

The I in Team: IT Identity and Project Behavior

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Abstract

Software project failure continues to be a concern and managing risk our best hope of project success. While IS literature has investigated the role of culture in projects, such cultural work is largely limited to the management of multinational project work and focused on ethnic or national identities and their impact on enterprise-level system development. Recently, information system researchers have begun to focus on how a user's identities—their internalization of cultural meaning—can affect adoption and use of technology, but identification with technology may also impact its development. This proposed study will examine the ways in which worker identification with the technological outcome of a project might affect risk behavior, and will include digital game development as a highly salient context. The results will inform both theory and practice, contributing to IT identity research as well as best practices for project and risk management in software development.

Keywords

IT project management, risk management, IT identity, digital games

Problem Statement

The software development industry is experiencing slow improvement in the realm of project success, but professionals and academics still find concern with each year's rate of failed projects despite decades of research regarding project management. Industry analysts provide snapshots of the cost of software failures to industry: "On average, large [information technology (IT)] projects run 45 percent over budget and 7 percent over time, while delivering 56 percent less value than predicted. Software projects run the highest risk of cost and schedule overruns" (Bloch, Blumberg, and Laartz 2012).

Defining risks as "factors that can, when present, adversely affect a project" (Wallace and Keil 2004, p. 68), we understand why managing project risk is a fundamental goal of project management. In the project context, success has been traditionally expressed as meeting a project's planned schedule, budget, and specification. Risk has often been analyzed as the potential for events that negatively impact those measures. While some espouse more performative measures of project success (cf. Cecez-Kecmanovic, Kautz, and Abraham 2014), factors that might adversely affect the project are still risks. Continued research into software project risk promises improvements to project success rates by helping software professionals identify, understand, and address these potential problems within their projects.

A great deal of research has gone into identifying risk factors in the context of IT development projects. While there is no single accepted list of software project risk factors, multiple researchers have developed

their own classification systems, largely based on studies of practitioners (cf. Schmidt et al. 2001; Taylor 2006; Wallace and Keil 2004). Among the common sources of risk identified by these studies are risk factors associated with uncertain or changing project scope (a concept often expressed colloquially as *scope creep* or *feature creep*), as well as many factors associated with staffing, technology, and organizational culture. Staffing and technology factors often seem to overlap, as they tend to be framed in terms of staff skill, experience, or familiarity with technology. The following list contains examples of each of these observations:

- “Scope creep” (Schmidt et al. 2001, p. 17)
- “Continually changing project scope/objectives” (Wallace and Keil 2004, p. 72)
- “Project Management”: “Vendor”: “Change management” (Taylor 2006, p. 53)
- “Solution Ambiguity”: “Vendor”: “Newness” (Taylor 2006, p. 53)
- “Project Management”: “Vendor”: “Staffing resources” (Taylor 2006, p. 53)
- “Introduction of new technology” (Schmidt et al. 2001, p. 17)
- “Inadequately trained development team members” (Wallace and Keil 2004, p. 72)
- “Inexperienced team members” (Wallace and Keil 2004, p. 72)
- “Lack of required knowledge/skills in the project personnel” (Schmidt et al. 2001, p. 17)
- “Environment”: “Client”: “Organization culture” (Taylor 2006, p. 53)

While project literature has further investigated the role of culture as an aspect of project risk, work is largely focused on the effects of organizational culture on the development process (cf. Leidner and Kayworth 2006) or on gender, ethnic, or national identities, and often focus on their impact on multinational system development efforts (cf. Rai, Maruping, and Venkatesh 2009). However, worker identities (their internalization of cultural meaning) extend far beyond their affiliation with work units or their country of origin.

In this body of literature, the focus is often on organization managers who have traditionally been responsible for project- and risk-based decision-making (cf. Kahn and Kumar 2009; Taylor 2007). In recent years, the growth in popularity of agile development methods has changed the nature of decision-making on project teams. In agile work, it is much more likely that innumerable decisions are being made by project team members working in concert with clients.

“This creates a pluralist decision-making environment due to the diverse backgrounds, attitudes, goals, and cognitive dispositions of the team members. Decision making in this environment is more difficult compared to the traditional approach where the project manager is responsible for most decisions” (Nerur, Mahapatra, and Mangalaraj 2005, p. 76).

In 2017, “71 percent of organizations [reported] using agile approaches for their projects sometimes, often, or always” (The Project Management Institute 2017, p. 4). With contemporary IT development continuing to become more agile, and with agile development distributing decision-making through product teams rather than concentrating it on management, it becomes important to understand the decision-making behavior of project team members.

