insights that are not readily available through standard ERP reports.*
External workaround use	*Some employees resort to paper files and spreadsheets for managing accounts receivable, accounts payable, and generating reports due to the complexity of interpreting and comparing information within the system's multiple applications.* *Some employees use spreadsheet applications like Microsoft Excel when specialized financial modeling or complex calculations are required but not supported by existing software or tools. This enables them to perform the necessary calculations outside of the primary system.* *In addition to using Excel, a lot of employees used WeChat for internal communication and financial file exchange. Although social media such as WeChat was not suggested by the company for security, it was particularly useful for the employees who needed to be away from their desks because the formal system only worked on the desktop.* *Some employees copy data from an ERP system, but do not adopt the built-in analytical features in the ERP system while using alternatives (e.g., Microsoft Excel) to analyze the data, and then insert the results back into the ERP system.* *Some employees use the previous software to manage information about accounts receivable and accounts payable and generate reports because they feel comfortable doing so.*
Group cultural tightness	*Some groups have regular meetings, unique greetings, and interactions, as well as celebrations for important events or milestones. Group members strongly identify with the group, sharing common beliefs, values, and traditions. There is a high level of conformity to established norms and rules within the group.* *Some groups prioritize individual autonomy and independence. Members are encouraged to explore new ideas, take calculated risks, and embrace learning from failures. They have the freedom to express their unique perspectives, ideas, and preferences without strict adherence to group norms or expectations.*

Online Appendix I: Study 1 Demographics

Table I1. Respondent Demographics

Demographics	Categorization	Percentage (%)
Gender	Male	37.3
	Female	62.7
Age	18-25	4.4
	26-35	43.4
	36-45	26.8
	46-55	20.2
	56 or above	5.2
Education	Below College	8.8
	Junior College	23.5
	Bachelor's degree	52.8
	Master's degree or above	14.9
Tenure (years)	1 or below	3.1
	1-2	5.3
	2-5	18.4
	5-10	18.0
	10 or above	55.3
Note: Sample $N = 228$		

Online Appendix J: Study 1 Measures

Table J1. Measurement Items

Construct	Measure	Source
Conforming Use	1. I always use a set of common system features that were suggested during the training or by others. 2. I routinely use a set of system features that were recommended during the training or by others to do my day-to-day activities. 3. I use the features that I learned from training or from others to do my job.	Self-developed
Internal Workaround Use	*When the formal system does not allow, or makes it difficult, for you to use it to accomplish tasks, to what extent do you conduct the following activities?* 1. I search for system features that were not suggested by the company to accomplish my tasks. 2. I try to modify system features that were not recommended by the company to accomplish my tasks. 3. I change some system features that were not learned from training or others to accomplish my tasks.	Self-developed
External Workaround Use	*When the formal system does not allow, or makes it difficult, for you to use it to accomplish tasks, to what extent do you conduct the following activities?* 1. Instead of using the system, I often use alternatives to help me accomplish tasks. 2. I use alternatives instead of the intended system I should use to help me accomplish tasks. 3. I use a "shadow system" (e.g., Excel or WeChat) instead of the intended system to help me accomplish tasks.	Self-developed
Group Cultural Tightness	1. There are many social norms that members are supposed to abide by in this group. 2. In this group, there are very clear expectations for how group members should act in most situations. 3. Members agree upon what behaviors are appropriate versus inappropriate in most situations this group. 4. In this group, if someone acts in an inappropriate way, others will strongly disapprove. 5. Members in this group almost always comply with social norms.	(Kim and Toh 2019)
Prevention Focus	1. I usually obeyed rules and regulations that were established by my parents. 2. Not being careful enough has gotten me into trouble at times. (R) 3. I worry about making mistakes. 4. I frequently think about how I can prevent failures in my life. 5. I see myself as someone who is primarily striving to become the self I "ought" to be—fulfill my duties, responsibilities and obligations.	(Haws et al. 2010)
System Inadequacy	1. Generally speaking, the company's system is sufficient to meet my work needs. (R) 2. The system provided by the company can fully help me complete my work. (R) 3. The company system can fully assist me in my work. (R)	Self-developed
Task Autonomy	1. I have a lot of freedom to decide how I perform assigned tasks. 2. I control the content of my job. 3. I have the authority to initiate projects at my job. 4. I set my own schedule for completing assigned tasks.	(Liang et al. 2015)
Job Performance	*Job performance (doing things specifically related to one's job description)* 1. Quantity of work output. 2. Quality of work output. 3. Accuracy of work. 4. Working well with others.	(Sykes 2020)
Perceived	1. It is easy to get the system to do what I want it to do.	(Davis 1989;

Ease of Use	2. My interaction with the system is clear and understandable. 3. I find the system flexible to interact with.	Davis et al. 1989)
Perceived Usefulness	1. Using the system in my job enables me to accomplish tasks more quickly. 2. Using the system improves my job performance. 3. Using the system in my job increases my productivity.	(Davis 1989; Davis et al. 1989)
Personal Innovativeness with IT	1. If I heard about a new information technology, I would look for ways to experiment with it. 2. Among my peers, I am usually the first to try out new information technologies. 3. I like to experiment with new information technologies.	(Agarwal and Prasad 1998)
Promotion Focus	1. When it comes to achieving things that are important to me, I find that I perform as well as I would ideally like to do. 2. I feel like I have made progress toward being successful in my life. 3. When I see an opportunity for something I like, I get excited right away. 4. I frequently imagine how I will achieve my hopes and aspirations. 5. I see myself as someone who is primarily striving to reach my "ideal self"—to fulfill my hopes, wishes, and aspirations.	(Haws et al. 2010)
Social Influence	1. People who influence my behavior think that I should use the system. 2. People who are important to me think that I should use the system. 3. The senior management of this business has been helpful in the use of the system. 4. In general, the organization has supported the use of the system.	(Venkatesh et al. 2003)
Training	1. My organization provides training to help employees improve their awareness of the system use features and procedures. 2. My organization provides employees with education on appropriate usage of the system. 3. In my organization, employees are briefed on the consequences of misuse of the system.	(D'Arcy et al. 2009)
Reward Expectancy	If I follow the system use features and procedures: 1. I will be rewarded. 2. My supervisor will praise me. 3. My supervisor will give me positive feedback. 4. My supervisor will let his/her boss and others know.	(Liang et al. 2013)
Punishment Expectancy	1. If I do not follow the system use features or procedures, my supervisor will indicate his/her disapproval. 2. If I violate the system use features or procedures, I will be disciplined. 3. If I do not follow the system use features or procedures, my supervisor will give me a verbal reprimand. 4. If I do not follow the system use features or procedures, my supervisor will show his/his displeasure.	(Liang et al. 2013)
Purchase Intentions (marker variable)	1. Given the chance, I predict that I would consider buying products from sellers in Taobao platform in the future. 2. It is likely that I will buy products from sellers in Taobao platform in the near future. 3. Given the opportunity, I intend to place an order in Taobao platform.	(Pavlou and Gefen 2004)
Note: $^{(R)}$ = reverse coded		

