COLLECTIVE REGULATORY FOCUS AND CONTROL MECHANISMS: THE IMPACT OF REGULATORY FIT ON ISD PROJECT PERFORMANCE

Research in Progress

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Abstract

The subject of control is a major stream in information systems development (ISD) studies. It is a process in which controllers specify performance goals, evaluate the current performance of those over whom they have control, and initiate improvements when they observe a gap between the predefined goals and the actual performance level. Researchers have classified control into different types and have identified the critical determinants for selecting appropriate control mechanisms. We base this study on regulatory focus theory and argue that managers should also consider a team's goal orientation in order to maximize the effect of control. This study attempts to understand 1) whether the goal orientation of the ISD project team (prevention-focused vs. promotion-focused) is associated with its performance index, and 2) whether those relationships are stronger when the appropriate control mechanism (specification explicitness, evaluation flexibility, and reward) is exercised.

To answer these research questions, we propose a research model integrating organization control and regulatory focus theory to explain ISD project performance (product performance, process performance, and teamwork satisfaction). Specific hypotheses are developed and will be tested using a field survey from ISD project managers and team members.

Keywords: Control theory, Regulatory focus, Collective regulatory focus, Regulatory fit, Information systems development (ISD) project.

1   Introduction

The subject of control is one of the major streams in information systems development (ISD) studies. A control perspective has been applied to many contexts, including sales (Eisenhardt, 1985), research and development (Cardinal, 2001), management of startup firms (Cardinal, Sitkin, and Long, 2004), and outsourced IS development (Choudhury and Sabherwal, 2003; Kirsch, 1996, 2004). Because of its importance, control has long been a central concept in the management literature (Green and Welsh, 1988). Specifically, control is a process in which controllers specify performance goals, evaluate the current performance of those over whom they have control, and initiate improvements when they observe a gap between the predefined goals and the actual performance level. During the development process, one or more control mechanisms may be exercised to ensure that the ISD project team can achieve the predefined goals within the expected budget and schedule (Kirsch, 1996, 1997). Previous control-related studies have shown that, under certain circumstances, effective control can benefit both the development process and the eventual outcome (Choudhury and Sabherwal, 2003; Kirsch, 1996, 1997). In short, with effective control, project teams can be better directed toward the expected goal.

However, even though the major purpose of control is to achieve the project goal, past studies have largely ignored the role of the team's goal orientation in the exercising of control. According to

regulatory focus theory (RFT), goals can take the form of pursuing desirable outcomes or avoiding undesirable outcomes (Higgins, 1997). People who are pursuing success are most likely to be inspired by positive role models who represent a "desired self." In contrast, those who are intent on avoiding failure are motivated by negative role models who represent a "feared self." Higgins and his colleagues argued that individuals can pursue two different kinds of regulatory goals: promotion and prevention. Promotion-focused actors eagerly seek to attain ideal goals, whereas prevention-focused actors vigilantly seek to avoid failing to achieve "ought-to-be" goals.

Performance is also determined by the fit between the actor's goal orientation and the means available to achieve the goals, because such a context (fit) allows goal-pursuing behaviors to last longer and increases the probability of achieving the goals (Higgins, 2000). Three elements (or stages) of control represent the extent to which those being controlled are aware of the control exercised over them: specification, evaluation, and reward (Boss, Kirsch, Angermeier, Shingler, and Wayne Boss, 2009). Managers attempting to maximize the effects of control find that the increased complexity caused by the highly uncertain nature of ISD tasks and the emergence of new development methodologies (e.g., the agile approach) makes selecting the appropriate controlling action a constant challenge. Whether or not to take action is a recurring managerial dilemma. In terms of goal specificity, an overly-specific goal might inhibit creativity, and an unclear goal might mislead or frustrate the project team. Likewise, overly-frequent and inflexible evaluations might overwhelm the project team, whereas infrequent evaluations might cause huge gaps or delays in the work. Though incentives can motivate people to move forward, punishment may have a similar or even better effect under certain circumstances. This current study investigates the above issues by viewing possible control actions that may be taken by managers as "means" indicated by regulatory fit theory, and exploring *whether better outcomes can be achieved when the goal orientation of project team fits with the characteristics of the three control elements (specification, evaluation and reward).*

This study is expected to contribute to both control theory and practitioners. For control theory, we attempt to extend control studies in the ISD field by showing the need to address differences in the goal orientation of ISD teams. Basing our arguments on regulatory fit theory, we further attempt to demonstrate that better performance can be expected when the characteristics of the control processes fit the team's goal orientation. For practitioners, the results of this study suggest that managers should pay attention to their team's goal orientation before determining a control action plan.