Recently, information systems (IS) researchers have begun to examine how individuals self-identify with technology (Carter and Grover 2015) and how this self-identification affects adoption and use of IT. We have not yet begun to explore how self-identification with technology impacts its *development*. By self-identifying with the IT under development, project workers’ behavior—including risk behaviors—may be affected in significant ways and therefore impact the course of the project and its final product.

This research is intended to examine the manner in which individual IT project team members self-identify with the products they are developing. We seek empirical evidence that such self-identification takes place on project teams and the conditions in which it may occur. While there are multiple ways that personal decisions may affect projects, this work is intended to focus on critical incidents that involve choices which would accept or prevent feature creep. The objective of the work is to show that self-identification influences personal decisions and recommendations by using critical incidents to surface decision-making behavior. Stated formally this proposed research addresses the following question:

In what ways, if any, does self-identification with an IT under development affect project team members’ personal risk-related decision-making behavior on IT projects?

Theoretical Background

This work will be conducted within a framework of structural symbolic interactionist theories regarding identity (*identity theories*) including Carter and Grover's (2015) application of these theories in the IS domain through their theorization of IT identity. This framework also includes elements from British cultural studies—whose researchers often work from a symbolic interactionist perspective (Becker and McCall 1990)—to explain the cultural source of our identities.

British cultural studies (or simply *cultural studies*) is an approach “dedicated to the notion that the study of cultural processes, and especially of popular culture, is important, complex and both theoretically and politically rewarding” (Grossberg et al. 1992, p. iv). It attempts to explain how social meaning is created, and is partially based on the works of Saussure and Foucault in linguistics, semiotics, and discourse (Turner 2003; Weedon 1994). It contends that “culture is a terrain on which there takes place a continual struggle over meaning” (Storey 1994, p. ix), and that “when we are at our most natural, our most everyday, we are also at our most cultural.... when we are in roles that look the most obvious and given, we are actually in roles that are constructed, learned and far from inevitable” (Willis 1979, p. 185).

Cultural studies views economic systems in a cyclical relationship with culture. All industry comes into existence within a cultural context, but then products from those industries can influence culture (Hesmondhalgh, 2012; Willis, 1994). This is especially true of products from the *cultural industries*. Organizations are categorized as part of the cultural industries “because **they deal primarily with the industrial production and circulation of texts**” (Hesmondhalgh 2012, p. 6) and “are most directly involved in the **production of social meaning**” (Hesmondhalgh 2012, p. 16) [emphasis in original]. Along with digital games (which are a segment of IT as well as part of the cultural industries), the list of cultural industries includes journalism, film, television, radio, and marketing. Their basic products (e.g. games, articles, movies, programs, and advertisements) are in a class that cultural studies scholars refer to as *cultural texts*. For these, the intent of production is less about utility than conveying a message of social significance (Hesmondhalgh 2012). By contrast, television manufacture is not part of the cultural industries: While all objects have some social meaning by simply existing within society, a television is primarily an electronic good that affords consumers a utilitarian function (interpreting audio and visual signals) rather than a cultural text. This is true even though a television is used to consume cultural texts.

Identity theories share many structuralist and post-structuralist concepts with cultural studies. They contend that one's sense of self is comprised of many identities, each of which is the personal internalization of the meaning one finds in society. The set of meanings attached to each identity is its *standard*. While an identity may be shared among many, one's standard for it identity is unique: Many see themselves as scholars, but no two scholars have the exact same standard (Burke and Stets 2009).

Identities tend to be classified into one of four types. Most heavily analyzed are *role* identities, which internalize society's expectations for individuals acting in a given societal role (Burke and Stets 2009). “Educator,” “worker,” and “parent” are all examples of role identities and may even all be part of a single individual's self-concept. *Group* identities, which are the focus of research in psychology, serve a similar function for members of groups (Burke and Stets 2009), including religious, ethnic, and cultural groups. *Person* identities are those that attempt to distinguish one as a unique individual (Burke and Stets 2009). “Trustworthy,” “frugal,” and “artistic” are all examples of person identities. More recently, researchers, particularly in the domain of consumer research, have explored *material* identities, tied to possessions or places (Clayton and Opatow 2003; Dittmar 2008). Material identities, which are constructed and function like role, group, and person identities, refer to self-identification with most any physical or conceptual thing or class of things: A theoretical framework, a make of car, or a software package.