Online Appendix K: Study 1 Item Loadings

Table K1: Item Loadings and Cross Loadings

Construct	Items	CU	IWU	EWU	CT	PRE	SYI	TA	JP	PEOU	PU	PIIT	PRO	TR	SI	PI
Conforming Use (CU)	CU1	**.90**	.07	−.03	.15	.05	.06	.02	−.02	.11	.04	−.01	.10	.05	.05	.07
	CU2	**.93**	.05	−.07	.14	.14	.07	.02	−.01	.06	.00	.05	.10	.03	−.03	.04
	CU3	**.93**	.03	−.05	.12	.12	.02	.02	.04	.08	−.01	.06	.08	.05	−.03	.06
Internal Workaround Use (IWU)	IWU1	.08	**.81**	.27	−.10	−.05	.00	.06	−.00	−.14	.17	.03	−.01	−.01	.09	−.04
	IWU2	.03	**.87**	.20	−.11	−.08	−.06	.04	.03	−.17	.01	.09	−.08	.02	.12	.06
	IWU3	.08	**.81**	.18	−.12	.00	.07	.05	−.03	−.05	−.21	.15	−.05	.17	.16	−.01
External Workaround Use (EWU)	EWU1	−.07	.20	**.88**	.04	−.06	−.08	.04	−.02	−.16	.05	.11	−.02	−.09	.00	.05
	EWU2	−.06	.16	**.87**	−.13	−.00	.05	.04	−.09	−.15	.07	.06	.03	−.01	.14	.05
	EWU3	−.06	.33	**.77**	−.07	−.11	−.08	.14	−.09	−.07	−.05	.09	.01	.10	.21	.04
Group Cultural Tightness (CT)	CT1	.15	−.16	−.06	**.62**	.40	.18	.01	.02	.16	.01	.07	.21	.03	−.05	.06
	CT2	.17	−.06	−.06	**.75**	.35	.22	.06	−.03	.12	−.01	.05	.17	.06	−.05	.09
	CT3	.18	−.06	−.05	**.75**	.33	.23	.09	−.03	.05	−.05	.02	.21	.13	−.03	.04
	CT4	.09	−.08	.00	**.66**	.13	−.16	.13	−.15	.02	.34	.01	.17	−.03	.05	−.10
	CT5	.10	−.13	−.05	**.77**	.26	.11	.09	.01	.12	.08	.03	.22	.12	.07	.00
Prevention Focus (PRE)	PRE1	.18	-.06	.06	.08	**.74**	.17	.03	−.16	−.08	−.03	−.07	.07	.26	.06	−.08
	PRE2	.13	-.07	−.07	.19	**.78**	.08	−.04	−.03	.10	.02	−.09	.15	.02	.16	.11
	PRE3	.04	.01	−.06	.16	**.76**	−.07	.06	−.10	−.09	.29	−.05	.08	−.17	.12	−.04
	PRE4	.00	.03	−.04	.28	**.78**	.02	.07	−.11	.02	−.02	.05	.17	.04	.06	.10
	PRE5	.02	−.04	−.04	.35	**.77**	.14	−.00	−.10	−.06	−.01	.13	.16	.02	.05	.06
Sytem Inadequency (SYI)	SYI1	.09	.01	−.07	.08	.12	**.86**	.15	−.02	.09	.15	.11	.16	.15	−.00	.08
	SYI2	.11	−.02	.00	.15	.11	**.84**	.10	−.06	.07	.25	.02	.21	.22	−.01	.02
	SYI3	−.00	.01	−.04	.16	.08	**.84**	.13	−.03	.06	.18	.02	.19	.23	.01	.03
Task Autonomy (TA)	TA1	−.04	−.03	.17	.06	.03	.09	**.82**	.03	.03	.17	.15	.16	.14	−.06	.02
	TA2	.02	.00	.15	−.00	−.01	.00	**.87**	.11	−.07	.13	.07	.17	.05	−.06	.06
	TA3	.03	.12	−.10	.15	.01	.12	**.82**	.07	−.07	.20	.19	.11	−.02	−.07	−.01
	TA4	.08	.09	−.06	.13	.12	.29	**.71**	.06	.09	−.20	.16	.19	.19	.02	.11
Job Performance (JP)	JP1	−.06	.00	−.06	−.04	−.12	−.01	.07	**.95**	.02	.01	−.03	.02	−.02	−.03	−.03
	JP2	.05	−.02	−.03	−.03	−.07	−.02	.06	**.95**	.00	.01	.01	.05	−.05	−.07	−.03
	JP3	.02	.01	−.01	−.02	−.09	.00	.02	**.96**	.01	−.03	−.00	.02	.02	−.06	−.02
	JP4	.01	.00	−.07	−.03	−.08	−.05	.06	**.95**	−.05	.04	.01	.03	−.03	−.06	−.00
Perceived Ease of Use (PEOU)	PEOU1	.09	−.17	−.08	.13	−.03	.14	−.01	−.02	**.86**	.07	−.13	.10	.04	−.17	.02
	PEOU2	.12	−.14	−.14	.04	.01	.08	−.05	.02	**.88**	−.01	.03	.09	.01	−.19	.06
	PEOU3	.08	−.04	−.17	.13	−.02	−.02	−.01	−.03	**.87**	−.05	.06	.15	.02	−.19	.03