2 Literature Review

2.1 Control theory

Given that organizations and employees typically have different self-interests and incongruent goals, organizations must control employee behavior to reduce opportunism and ensure cooperation (Eisenhardt, 1989). Control is defined as all attempts to motivate individuals to achieve desired goals (Kirsch, Sambamurthy, Ko, and Purvis, 2002). Because of its importance, control has long been a central concept in the management literature (Green and Welsh, 1988; Ouchi, 1979) and has drawn much attention from IS researchers (Choudhury and Sabherwal, 2003; Kirsch, 2004). These studies have come to the key conclusion that effective controls motivate employees to achieve desired behaviors or actions and can result in better outcomes.

Researchers have adopted different definitions of control. Ouchi (1979) identified three different types of control: outcome, behavior, and clan controls. Outcome control is exercised when targets or goals are pre-specified, individual outcomes are assessed, and rewards are based on whether the goals are achieved (Eisenhardt, 1985; Ouchi, 1978). Behavior control is exercised when behaviors are pre-specified and those being controlled are expected to engage in these behaviors to achieve specific goals (Das and Teng, 1998; Eisenhardt, 1985). Clan controls work by socializing individuals to a common set of norms and values (Birnberg and Snodgrass, 1988; Ouchi, 1979). Kirsch et al. (2002) later differentiated two types of organizational control: formal and informal. Formal control is defined as a process of monitoring and evaluating behavior-based or outcome-based performance, and

regulating behavior toward predefined standards. Informal control relies on social strategies to minimize goal divergence among organizational members and to influence members so that their behavior conforms to predefined standards (Eisenhardt, 1985).

Kirsch (2004) further classified three elements of control: specification, evaluation, and rewards/sanctions. This classification will give us a deeper understanding of the impact of the characteristics of control mechanisms on project performance. *Specification* refers to formalized statements that articulate the desired behavior outcomes and are typically codified as organizational procedures. Specifications provide team members with directions regarding the desired goal and ways to achieve it. Well-specified rules give clear directions to individuals, with the goal of achieving the desired behavior or outcomes. *Evaluation* is a process of data collection and comparison in order to examine the extent to which an individual's behavior or performance meets the specification. Evaluation involves the use of formal documentation and information exchange. Such evaluations help managers determine the adjustments required for any deviations. *Rewards* refer to the tangible or intangible benefits bestowed on individuals based on their meeting a target outcome. With specified procedures and expected outcomes, managers can then determine the reward for team members based on how well the team members' behaviors meet expectations, or whether or not the expected outcomes are observed. Behavior that is consistent with values and norms is rewarded (Ouchi, 1979).

2.2 Regulatory focus and regulatory fit

Regulatory focus theory (Higgins, 1997, 2000) examines the relationship between the motivation of an individual and the way in which he/she achieves the desired end-states. Higgins (1997, 1998) further distinguishes two distinct strategies by which people approach pleasure and avoid pain. The *promotion focus* emphasizes gains (or non-gains), is driven by a need for growth and development, and is characterized by the setting of ideal and hoped-for goals (Carver and Scheier, 1998). People with a promotion focus are concerned about accomplishments and growth. They are sensitive to the presence and absence of positive outcomes. The second strategy is the *prevention focus*, which emphasizes non-losses (or losses), is driven by the need to avoid failure, and is characterized by the setting of "ought-to-be" and feared goals (Carver and Scheier, 1998). Prevention-focused individuals are concerned about avoiding punishment. They are sensitive to the presence and absence of negative outcomes. Although both promotion and prevention involve the motivation to approach or attain a task goal, they differ in their orientations regarding how to successfully attain the goal (Higgins et al., 2001). The impact of these two foci on the individual's adoption of a strategy while working towards the goal may differentially influence various facets of performance.