While Carter and Grover (2015) originally conceived of IT identity as a positive self-identification with an IT, exploration has also shown that some negatively self-identify with an IT (Carter, Compeau, and Schmalz 2018). IT identities are independent of expertise with an IT: A person can be an expert with a given technology and still feel it has little to do with who they are (dis-identification) or even antithetical to who they are (anti-identification). For example, a competent MacOS user may feel that OS is antithetical to who they are, perhaps having a positive IT identity involving Windows or a flavor of Linux.

Individuals' identities are the source of human behavior. As different social situations arise, some identities become more or less salient, and one acts in accordance with the standards of salient identities, confirming

them as part of one's self. The salience hierarchy of identities is determined by a number of factors, including a person's ideal sense of self (their prominence hierarchy of identities) and one's cost-reward perceptions based on the ways in which the identity has been supported and rewarded in the past (Burke and Stets 2009). Supporting behavior associated with an identity also reinforces that identity, making it more prominent in one's self and more likely to become salient again in the future (Burke and Stets 2009).

IT project team members presumably have a number of identities that may become salient during the course of a project and govern behavior on project teams. While prior research has implicitly explored the relationship between group (gender, national, or organizational) identities and project work, little has been done with regard to material identities. As illustrated above, there has been considerable exploration in regard to worker experience and skill with technology, but neither of these factors is directly indicative of self-identification with IT and it is self-identification that drives team-based behavior. By utilizing IT identity's conceptualization as a form of material identity, this research adds material identities to the scope of project-culture or project-identity studies, examining the manner in which self-identification with the IT under development affects specific risk-related project behaviors regarding project scope.

Recruitment and Methods

The research question will be approached through an exploratory qualitative study of IT identity in the IT project context. The ideal target population is all IT project workers in the United States. The intended participant is a software professional, either working at a software development organization or identifying as an independent software professional. While staffing at technology organizations has a male bias, any purposive sampling efforts will attempt to achieve better gender equality: When seeking evidence of self-identification with the IT under development on project teams, the goal is not to get an accurate sample but to explore variation. Recruitment will take place through professional organizations representing the target professionals.

This work will encompass a variety of IT projects as well. While IT research often focuses on management information systems (MIS), consumer IT products are marketed to the public in ways that MIS products are not, which affects the meanings attached to consumer IT and how individuals, including those on product teams, self-identify with an IT. At the extreme end of consumer IT products are digital games, which are cultural texts developed as IT. In digital games, we know game companies hire game enthusiasts to make games (Dovey and Kennedy 2006, Kerr 2006). These traits of an IT under development may affect how workers self-identify with it, and the intent again is to explore variation.

Data will be collected using a 20 Statements Test (TST) (Kuhn and McPartland 1954) and a semi-structured critical decision (Klein et al. 1989) interview. The TST prompts participants to answer the prompt "I am..." twenty times, each different. This is a tested tool for establishing a set of identities which an individual claims as their own. The critical incident method is an accepted method for exploring decision-making processes. Participants will begin by recalling an incident where they were required to contribute to a decision-making process that may have resulted in feature creep. Prompts will be used to ascertain which participant identity or identities were salient during the decision, and which features of the salient identity standards were causing those identities to be activated. After transcription, qualitative analysis will be used to determine whether or not the salient identities include self-identification with the IT under development, and what impact these identities had on the critical decision.

Contributions

This study has implications for both theory and practice. The work has the potential to extend IT identity theories by specifically investigating the effects of IT identity on IT project behavior and the development of IT. Even if the study finds no evidence that project worker self-identification with the IT under development affects project behavior, this would be an important finding for IT identity research. If a such self-identification is discovered to be part of team member decisions, the results will also offer insights into the content of IT identity standards and the behavioral effects of self-identification with IT, which will further inform future IT identity research.

Practically, the work also has the potential to inform human resource decisions and risk management techniques in digital game, consumer IT, and other forms of technology development. If the study shows a

correlation between identification with technology and risk behavior on technology projects, the nature of the relationship will be able to inform an organization's human resources, training, and technology decisions. It may become possible to identify ideal hires for project work not only by their skillsets, but by the manner in which they identify with the technologies involved.