Perceived Usefulness (PU)	PU1	−.06	−.03	.04	.12	.08	.28	.18	.05	−.02	**.77**	.17	.20	.21	−.05	.04
	PU2	.05	−.00	.03	.05	.08	.30	.16	.04	−.02	**.71**	.24	.27	.26	−.08	.00
	PU3	.05	.01	.08	.08	.06	.27	.16	.02	.03	**.71**	.26	.25	.27	−.03	.08
Personal Innovativeness with IT (PIIT)	PIIT1	.06	.15	.11	.03	.04	.07	.10	−.06	−.02	.41	**.70**	.15	.24	−.12	.00
	PIIT 2	−.02	.15	.19	−.05	−.10	.05	.28	.05	−.06	.06	**.74**	.15	.17	.11	−.07
	PIIT 3	.10	.08	.05	.14	.01	.05	.25	-.04	.01	.21	**.80**	.21	.16	.04	−.00
Promotion Focus (PRO)	PRO1	.07	−.16	−.02	.12	.29	.27	.07	.02	.13	.12	.35	**.64**	.02	−.01	.05
	PRO2	.05	−.07	.08	.09	.19	.27	.18	.03	.04	.19	.11	**.80**	.11	−.01	.03
	PRO3	.18	−.14	−.03	.22	.19	.10	.13	.06	.08	.07	.22	**.73**	.12	−.05	−.03
	PRO4	.07	.01	−.01	.23	.13	.10	.22	.06	.14	.11	−.00	**.79**	.20	−.02	.02
	PRO5	.05	.09	−.01	.22	.08	.06	.13	.01	.10	.16	.05	**.81**	.09	.02	.03
Training (TR)	TR1	.05	.10	.02	.03	.05	.22	.09	−.02	.00	.12	.15	.11	**.83**	.02	−.01
	TR2	.07	.05	−.12	.09	.07	.18	.06	−.03	.11	.34	.08	.27	**.69**	−.07	.10
	TR3	.05	.03	.03	.13	.02	.20	.15	−.05	−.00	.16	.23	.14	**.82**	−.02	.00
Social Influence (SI)	SI1	−.05	.07	.08	−.10	.09	−.15	.04	−.08	−.16	.10	−.06	−.09	−.04	**.84**	.00
	SI2	−.02	.10	.01	.22	.09	−.07	−.16	−.04	−.32	.21	.18	−.08	−.10	**.65**	.00
	SI3	.01	.07	.11	.09	.16	.11	−.14	−.10	−.06	−.18	.05	.07	.04	**.81**	.11
	SI4	.04	.15	.11	−.10	.07	.08	.01	−.03	−.17	−.19	−.05	.02	.02	**.85**	.06
Purchase Intentions (PI)	PI1	.03	.03	.02	−.05	.03	.09	.02	−.04	.01	.05	−.04	−.02	.02	.08	**.93**
	PI2	.10	−.03	.05	.09	.00	−.01	.10	−.02	.05	−.02	−.01	.03	.02	.00	**.91**
	PI3	.03	.01	.04	.01	.09	.03	−.01	−.03	.04	.03	.02	.05	.00	.06	**.93**

Online Appendix L: Study 1 Control Variables

Following prior studies, several variables were included as control variables, given their potential influence on ES use and job performance.

Level 1 control variables (individual-level)

(1) *Gender, age, education level,* and *organizational tenure*: These demographic variables are commonly included in studies examining technology use and job performance, as they can influence both individuals' attitudes toward technology and their work behaviors (Ahuja and Thatcher 2005; Zhang and Venkatesh 2017). For example, research suggests that older employees may have different levels of comfort with technology than younger ones, which could affect how they use ES and perform tasks (Tams 2022).

(2) *Perceived ease of use* and *perceived usefulness*: These constructs are central to the Technology Acceptance Model (TAM) (Davis 1989). Perceived ease of use reflects how effortless it is for employees to use the system, while perceived usefulness indicates the degree to which a person believes that using a particular system would enhance their job performance. These variables are crucial because they directly affect users' adoption of technology and, subsequently, their job performance (Davis 1989; Venkatesh and Morris 2000). Thus, controlling for these factors ensures that the effects of the primary predictors on performance are not confounded by these perceptions of the ES.

(3) *Personal innovativeness with IT*: It refers to an individual's openness to trying new technology and their motivation to adopt innovative solutions (Agarwal and Prasad 1998). Innovativeness is a well-documented factor influencing technology adoption (Agarwal and Prasad 1998), as more innovative employees may be more willing to experiment with ES features, such as engaging in workaround use. Including this control helps account for individual differences in technology adoption.

(4) *Promotion focus* and *prevention focus*: These constructs reflect an individual's motivational orientation and have been shown to influence behavior in organizational contexts (Haws et al. 2010). Individuals with a promotion focus are more likely to engage in behavior that seeks growth and achievement, possibly leading to more innovative usage of the ES, while those with a prevention focus may prioritize avoiding errors and maintaining compliance with established procedures. These

motivations can affect both ES usage patterns and job performance.

(5) *System inadequacy*: This variable measures the extent to which the corporate ES fails to meet the needs of employees (e.g., limited features, poor usability). It is a crucial factor because employees may resort to workarounds when they perceive the ES as inadequate, which could directly affect their performance. Including this control allows us to assess whether the effects of group cultural tightness and system usage patterns are independent of system limitations.

(6) *Task autonomy*: It refers to the extent to which employees feel that they can determine the pace, effort, and methods to complete tasks in the workplace (Liang et al. 2015). Higher autonomy may encourage employees to engage more with the system in flexible ways or adopt workarounds to tailor the system to their needs. Therefore, controlling for task autonomy ensures that any effects on performance are not influenced by the degree of freedom employees have in managing their tasks.

(7) *Social influence*: It refers to an individual's perception of how much significant others believe they should utilize the system (Venkatesh et al. 2003). Social influence is a critical determinant of technology adoption and use, as individuals often align their behaviors with group expectations. By controlling for social influence, we ensure that the observed effects of system usage patterns on job performance are not driven by peer pressures to conform.

(8) *Training*: The training employees receive on the ES is another key factor influencing both their use of the system and their job performance (D'Arcy et al. 2009). Well-trained employees are more likely to use the system effectively, leading to better performance outcomes (Bala and Venkatesh 2015). Thus, controlling for training ensures that differences in job performance are not attributable to variations in system proficiency.

Level 2 control variables (group-level)

(1) *Group size*: Group size is commonly controlled for in multilevel analyses, as it can influence group dynamics and resource allocation (Kang et al. 2012; Maruping and Magni 2015). Larger groups may have more resources or support for ES use, potentially affecting the individual-level outcomes (e.g., job performance) (Kang et al. 2012). In addition, group size may influence the degree to which group norms and conformity pressures are experienced, making it an important factor to control for.

(2) *Group age*: Group age refers to the collective experience or tenure of the group (Mahmood

et al. 2013). Older groups may have a deeper understanding of the system and its limitations, which could affect how they use the system and their overall performance (Mahmood et al. 2013). Including group age as a control variable helps account for differences in system familiarity across groups, ensuring that the effects of group cultural tightness are not confounded by variations in group experience with the ES.