Research has shown that regulatory focus has a main effect on various consequences, and the relevant literature on regulatory fit also suggests that the match between people's regulatory focus and the goal pursuit strategies they use has important consequences as well. Regulatory fit occurs when the individual's orientation toward goal pursuit is sustained by the manner in which the goal is pursued (Higgins, Idson, Freitas, Spiegel, and Molden, 2003). Regulatory fit influences judgments, decision making, feelings, emotion, attitude, behavior, and task performance (e.g., Higgins, 2005; Higgins, Cesario, Hagiwara, Spiegel, and Pittman, 2010). In other words, regulatory fit is the match between a person's regulatory focus—either promotion (opportunity-seeking) or prevention (risk-avoiding)—and either their strategy for pursuing goals, or the consequences on which they focus when making decisions. Experiencing regulatory fit leads to better task performance (Higgins, 2000; Vaughn, Malik, Schwartz, Petkova, and Trudeau, 2006) and to an increased perception of the value of the outcome (Higgins, 2000; Higgins, 2006). Through regulatory fit, regulatory focus also affects the level of motivation for completing the task and increases the extent to which outcomes are valued. In other words, regulatory fit heightens the subjective value of the source of the sensation of fit.

2.3 Collective regulatory focus

Prior research has examined regulatory focus primarily at the individual level. However, research on group behavior has shown that an individual's behavior often cannot be simply inferred from

personality characteristics. Group members tend to conform to group norms and make decisions based on the predominant characteristics of the group. For this reason, researchers have applied regulatory focus theory to the group context (Florack and Hartmann, 2007; Levine, Higgins, and Choi, 2000; Seibt and Förster, 2004). These studies have shown that groups can develop a collective focus on promotion or prevention. Whether the collective focus of the group is on promotion or prevention can have important implications for the team's performance. For example, Levine et al. (2000) described collective regulatory focus in terms of a shared reality that develops in groups. Collective regulatory focus can be part of the identity of a group (Faddegon, Scheepers, and Ellemers, 2008; Sassenberg and Woltin, 2008). Over time, people who work together develop a shared regulatory focus regarding problem solving strategies (Levine et al., 2000). As time goes on, a group's collective regulatory focus affects the content of group discussions and influences subsequent decisions (Florack and Hartmann, 2007). Faddegon, Ellemers, and Scheepers (2009) investigated the effect of chronic regulatory focus on creativity and extended it to the group context. In the context of team innovation, collective regulatory focus theory has been explored via a survey of teams from different organizations (Rietzschel, 2011).

Previous research has also indicated that different task and team factors may be antecedents of collective regulatory focus. For task factors, task novelty and task complexity are likely to activate different collective regulatory foci. For example, a higher level of task *novelty* (which implies high variability and unpredictability regarding the exact means by which to accomplish the task) is likely to influence the group to be promotion-focused. Task *complexity*, i.e., the uncertainty and ambiguity that cause frequent exceptions from standard procedures on the job (Gladstein, 1984; Xia and Lee, 2005), is likely to influence the team to be prevention-focused, because such teams strive to avoid failure and prefer errors of omission.

Team factors such as leadership and autonomy are critical antecedents to the activation of different regulatory foci for the group. The team's leadership is critical in shaping worker's perceptions towards organization, their behaviors associated with organizational change, and their motivation to achieve goals. Managers with a consideration style of leadership may influence their teams to be more promotion-focused because they are friendly, treat their employees as equals, involve subordinates in decisions, and encourage their followers to reach their full potential. On the other hand, managers with an initiating structure leadership style may lead their teams to be more prevention-focused because they provide structure, set clear expectations and standards, decide what work will be done, and define how the work should be done. Autonomy, (i.e., team members' freedom to act of their own will) has also been identified as an important factor in enabling teams to respond to change (Gerwin and Moffat, 1997). A higher level of team autonomy allows team members manage themselves, assign jobs, plan and schedule work, make production decisions and take action to solve problems (Kim and Lee, 1995), all of which may lead to a promotion-focused team.