References

- Bloch, M., Blumberg, S., and Laartz, J. 2012. "Delivering Large-scale IT Projects on Time, on Budget, and on Value," retrieved July 15, 2018, from <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/delivering-large-scale-it-projects-on-time-on-budget-and-on-value>
- Burke, P. J., and Stets, J. E. 2009. *Identity Theory* (1st ed.), Oxford, NY: Oxford University Press.
- Carter, M., Compeau, D., and Schmalz, M. (2018). "The Ambivalent Potential of IT Identity: Me, Not-Me, and Conflicted Me in a Digital World," *Proceedings of the DIGIT 2018 Workshop: Bridging the Internet of People, Data and Things*. San Francisco, CA.
- Carter, M., and Grover, V. 2015. "Me, My Self, and I(T): Conceptualizing Information Technology Identity and its Implications," *MIS Quarterly* (39, 4), pp. 931–957.
- Clayton, S. D. and Opatow, S. 2003. "Introduction: Identity and the Natural Environment," in *Identity and the Natural Environment: The Psychological Significance of Nature*, Clayton, S. D. and Opatow, S. (eds.), Cambridge, MA: MIT Press, pp. 1–24.
- Dittmar, H. 2008. "Understanding the Impact of Consumer Culture," in *Consumer Culture, Identity and Well-Being: The Search for the "Good Life" and the "Body Perfect,"* Dittmar, H. (ed.), New York, NY: Psychology Press, pp. 1–24.
- Dovey, J., and Kennedy, H. W. 2006. *Game Cultures: Computer Games as New Media*. Maidenhead, Berkshire, England; New York, NY: Open University Press.
- Grossberg, L., Nelson, C., and Treichler, P. A. 1992. *Cultural Studies*. New York, NY: Routledge.
- Hesmondhalgh, D. 2012. *The Cultural Industries* (Third Edition). London, UK: SAGE Publishing.
- Kerr, A. 2006. *The Business and Culture of Digital Games: Gamework/Gameplay*, London; Thousand Oaks, CA: SAGE.
- Klein, G. A., Calderwood, R., and MacGregor, D. 1989. "Critical Decision Method for Eliciting Knowledge," *IEEE Transactions on Systems, Man, and Cybernetics* (19, 3), pp. 462–472 (doi: 10.1109/21.31053).
- Kuhn, M. H., and McPartland, T. S. 1954. "An Empirical Investigation of Self-Attitudes," *American Sociological Review* (19, 1), pp. 68–76 (doi: 10.2307/2088175).
- McCall, M. M. and Becker, H. S. 1990. "Introduction," in *Symbolic Interaction and Cultural Studies*, Becker, H. S., and McCall, M. M. (eds.), Chicago, IL: University of Chicago Press, pp. 1–15.
- Nerur, S., Mahapatra, R., and Mangalaraj, G. 2005. "Challenges of Migrating to Agile Methodologies," *Communications of the ACM* (48, 5), pp. 72–78 (doi: 10.1145/1060710.1060712).
- Project Management Institute. 2017. *Pulse of the Profession*. Retrieved from <https://www.pmi.org/-/media/pmi/documents/public/pdf/learning/thought-leadership/pulse/pulse-of-the-profession-2017.pdf>
- Schmidt, R., Lyytinen, K., Keil, M. and Cule, P. 2001. "Identifying Software Project Risks: An International Delphi Study," *Journal of Management Information Systems* (17, 4), pp. 5–36 (doi: 10.1080/07421222.2001.11045662).
- Storey, J. 1994. *Cultural Theory and Popular Culture: An Introduction* (1st ed.). London, UK: Routledge.
- Taylor, H. 2006. "Risk Management and Problem Resolution Strategies for IT Projects: Prescription and Practice," *Project Management Journal* (37, 5), pp. 49–63 (doi: 10.1177/875697280603700506).
- Taylor, H. 2007. "An Examination of Decision-Making in IT Projects from Rational and Naturalistic Perspectives," *ICIS 2007 Proceedings*, pp. 1–17
- Turner, G. 2003. *British Cultural Studies: An Introduction* (3rd ed). London, UK; New York, NY: Routledge.
- Wallace, L., and Keil, M. 2004. "Software Project Risks and Their Effect on Outcomes," *Communications of the ACM* (47, 4), pp. 68–73 (doi: 10.1145/975817.975819).
- Weedon, C. 1994. "Feminism & the Principles of Poststructuralism," in *Cultural Theory and Popular Culture: A Reader* (1st Edition), Storey, J. (ed.), London, UK: Routledge, pp. 523–530.
- Willis, P. 1979. "Shop Floor Culture, Masculinity and the Wage Form," in *Working Class Culture: Studies in History and Theory*, Clarke, J. Critcher C. and Johnson, R. (eds.) pp. 185–198.