Online Appendix M: Study 2 Cultural Tightness Manipulation

In the tightness group condition, participants were told that: "For a group to be successful, it should be built on a foundation of rule and order. Therefore, your group has strong social norms, and deviant behaviors are punished." In contrast, participants in the looseness group condition were told that: "For a group to be successful, it should be built on a foundation of freedom and openness. Therefore, although your group has social norms, deviant behaviors are tolerated." They were further required to select the rules from the following corresponding list that they wished their group to adopt.

Rules to choose for participants in the *tightness* condition:

- Groups should not encourage socialization that are not considered as permissible behavior.
- Groups should exercise strong control over the group operations as a whole.
- Group communication and media should adhere to the group's values and norms with appropriate content and controls.
- Groups should establish a robust system for high monitoring, punishments (e.g., dismissal), and deterrence and control of deviant behaviors.
- Groups should reinforce adherence to moral conventions and rules that facilitate social order and coordination.

Rules to choose for participants in the *looseness* condition:

- Groups should encourage broad socialization that affords a wide range of permissible behavior.
- Groups should adopt a democratic governing system that respects and allows for dissenting opinions.
- Group communication and media should showcase unrestricted content with fewer controls.
- Groups should employ low monitoring, less severe punishments (e.g., not dismissal), and a modest deterrence and control of deviant behaviors.
- Groups should not enforce adherence to moral conventions and rules that facilitate social order and coordination.

To further enhance the manipulation, participants were asked to write down some suggestions that could reinforce either the foundation of rule and order (tightness group condition) or the foundation of freedom and openness (looseness group condition).

Online Appendix N: Study 2 Descriptive Statistics

Table N1. Descriptive Statistics

Construct	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1. Conforming Use	5.44	1.25	**.93**										
2. Internal Workaround Use	4.83	1.58	.28**	**.95**									
3. External Workaround Use	5.11	1.47	.27**	.36**	**.95**								
4. Group cultural tightness [a]	0.50	0.50	.19**	−.15*	−.16*	--							
5. Social influence	5.39	1.20	.62**	.32**	.40**	.10	**.90**						
6. Gender	--	--	.08	.10	−.01	−.04	.14*	--					
7. Age	--	--	.04	.03	−.10	.01	.06	−.03	--				
8. Educational level	--	--	.12	.13*	.11	.05	.26**	−.09	.20**	--			
9. Income	--	--	.08	.04	.08	−.03	.20**	.11	.03	.16*	--		
10. Work experience	--	--	.10	.03	.10	.04	.22**	.01	.37**	.29**	.16*	--	
11. System use experience	--	--	.20**	.03	.10	−.07	.29**	−.17**	.32**	.21**	.17**	.58**	--
Composite Reliability			.92	.94	.94	--	.89	--	--	--	--	--	--
Cronbach's Alpha			.86	.91	.90	--	.76	--	--	--	--	--	--
AVE (Average Variance Extracted)			.79	.85	.84	--	.81	--	--	--	--	--	--

Notes: (1) [a] Group cultural tightness: 0 = loose group culture; 1 = tight group culture. (2) The diagonal elements are the square root of AVEs. (3) The off-diagonal elements are the correlations among factors. (4) * $p < .05$, ** $p < .01$.

Online Appendix O: Additional Organization Survey Study

We collected additional data from a foreign (i.e., USA) multinational corporation operating in China from February to June 2022. We chose a USA multinational corporation in China because it can provide a contrast with our Study 1 in terms of organizational management culture, as it has unique management styles that differ significantly from the Chinese domestic company. Indeed, our interviews with the corporation's managers indicated a different management culture from the Chinese state-owned electricity service company of Study 1.

This additional study strengthens our conceptual and empirical contributions in three ways. First, the additional study aims to support our argument that cultural tightness operates meaningfully as a group-level construct. Second, the study also seeks to explore whether or not the model tested in this study generalizes across different organizational management culture contexts (e.g., at least in terms of a Chinese domestic company and a foreign multinational corporation in China). Third, in Study 1, we only focus on the FI module. The additional study aims to explore whether the findings of our model can be generalized to other different modules of the ERP, in addition to the FI module.

1. Data and Sample

In the additional study, we collected three-wave, multisource data in a foreign manufacturing multinational corporation operating in southeast China. The company was currently implementing a new SAP ERP to support daily work among employees. The SAP ERP had eight modules, including FI (financial & accounting), MM (materials management), PP (production planning), HR (human resource), SD (sales & distribution), PS (project management), QM (quality management), and CO (controlling). Based on the commonality of the ERP functions, employees were organized into groups to accomplish work tasks in the company. In each group, employees use similar functions and features in doing their tasks with the ERP system. With the help of the company, we invited a total of 87 leaders who each only led one group and had at least three subordinates to participate in the survey (for a total of 312 individuals). Similar to the Study 1, although there was a lot of managerial support and training that encouraged the employees to use the new ERP system, the use of the new system was voluntary. Our observation indicated that employees also used some off-the-shelf software packages to help accomplish their work tasks, and some employees even used some traditional methods, such as faxes,

instead of the system, to share information across different groups.

To ensure confidentiality, identification codes were used to match leaders' and their subordinates' survey responses for the three waves of the survey. The interval between each wave of the survey was two months. At *T1* (six months after the system implementation), participants were asked to report their demographic information, perception of their group's cultural tightness, as well as control variables. We received 261 usable responses from 72 groups. At *T2*, we only sent questionnaires to participants who completed surveys at T1 and they were asked to rate conforming use, internal workaround use, and external workaround use. We received 227 usable responses from 61 groups. At *T3*, we asked leaders to rate the job performance of the members who participated in the survey. After matching the three waves of data from both leaders and subordinates, we finally obtained a response of 59 leaders (and thus groups) and 220 employees, resulting in response rates of 70.5 percent at the individual level and 67.8 percent at the group level. Table O1 provides the demographic information.

Table O1. Demographic Information

Demographics	**Categorization**	**Percentage**
Gender	Male	37.3
	Female	62.7
Age	18-25	13.2
	26-35	45.5
	36-45	30.9
	46-55	10.0
	56 or above	0.4
Education	Below College	3.6
	Junior College	23.2
	Bachelor's degree	66.8
	Master's degree or above	6.4
Tenure (years)	1 or below	14.5
	1-2	5.0
	2-5	12.7
	5-10	21.4
	10 or above	46.4
Note: Sample $N = 220$		

2. Measures

The measurement items used in the additional study were the same as those of the Study 1, except for reward expectancy and punishment expectancy. Although the ERP use was not mandated in the Study 1 or this additional study, we controlled for reward and punishment expectancy since employees may still expect rewards for conforming use or punishments for workaround use. The items to measure

reward expectancy and punishment expectancy were from Liang et al. (2013). For group cultural tightness, the ICC(1) estimate was .63, the ICC(2) estimate was .87, and the average r_{WG} was .92; thus again it was appropriate to aggregate cultural tightness as a group-level construct.