3 Conceptual Framework

The purpose of the study is to test a model which is based on control theory and regulatory focus. The model illustrated in Figure 1 shows how collective regulatory focus and regulatory fit influence project performance and team satisfaction. Specifically, we examine three different control mechanisms (specification, evaluation and reward) which have different influences on regulatory fit, and which, in turn, will differentially affect project performance.
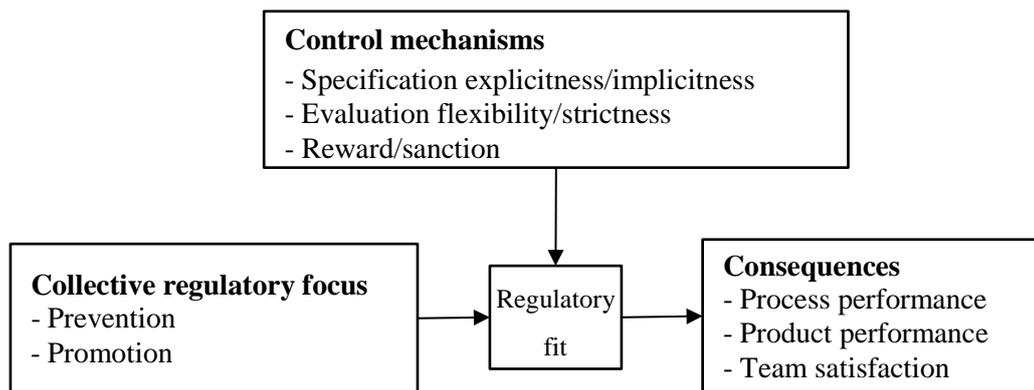
Figure 1. Conceptual model

ISD project performance is usually defined in terms of time, budget and scope. Recent research has used multiple dimensions such as task outcomes and organizational outcomes to measure project performance. In this study, project performance is described in terms of three components: process performance, product performance, and teamwork satisfaction. *Process performance* refers to the operational aspects of project performance such as completing the project within the schedule and budget, and fulfilling customer requirements (Kerzner, 2003). *Product performance* refers to the system's reliability, response time, ease of use, and ease of learnability, and can also be viewed as the system's efficiency, reliability and accuracy, as well as its ability to generate the information that users need. *Teamwork satisfaction* refers to individuals' evaluation of their working experience with their project team members.

Higgins' theory of regulatory fit proposes that motivational strength will be enhanced when the manner in which people work toward a goal sustains their regulatory orientation. In turn, this enhanced motivational strength should improve efforts to attain the goal. For example, promotion-focused teams tend to favor approach strategies, and prevention-focused teams tend to favor avoidance strategies (Higgins, Shah, and Friedman, 1997). Consistent with their approach strategy, promotion-focused teams show an inclination toward creative thinking, novelty, and broad, abstract representation. In contrast, consistent with their avoidance strategy, prevention-focused teams show an inclination toward careful, routine ways of thinking, and an adherence to concrete, specific information (Förster and Higgins, 2005; Seibt and Förster, 2004; Semin, Higgins, de Montes, Estourget, and Valencia, 2005; Zhu and Meyers-Levy, 2007). Specification provides team members with direction regarding the desired goal and the ways by which it can be achieved. Well-specified rules give clear direction to individuals, with the goal of achieving the desired behavior or outcomes. In other words, members of prevention-focused teams prefer explicit specifications, and promotion-focused teams prefer implicit specifications. Consequently, prevention-focused teams are likely to perform better when the project manager's specifications are explicit, whereas promotion-focused teams are likely to perform better when the project manager's specifications are implicit. We thus posit that specification will interact with goal orientation and regulatory focus.

In addition to exploring the impact of regulatory focus on project performance, we argue that better performance can be obtained when the model of control exercised by the manager fits the regulatory focus of the project team. We first argue that goal specification needs to fit with the regulatory focus of the ISD team. Goal setting is critical for maintaining high motivation (Locke, Shaw, Saari, and Latham, 1981). An understanding of the value of obtaining the expected outcomes of a given goal is critical for goal setting (Locke and Latham, 2002). In this study, specification is viewed as a spectrum ranging from implicit to explicit. We argue that, for a promotion-focused team, it is critical for the managers to specify implicit goals instead of explicit goals. A promotion-focused team is a group of people who intend to explore potential possibilities and will try their best to achieve the ideal situation, e.g., producing a high quality product or delivering it as soon as possible. When a goal is specified, a

promotion-focused team tends to search for the optimal goal or the optimal means by which to accomplish the goal. Allowing the team to search on its own for the optimal goal is critical for some software, such as apps for mobile devices. Developing functions and features that delight customers is very challenging for a project team in such an experiential computing context (Yoo, 2010). The goal should not be explicit and, sometimes cannot be explicit in the early stages of the project. Project teams have to clarify the future trend and user needs before determining the framework and functions of the app. The strength of promotion-focused teams is that they always try to achieve the ideal goal if at all possible. They consider such an implicit goal to be a challenge, and dedicate themselves to figuring out the optimal result and working hard to achieve it. In addition, allowing project team to figure out the goal can also facilitate self-regulate and increase their commitment on reaching the goal (Latham and Locke, 1991).

On the other hand, prevention-focused teams tend to avoid any failure to meet the minimum requirement (Higgins, 1998). The minimum requirements or ought-to-be goals should be specified so that such teams can take action to ensure that their output does not fall below the minimal standard. Prevention-focused project teams tend to be more comfortable when they know explicitly what to perform and know what is not acceptable. However, identifying the bottom line is impossible when an unclear or implicit goal is specified. It is therefore reasonable that, for prevention-focused teams, managers should specify an explicit goal and outline the minimum acceptable criteria. Prevention-focused teams can then determine what actions to take to avoid performing below the minimum expectations.

H1: Explicit specifications will result in a higher level of project performance for a prevention-focused team, whereas implicit specifications will result in a higher level of project performance for a promotion-focused team.

We also argue that, in addition to the proper specification style, the way the way in which progress or performance is evaluated should also fit the regulatory focus of the project team. Evaluations can be done frequently or infrequently. The standard can be strict or flexible. Frequent evaluations with strict standard are suitable for prevention-focused teams for the following reasons. First, according to regulatory fit theory, prevention-focused teams are sensitive to any mismatch between the current state and the desired goal, and will try hard to avoid failing to meet the minimum requirements (Higgins, 1997, 1998) Prevention-focused teams benefit from knowing whether they are on the right track. In addition, expected progress is clear when the manager (i.e., controller) cuts the whole process into small pieces and frequently evaluates the progress on each piece. The project team becomes very aware of each shortened goal. With frequent feedback from the manager, the project team can easily determine whether it has yet to achieve the minimum goals. Prevention-focused teams are not averse to this control strategy and tend to be satisfied with this working style. Second, when strict criteria are used in the evaluation, explicit feedback can be provided to the project team. Since prevention-focused individuals are eager to know that their performance does not fall below the set standard, explicit feedback and clear reports are preferred by prevention-focused project teams. If evaluation is infrequent and without strict standard, high anxiety can be expected since project team cannot be confident that their performance is acceptable. Therefore, we expect that higher project performance and satisfaction can be expected when frequent and strict evaluations are applied to prevention-focused ISD project teams.

On the other hand, we expect that promotion-focused teams prefer infrequent evaluation with flexible standard. As indicated, promotion-focused teams focus on how to reach the ideal goal. It is reasonable that delays may occur in the early stages, since the team is occupied by determining the optimal goal to be achieved, and optimizing ways to achieve that goal. In the middle stages, if the team is aware that the current approach may not help them to reach the ideal goal, it may decide to experiment with a new approach that works better. Thus, a certain level of managerial tolerance is needed for such teams. Managers who evaluate team performance too frequently force the team to focus on each minor milestone, leaving the team no time to identify the optimal goal or the optimal means by which to achieve the goal. The sense of autonomy is critical for self-management team to achieve high performance. Autonomy is low when evaluation is too frequent and strict since doing so reduces the

locus of control (Lee, Sheldon, and Turban, 2003). Project teams are totally occupied by shorten evaluation and has limited time and energy for desired activities, such as identifying approaches to reach optimal goals. The moral of the team and motivation to achieve optimal goal are then low. As an outcome, high project performance may not be observed and satisfaction toward teamwork tends to be low. Therefore, we expect that infrequent evaluations and flexible milestones and evaluating standards are preferred by promotion-focused teams. A higher level of satisfaction and even better performance can then be expected from such teams.

H2: Flexible evaluations will result in a higher level of project performance for a promotion-focused team, whereas rigid evaluations will result in a higher level of project performance for a prevention-focused team.