3. Preliminary Analysis

The measurement model demonstrated good reliability (Cronbach's alpha ranged from .81 to .96 and composite reliability ranged from .84 to .95, Table O2), convergent validity (the AVEs were above .50, Table O2, and the loadings were above .60, Table O3), and discriminant validity (the square roots of AVEs were greater than inter-construct correlations, Table O3, and all items loaded well on their respective constructs but poorly on any other constructs, Table O4).

Similar to Study 1, to reduce common method bias, we also conducted a longitudinal design, randomly assigned the survey items within blocks, and measured purchase intentions as a marker variable to assess common method bias. As shown in the Table O3, only one insignificant correlation became significant after correction, indicating that common method bias was not an issue.

Table O2. Results of Confirmatory Factor Analysis

Construct	Composite Reliability	Cronbach's Alpha	AVE (Average Variance Extracted)	Mean	S.D.
Conforming Use	.93	.94	.81	5.68	1.24
Internal Workaround Use	.87	.91	.69	3.25	1.77
External Workaround Use	.92	.96	.79	3.95	1.87
Group Cultural Tightness	.95	.96	.78	4.87	1.89
Prevention Focus	.93	.93	.73	3.29	1.49
System Inadequacy	.86	.92	.67	4.33	1.44
Task Autonomy	.94	.93	.80	4.85	1.40
Job Performance	.95	.96	.82	5.41	1.14
Perceived Ease of Use	.90	.92	.76	4.78	1.60
Perceived Usefulness	.88	.91	.72	5.38	1.00
Personal Innovativeness with IT	.85	.90	.65	4.82	1.29
Promotion Focus	.84	.81	.51	5.60	0.76
Training	.87	.87	.69	5.33	1.01
Reward Expectancy	.93	.94	.77	3.89	1.39
Punishment Expectancy	.95	.94	.84	3.98	1.56
Social Influence	.84	.83	.57	4.31	1.26
Purchase Intentions	.93	.92	.82	4.17	1.45

Table O3. Correlations and Discriminant Validity of Constructs

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Individual-Level																						
1. Gender	--	. 142*	−.135*	.038	−.178**	−.063	.120	−.100	.026	.309**	.005	. 132*	−.166*	−.001	.041	−.099	.189**	.128	−.032	−.131	.126	−.116
2. Age	. 144*	--	−.418**	.714**	−.259**	.005	.054	−.149*	.023	.346**	−.097	.001	.002	.042	.027	−.169*	.143*	.077	−.073	−.260**	−.148*	.159*
3. Edu	−.133*	−.415**	--	−.289**	.160*	.061	. 013	. 263**	.076	−.079	.031	−.087	.086	.028	.077	.218**	−.098	.019	.001	.139*	.023	.004
4. Tenure	.040	.715**	−.286**	--	−.109	.004	.031	−.081	.016	.319**	−.094	−.083	.067	.038	.009	−.152*	.111	.021	−.025	−.199**	−.178**	.213**
5. Perceived ease of use	−.176**	−.256**	.162*	−.107	**.872**	.066	−.016	.131*	.058	−.439**	−.076	−.083	.109	−.300**	−.093	.051	−.341**	−.234**	.083	.181**	.180**	.078
6. Perceived usefulness	−.061	.007	.063	.006	.068	**.849**	.262**	.308**	.465**	.038	.201**	−.046	−.167*	.314**	.034	.100	.072	−.138*	.323**	.244**	.033	.039
7. Personal innovativeness with IT	.122	.056	.015	.033	−.014	.263**	**.806**	.174**	.286**	.168**	.351**	−.046	−.187**	.388**	.222**	−.135*	.379**	.223**	.163*	.024	.162*	−.101
8. Promotion focus	−.098	−.147*	.264**	−.079	.133*	.309**	.176**	**.714**	.289**	.080	.118	−.094	−.073	.097	−.050	.321**	−.012	−.035	.239**	.251**	.107	.082
9. Training	.028	.025	.078	.018	.060	.466**	.287**	.290**	**.831**	.037	.221**	.021	−.074	.229**	.129	.158*	.039	−.107	.248**	.117	.012	.007
10. Social influence	.310**	.347**	−.077	.320**	−.436**	.040	.170*	.082	.039	**.755**	.192**	.134*	−.127	.186**	.045	.099	.373**	.227**	.017	−.105	.071	.103
11. Reward expectancy	.007	−.095	.033	−.092	−.074	.203**	.352**	.120	.223**	.194**	**.877**	−.030	−.107	.445**	.090	−.086	.241**	.104	.180**	.142*	.063	−.025
12. Punishment expectancy	. 134*	.003	−.085	−.081	−.081	−.044	−.044	−.092	.023	.136*	−.028	**.917**	−.152*	−.053	.098	−.010	−.006	.063	.081	−.020	.101	−.037
13. Prevention focus	−.164*	.004	.088	.069	.111	−.165*	−.185**	−.071	−.072	−.125	−.105	−.150*	**.854**	−.094	−.031	−.078	−.073	−.017	−.164*	−.392**	−.257**	−.089
14. System inadequacy	.001	.044	.030	.040	−.297**	.315**	.389**	.099	.231**	.188**	.446**	−.051	−.092	**.819**	.134*	−.182**	.376**	.084	.140*	−.062	−.129*	−.115
15. Task autonomy	.043	.029	.079	.011	−.091	.036	.224**	−.048	.131	.047	.092	.100	−.029	.136*	**.894**	−.035	.231**	.190**	.152*	−.117	−.063	−.020
16. Conforming use	−.097	−.167*	.220**	−.150*	.053	.102	−.133*	.322**	.160*	.101	−.084	−.008	−.076	−.180**	−.033	**.900**	−.163*	.085	.103	.239**	.116	.261**
17. Internal workaround use	.191**	.145*	−.096	.113	−.338**	.074	.380**	−.010	.041	.374**	.243**	−.004	−.071	.377**	.233**	−.161*	**.831**	.349**	.168**	−.200**	−.062	.046
18. External workaround use	.130	.079	.021	.023	−.232**	−.136*	.225**	−.033	−.105	.229**	.106	.065	−.015	.086	.192**	.087	.350**	**.889**	−.185**	−.214**	−.030	.070
19. Job performance	−.030	−.071	.003	−.023	.085	.324**	.165*	.241**	.250**	.019	.182**	.083	−.162*	.142*	.154*	.105	.170*	−.183**	**.906**	.200**	.018	.024
Group-Level																						
20. Group cultural tightness	−.129	−.257**	.141*	−.197**	.183**	.246**	.026	.252**	.119	−.103	.144*	−.018	−.389**	−.060	−.115	.241**	−.198**	−.212**	.202**	**.883**	.295**	.135*
21. Group size	.128	−.146*	.025	−.176**	.182**	.035	.164*	.109	.014	.073	.065	.103	−.254**	−.127	−.061	.118	−.060	−.028	.020	.296**	--	.073
22. Group age	−.114	.161*	.006	.215**	.080	.041	−.099	.084	.009	.105	−.023	−.035	−.087	−.113	−.018	.262**	.048	.072	.026	.137*	.075	--
23. Marker variable	−.042	.106	−.106	.072	−.048	.046	.225**	−.063	−.046	.023	.129	−.017	.002	.267**	−.004	−.084	.109	.098	−.059	−.093	.008	−.117