According to regulatory fit theory (Higgins, 1997, 1998), promotion-focused people prefer to achieve the desired goal while prevention-focused individuals try to avoid failing to achieve the desired goal. As a result, promotion-focused individuals are more sensitive to positive outcomes because they are eager to attain advancements and gains. On the other hand, prevention-focused individuals are more sensitive to negative outcomes and tend to ensure safety and avoid losses (Higgins, 2000). Thus, regulatory focus leads to different goal attainment strategies (Shah, Higgins, and Friedman, 1998).

We follow Liang, Xue, and Wu (2013) research and argue that rewards make achieving the expected outcome more attractive for promotion-focused individuals. For promotion-focused individuals, achieving the desired goal is preferred. Offering them positive incentives for achieving the desired goal makes approaching the goal a positive and desired activity, which is attractive. Therefore, promotion-focused individuals tend to perform better when a reward is granted for achieving the desired goal.

On the other hand, better performance may be observed when punishment is offered as feedback for a prevention-focused team. Prevention-focused teams prefer to avoid failing to either meet the minimum requirements or match the desired goal. Since punishment is to remove something that belongs to the person being punished, it is therefore considered to be a type of loss. Given that prevention-focused individuals are more sensitive to a loss/non-loss situation, using sanctions as feedback drives them to act in such a way that will avoid punishment.

H3: Rewards will result in a higher level of project performance for a promotion-focused team, whereas sanctions will result in a higher level of project performance for a prevention-focused team.

4 Research Methods

A field survey will be conducted to empirically test these hypotheses. The target sample is ISD project teams. Data will be collected through a matched pair survey of the team members and the project manager from each project. To reduce common method bias (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003), two different questionnaires will be distributed: one for project managers and one for team members. Team members will be asked to provide feedback on the leadership of their project manager, task novelty, task interdependency, and collective regulatory focus. Project managers will be asked to provide opinions on control mechanisms and project performance. Prior studies on regulatory focus have collected data from students, and sample sizes have been small. For generalization purposes, and to get results based on real life examples, we consider a survey to be an adequate method by which to test the model.

The measurement items used in the survey will be based on a comprehensive review of the literature as well as on expert opinions. All items will be measured on 5-point Likert scales anchored by "strongly disagree" (1) and "strongly agree" (5). Since the survey will be conducted in Taiwan, we will use back-translation to ensure the quality of the translated surveys (Brislin, 1970) To test the research model, the collected data will be analyzed using SPSS and Partial Least Squares (PLS).

Measurement items for collective regulatory focus will be adapted from measures of individual regulatory focus. Team members will indicate how strongly each statement applies to the way their

team worked. Scores on the separate items will be averaged to compute the collective promotion focus and collective prevention focus scores.

5 Expected Contribution and Conclusion

With this research-in-progress paper we make contributions to both theory and practice. Our main theoretical contribution lies in the demonstration of the importance of collective regulatory focus to goal orientation in regards to team performance. Second, different control mechanisms are recommended for project teams with different goal orientations. A great deal of research on regulatory fit has examined the relationship between self-regulatory interests and the motivation to use strategies of goal pursuit that are more (versus less) consistent with those interests. However, a topic that has remained underexplored is how different control mechanisms (i.e., specification, evaluation, and reward) might fit a team's collective regulatory focus in the pursuit of a goal. Third, we demonstrate that different regulatory foci affect an ISD project team's performance differently. Finally, we examine whether this performance is contingent upon a fit between the type of control elements (specification, evaluation, and reward) and the type of regulatory focus. Previous works have focused on the effects of fit on the evaluation of outcomes rather than on performance goals. This study might demonstrate that a fit—or the lack of a fit—between the goal-orientation of the regulatory focus and the control mechanisms results in differences in project performance. Better performance can be expected when the characteristics of the control processes fit with the team's goal orientation. For practitioners, i.e., project managers, choosing the most appropriate method to ensure the project team is moving in the right direction is a concern. In addition to knowing what action can be taken to boost project team performance, it is also critical to know whether such action has been taken correctly, since the wrong control approach may not only demotivate the project team but also reduce the chance of accomplishing the project goal. Therefore, managers can benefit from the results of this study by knowing better ways to ensure that their teams are on the right track and moving in the right direction. Specifically, this study provides possible answers for the level of specificity required for goal specification, the appropriate frequency and flexibility of performance evaluations, and the actions that can be taken to motivate the project team.

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