Notes: (1) Unadjusted correlations appear below the diagonal. (2) Correlations adjusted for the common method appear above the diagonal. (3) The diagonal elements are the square root of the AVE. (4) $^{*}p < .05$, $^{**}p < .01$

Table O4: Item Loadings and Cross Loadings

Construct	Items	CU	IWU	EWU	CT	PRE	SYI	TA	JP	PEOU	PU	PIIT	PRO	TR	RE	PE	SI	PI
Conforming Use (CU)	CU1	**.87**	−.06	.08	.06	−.05	−.10	−.03	.02	.01	.06	−.08	.22	.05	−.05	−.02	.07	−.03
	CU2	**.91**	−.09	.07	.16	−.03	−.05	−.01	.04	.00	.02	−.05	.12	.08	−.07	−.01	.07	−.02
	CU3	**.92**	−.05	.06	.16	−.01	−.06	.01	.08	.04	.01	−.07	.12	.08	−.04	.00	.07	−.02
Internal Workaround Use (IWU)	IWU1	−.06	**.81**	.13	−.13	−.06	.12	.09	.08	−.18	−.05	.17	.02	−.04	.12	−.02	.11	.06
	IWU2	−.08	**.84**	.17	−.12	−.02	.13	.13	.12	−.17	.04	.14	−.05	.02	.12	.00	.12	.00
	IWU3	−.11	**.84**	.21	−.06	−.02	.14	.10	.12	−.06	.08	.07	−.01	.04	.06	−.03	.15	.05
External Workaround Use (EWU)	EWU1	.08	.12	**.90**	−.08	−.03	.00	.09	−.13	−.07	−.06	.11	−.01	−.06	.05	.06	.11	.05
	EWU2	.07	.15	**.91**	−.10	−.02	.01	.08	−.11	−.06	−.07	.13	.03	−.05	.06	.07	.07	.03
	EWU3	.08	.20	**.86**	−.17	.00	.02	.12	−.10	−.14	−.04	.07	−.01	−.07	.08	−.01	.06	.01
Group Cultural Tightness (CT)	CT1	.05	−.08	−.07	**.90**	−.22	−.03	−.03	.09	.08	.12	.00	.09	.01	.04	.00	−.01	−.01
	CT2	.15	−.09	−.09	**.90**	−.18	−.06	−.02	.07	.02	.08	.01	.11	−.01	.11	−.06	−.01	−.02
	CT3	.07	−.05	−.01	**.92**	−.18	−.04	−.03	.11	.05	.10	−.01	.06	.02	.04	.03	−.07	−.04
	CT4	.06	−.05	−.07	**.86**	−.17	−.01	−.08	.03	.09	.03	.04	.08	.07	.12	−.02	.04	.01
	CT5	.10	−.05	−.13	**.84**	−.18	.01	−.10	.07	.07	.03	−.01	.09	.02	.03	−.02	−.11	−.11
Prevention Focus (PRE)	PRE1	−.01	−.09	−.09	−.05	**.83**	−.02	.00	−.08	.11	−.13	.01	.01	.00	−.11	−.01	−.09	−.03
	PRE2	−.01	.02	.01	−.20	**.86**	.01	−.02	−.07	.06	−.12	−.01	.02	−.04	−.04	−.10	.00	.01
	PRE3	.01	.04	−.06	−.21	**.86**	−.05	−.03	−.07	.05	−.02	−.02	.04	−.01	.00	−.08	−.05	.06
	PRE4	−.10	−.07	.04	−.23	**.87**	−.02	.04	−.05	.02	.03	−.13	−.04	−.02	.01	−.10	.04	−.03
	PRE5	.01	−.02	.06	−.21	**.86**	−.04	−.03	.01	−.02	.04	−.13	−.08	.00	.00	−.03	−.02	−.01
Sytem Inadequency (SYI)	SYI1	−.17	.14	.04	−.03	−.11	**.79**	.02	.08	−.11	.12	.12	.09	.12	.26	−.04	.03	.15
	SYI2	−.04	.14	−.03	.00	−.03	**.86**	.08	.07	−.16	.13	.13	.02	.08	.20	−.02	.06	.13
	SYI3	−.06	.14	.02	−.12	.00	**.81**	.06	.01	−.17	.15	.14	.02	.05	.26	−.04	.04	.10
Task Autonomy (TA)	TA1	.01	.03	.10	−.04	−.03	.00	**.90**	.04	−.07	.05	.08	−.02	.06	.06	.04	.06	.04
	TA2	.01	.09	.12	−.08	−.01	.04	**.89**	.10	−.01	−.07	.12	−.03	−.01	.02	.10	−.03	.03
	TA3	.01	.14	.08	−.09	−.02	.03	**.90**	.04	−.03	−.02	.01	−.03	.11	.01	.06	−.03	−.01
	TA4	−.06	.01	−.03	−.02	.01	.05	**.89**	.10	.01	.07	.05	−.03	.02	.03	−.03	.00	−.10
Job Performance (JP)	JP1	.01	.11	−.04	.03	−.10	.05	.06	**.90**	.02	.16	.03	.07	.09	.09	.07	.02	−.03
	JP2	.11	.03	−.14	.10	−.04	.07	.09	**.88**	.08	.09	.12	.13	.04	.07	.03	−.04	−.03
	JP3	−.01	.07	−.08	.11	−.07	.02	.07	**.90**	.03	.13	.00	.10	.10	.07	.03	−.04	.00
	JP4	.05	.07	−.08	.10	−.05	.01	.08	**.94**	.01	.04	.03	.04	.05	.06	.05	.05	−.06
Perceived Ease of Use (PEOU)	PEOU1	−.02	−.12	−.06	.11	.13	−.13	−.02	.07	**.83**	.08	.06	.10	.01	−.03	−.02	−.24	−.04
	PEOU2	.06	−.14	−.07	.09	.07	−.13	−.03	.04	**.88**	−.03	.05	.07	−.01	−.06	−.03	−.17	.00
	PEOU3	.00	−.11	−.13	.07	.03	−.11	−.05	.03	**.90**	.03	−.02	.03	.06	.02	−.06	−.14	.00
Perceived Usefulness (PU)	PU1	.03	.05	.01	.09	−.05	.09	.02	.14	.05	**.84**	.06	.14	.23	.05	.00	.01	.00
	PU2	.02	−.01	−.07	.13	−.09	.12	.01	.19	.01	**.85**	.11	.11	.15	.09	−.03	.02	.00
	PU3	.04	.03	−.11	.13	−.08	.15	.01	.11	.02	**.85**	.09	.13	.20	.08	−.05	.00	.07
Personal Innovativeness with IT (PIIT)	PIIT1	−.11	.12	.18	.04	−.13	.19	.17	.13	.12	.06	**.78**	.05	.16	.13	−.07	.00	.15
	PIIT 2	−.09	.15	.13	−.04	−.06	.14	.05	.05	−.04	.08	**.79**	.03	.21	.24	−.03	.04	.14

	PIIT 3	−.07	.13	.09	.03	−.11	.07	.12	.03	.03	.13	**.85**	.11	.02	.10	−.01	.09	.07
Promotion Focus (PRO)	PRO1	.14	−.12	.17	.11	−.03	−.08	−.11	.07	.16	.13	−.15	**.68**	.03	−.01	−.06	.18	−.03
	PRO2	.08	.03	−.06	.13	−.08	−.04	−.08	.12	−.03	.10	.18	**.74**	.11	.20	−.02	.01	−.07
	PRO3	.12	−.06	−.01	.03	−.04	.02	−.03	.00	.18	.09	.01	**.74**	.11	−.04	−.08	.12	.00
	PRO4	.06	−.01	.08	.12	.14	.16	.05	.11	−.05	.08	−.05	**.73**	.10	−.05	.00	−.03	.05
	PRO5	.17	.15	−.23	.08	−.06	.04	.04	.11	−.04	.02	.33	**.68**	.02	.10	−.03	−.09	−.09
Training (TR)	TR1	.03	−.02	−.07	−.08	−.05	.15	.08	.09	−.03	.15	.10	.09	**.88**	.11	.03	.00	.03
	TR2	.11	−.03	−.06	.08	.00	.06	.12	.10	.07	.18	.12	.12	**.84**	.15	−.04	−.04	.00
	TR3	.08	.06	−.05	.11	−.01	.00	−.01	.10	.02	.24	.09	.14	**.76**	.03	.06	.06	−.13
Reward Expectancy (RE)	RE1	−.04	.05	.06	.13	−.02	.15	.04	.06	−.07	−.02	.05	−.01	−.06	**.84**	−.03	.11	.09
	RE2	−.05	.07	.07	.12	−.06	.10	.03	.08	.01	.02	.06	.05	.06	**.92**	−.05	.03	.04
	RE3	−.05	.06	−.01	.07	−.06	.13	.04	.07	.00	.10	.14	.06	.13	**.88**	.02	.05	.05
	RE4	−.03	.09	.05	−.01	.01	.20	.01	.07	.00	.10	.14	.02	.16	**.86**	.00	.04	.00
Punishment Expectancy (PE)	PE1	−.03	−.06	.01	−.03	−.07	−.05	.06	.12	.01	−.01	−.04	−.04	.04	−.10	**.89**	−.01	−.03
	PE2	.02	.01	.03	−.06	−.14	−.04	.00	.03	−.04	.04	−.02	−.03	.03	.02	**.93**	.05	.01
	PE3	.00	.03	.05	.04	−.03	−.01	.09	.03	.01	−.02	−.03	−.08	.01	.06	**.93**	.05	.00
	PE4	−.01	−.01	.02	.01	−.05	.02	.01	−.02	−.08	−.07	.01	−.01	−.02	−.04	**.91**	.08	.01
Social Influence (SI)	SI1	.09	.31	−.04	−.17	−.19	.00	−.01	.00	−.18	−.01	.10	−.06	−.05	.16	.13	**.70**	−.08
	SI2	.02	−.05	.18	.10	−.03	.02	.05	.04	−.16	−.09	−.06	.12	.08	−.02	.06	**.80**	.06
	SI3	.10	.06	.12	−.09	.10	.04	−.04	−.02	−.11	.09	−.01	.11	.01	.06	.00	**.84**	.03
	SI4	.05	.32	−.06	−.07	−.12	.09	.00	−.06	−.27	.06	.27	−.04	−.06	.16	.10	**.66**	−.06
Purchase Intentions (PI)	PI1	−.11	.04	−.04	−.05	−.12	.18	−.03	−.02	−.03	.03	.11	.02	−.06	.04	.02	.02	**.87**
	PI2	.03	.03	.09	−.06	.04	.05	−.04	−.02	.03	.00	.04	−.05	.00	.07	.00	−.01	**.93**
	PI3	.00	.02	.03	−.03	.07	.06	.02	−.06	−.03	.03	.10	−.05	−.02	.07	−.03	.00	**.91**

4. Hierarchical Linear Modeling (HLM)

Similar to Study 1, we first tested whether there was substantial between-group variation in individual conforming use, internal workaround use, and external workaround use by setting a null model for each construct respectively. The between-group variance was 19.8% for conforming use (χ^2 (58) = 112.03, $p < .001$), 38.6% for internal workaround use (χ^2 (58) = 191.99, $p < .001$), and 34.9% for external workaround use (χ^2 (58) = 172.45, $p < .001$). We thus proceeded to test the subsequent models.

As shown in the Table O5, all the hypotheses received generally consistent empirical support in this additional study. Similar to Study 1, we entered level 1 control variables (i.e., gender, age, education level, tenure, perceived usefulness, perceived ease of use, personal innovativeness with IT, promotion focus, prevention focus, system inadequacy, task autonomy, training, social influence, reward expectancy, and punishment expectancy) and level 2 control variables (i.e., group size and group age) in Model 1. For Model 2, we entered conforming use, internal workaround use, and external workaround use as influences on job performance.

Group cultural tightness had a positively significant impact on conforming use (Model 4: $\beta = .15$, $p < .05$), and a negatively significant impact on internal workaround use (Model 7: $\beta = -.33$, $p < .01$) and external workaround use (Model 10: $\beta = -.38$, $p < .001$). Hence, Hypotheses 1, 2, and 3 were again supported. Moreover, conforming use positively (Model 2: $\beta = .17$, $p < .05$), internal workaround use positively (Model 2: $\beta = .18$, $p < .01$), and external workaround use negatively, influenced job performance (Model 2: $\beta = -.16$, $p < .01$), thus further confirming Hypotheses 4, 5, and 6. These results supported the generalizability of our findings across the two different organizational management culture contexts (e.g., a Chinese domestic company and a foreign multinational corporation in China). That is, the overall model and specifically the role of group cultural tightness applies in spite of a difference in the management culture contexts of the two different companies (though still operating in China).

Table O5. HLM Results

	Job Performance		Conforming Use			Internal Workaround Use			External Workaround Use		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept	5.40***	5.40***	5.68***	5.67***	5.67***	3.23***	3.24***	3.24***	3.97***	3.98***	3.98***
Level 1 control variables											
Gender	−.06	.02	−.31*	−.31*	−.36*	.01	.01	.01	.14	.14	.12
Age	−.39*	−.37	−.15	−.15	−.14	−.03	−.03	−.06	−.13	−.13	−.22
Education level	−.59***	−.54***	.04	.04	.02	−.29	−.29	−.37*	−.01	−.01	−.07
Tenure	.07	.09	−.16	−.16	−.16*	−.03	−.03	−.03	−.08	−.08	−.08
Perceived ease of use	.04	.03	.03	.03	.02	−.23	−.23	−.25*	−.28**	−.28**	−.26**
Perceived usefulness	.24*	.19	.03	.03	.03	.24*	.24*	.29*	−.00	−.00	.04
Personal innovativeness with IT	−.01	.02	−.17	−.17	−.19*	.29**	.29**	.28**	.35**	.35**	.38**
Promotion focus	.18	.14	.22*	.22*	.25*	.05	.05	.04	.01	.01	−.08
Training	.15	.08	.16	.16	.15	−.10	−.10	−.12	−.36***	−.36***	−.43***
Social influence	.11	.04	.28**	.28**	.28*	.10	.10	.07	−.01	−.01	−.03
Reward expectancy	.10	.15*	−.06	−.06	−.05	−.04	−.04	−.07	.19	.19	.17
Punishment expectancy	.12*	.15**	−.01	−.01	−.02	−.11	−.11	−.11	.03	.03	.01
Prevention focus	−.05	−.07	−.08	−.08	−.08	−.04	−.04	−.11	−.24*	−.24*	−.40***
System inadequacy	−.04	−.03	−.15	−.15	−.18	.11	.11	.04	.06	.06	.09
Task autonomy	.07	.06	.03	.03	.06	.18	.18	.18*	.14	.14	.10
Level 2 control variables											
Group size	−.15	−.15	−.01	−.11	−.11	−.10	.14	.14	−.04	.24	.24
Group age	−.03	−.03	.63**	.58**	.58**	−.01	.09	.10	.09	.21	.21
Level 2 predictors											
Group cultural tightness	.15**	.15**		**.15***	**.15***		**−.33****	**−.33****		**−.38*****	**−.38*****
ES use behaviors											
Conforming use		**.17***									
Internal workaround use		**.18****									
External workaround use		**−.16****									
Interactions (post-hoc exploratory analysis)											
Group cultural tightness*Prevention focus					−.00			**−.11***			**−.22*****
Group cultural tightness*System inadequacy					.03			**.15***			−.00
Group cultural tightness*Task autonomy					**−.07***			.02			**.08***
Model Fit											
Chi-square	78.63*	84.74**	89.19**	80.48*	80.25*	220.30***	188.73***	193.28***	202.64***	167.22***	176.94***
Deviance	682.21	681.07	707.85	703.69	714.74	842.13	834.45	840.49	869.64	859.50	860.42

Notes: (1) Individual-level [Sample $N = 220$]. (2) Group-level [Sample $N = 59$]. (3) * $p < .05$, ** $p < .01$, *** $p < .001$

Online Appendix P: Interactions of the Three IS Contexts with Group Cultural Tightness

Prior IS literature has highlighted the importance of a context theorizing approach by considering potential situational boundary conditions when exploring ES use phenomena (Ho et al. 2020; Venkatesh et al. 2010; Zhang 2017) and has recognized three critical IS contexts: individual, technology, and task (Burton-Jones and Gallivan 2007; Liang et al. 2015). Although many aspects constitute each of the three critical IS contexts, in this post-hoc exploratory analysis we focus on one specific aspect from each within which individuals' ES use is embedded: prevention focus (individual context), system inadequacy (technology context), and task autonomy (task context). As shown in Table 3 of Study 1, the interaction effect of group cultural tightness and task autonomy on conforming use was significant (Model 7: $\beta = -.29$, $p < .05$). Prevention focus interacted significantly with group cultural tightness to influence internal workaround use (Model 10: $\beta = -.42$, $p < .01$). There was also a significant interaction effect between system inadequacy and group cultural tightness on internal workaround use (Model 10: $\beta = .32$, $p < .01$). Moreover, prevention focus interacted significantly with group cultural tightness to influence external workaround use (Model 13: $\beta = -.30$, $p < .05$).

We also tested the cross-level interaction between group cultural tightness and prevention focus, system inadequacy, and task autonomy for conforming use, internal workaround use, and external workaround use in an additional study (described in Online Appendix O) using data in a foreign manufacturing multinational corporation operating in China. Referring to Table O5, we also found that the interaction effect of group cultural tightness and task autonomy on conforming use was significant (Model 5: $\beta = -.07$, $p < .05$). Similarly, prevention focus interacted significantly with group cultural tightness to influence internal workaround use (Model 8: $\beta = -.11$, $p < .05$). There was also a significant interaction effect between system inadequacy and group cultural tightness on internal workaround use (Model 8: $\beta = .15$, $p < .05$). Moreover, consistent with Study 1, prevention focus interacted significantly with group cultural tightness to influence external workaround use (Model 11: $\beta = -.22$, $p < .001$). However, different from Study 1, there was a significant interaction effect between task autonomy and group cultural tightness on external workaround use (Model 11: $\beta = .08$, $p < .05$). These results largely supported the generalizability of our findings across the two different management contexts (e.g., a Chinese domestic company and a foreign multinational corporation). Overall, the pattern of interaction

results involving the three IS contexts was different for each type of ES use, again underscoring the importance of such system use distinctions.

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