MIS QUARTERLY RESEARCH CURATION ON IT PROJECT MANAGEMENT

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1. Focus of the Research Curation

IT project management has long been a key area of interest among IS scholars and practitioners, since IT projects constitute a key vehicle for IS development and implementation. A project can be defined as an interrelated set of activities intended to accomplish certain desired objectives within a limited period of time, typically executed by a project team. IT projects involve developing and/or deploying IT artifacts (comprised of either software, hardware, or both). IT project management thus refers to the application of knowledge, skills, techniques, and processes to conduct such projects within agreed-upon parameters (e.g., budget, schedule, scope, quality), and in concert with organizational goals and priorities. The significance of this topic for the IS discipline is evident in the number of publications that have addressed different aspects of project management dating back to 1978 when the first two *MIS Quarterly* articles on this topic were published. We have identified 39 publications in *MIS Quarterly* on the topic up to Summer 2020.

For determining candidate articles to include in this curation, we examined the titles and abstracts of all articles that had been published in *MIS Quarterly* since its inception. We also searched all published *MIS Quarterly* papers for a range of key terms related to projects and project management. Potential articles for inclusion were identified on the basis of whether the title and/or abstract suggested that the article contributed to the body of knowledge on IT project management. When this was not clear or when there was not complete consensus among members of the curation team about whether a particular article should be included, we examined the full article PDF to reach a determination.

In selecting the articles for this curation, we differentiated between project management and related topics such as requirements determination, software development, IS implementation, and outsourcing. While such topics underscore that there is a wide range of themes having to do with creating or deploying information systems, they were excluded because they did not relate directly to the *management of IT projects* per se and in some cases were already the focus of another curation (e.g., IS sourcing).

In this research curation, we offer insights into how project management research has thematically advanced over the past four decades within *MIS Quarterly*.

2. Progression of Research in *MIS Quarterly*

Theoretical perspectives

Research published between 1978 and 1992 (first wave) focused on project success and failure, project team management, and project estimation. Much of the research on IT project management during this period was largely atheoretical. There were, however, several articles that drew on the concept of cognitive style (Kaiser and Bostrom 1982; White 1984; White and Leifer 1986).

Work published from 1993 to 2007 (second wave) broadened the scope of IT project management research to include project risk management and project escalation. Theories employed include risk analysis (Baskerville and Stage 1996), goal setting theory (Abdel-Hamid et al. 1999), and escalation of commitment (including such underlying theories as self-justification theory, approach avoidance theory, prospect theory, and agency theory) (Keil 1995; Keil et al. 2000a; Keil et al. 2000b; Montealegre and Keil 2000). Later research in the second wave also incorporated other concepts and theories such as interpersonal conflict (Barki and Hartwick 2001) and knowledge integration (Mitchell 2006).

As research on project contract management and project control began to emerge from 2008 – 2020 (third wave), we saw the use of several new concepts and theories such as trust theory, (Gefen et al. 2008), relational governance (Gopal and Koka 2012), transaction cost economics (Benaroch et al. 2016; Chen et al. 2017), relational exchange theory (Benaroch et al. 2016), property rights theory (Chen et al. 2017), control theory (Chua et al. 2012; Gregory et al. 2013; Wiener et al. 2016), and ex-ante and ex-post transaction costs (Benaroch et al. 2016). Additional concepts and theories have been embraced in work on IT project risk and IT project success, such as capability maturity (Ramasubbu et al. 2008), message exchange theory (Iacovou et al. 2009), the theory of planned behavior (Moeini and Rivard 2019), actor-network theory (Cecez-Kecmanovic et al. 2014), collaboration networks (Singh et al. 2011), and sensegiving and sensemaking (Jenkin et al. 2019).

Methods employed

In reviewing the progression of research on IT project management in *MIS Quarterly*, we observe that a diversity of methodological approaches have been used, including conceptual papers (e.g., Zmud 1980), literature reviews (e.g., Wiener et al. 2016), interviews (Kaiser and Bostrom 1982), action research (Baskerville and Stage 1996; Iversen et al. 2004), case studies (e.g., Dibbern et al. 2008 and Gregory et al. 2013), surveys (e.g., Iacovou et al. 2009, Keil et al. 2000a, and Moeini and Rivard 2019), experiments (e.g., Abdel-Hamid et al. 1999), modeling (Wrigley and Dexter 1991), design science (Mukhopadhyay et al. 1992), the use of archival data from companies and other sources (e.g., Ramasubbu et al. 2008 and Singh et al. 2011) and mixed methods (Jenkin et al. 2019). All of the conceptual papers were published between 1978 and 1984. The dominant methods employed have been surveys and case studies. From 2008 onwards, we begin to see papers based on archival data from companies and other sources. Comparatively few papers have been based on action research, experiments, modeling, design science, or mixed methods.

3. Thematic Advances in Knowledge

We identified seven themes that have emerged in the project management research that has been published in *MIS Quarterly*: 1) project success/failure/performance, 2) project team management, 3) project estimation, 4) project risk management, 5) project escalation and de-escalation, 6) project contract management, and 7) project control. We evaluated the temporal progression of these themes using the same three time periods, or waves, as above: 1) 1978 – 1992, 2) 1993 – 2007, and 3) 2008 – 2020. From 1978 – 1992, the IT project management research published in *MIS Quarterly* focused on three themes: IS success/failure/performance, managing project teams, and project estimation. Work in the area of project estimation was limited to this initial time period. From 1993 – 2007, the IT project management research published in *MIS Quarterly* included two new themes: project risk management and project escalation/de-escalation. This middle time period also included further work on IS success/failure/performance and on project team management. From 2008 – 2020, the IT project management research published in *MIS Quarterly* included two new themes: project contract management and project control. This most recent time period also included further work on IS success/failure/performance and managing project teams. Each of the seven themes identified are described briefly below, in the order in which they first emerged.

Project success/failure/performance

Project success and failure as well as other project performance more generally is a complex multidimensional issue (Ewusi-Mensah and Przasnyski 1991). Research within this theme has focused on understanding factors causing project failure, highlighting a myriad of people, managerial, and organizational problems (Felix and Harrison 1984; Schmitt and Kozar 1978) as well as practices that can help improve the likelihood of project success (Benbasat and Vessey 1980; White and Leifer 1986). Research within this theme has also focused on specific problems or challenges that can affect project performance or outcomes, such as setting project goals (Abdel-Hamid et al. 1999), managing inter-personal conflict (Barki and Hartwick 2001), integrating fragmented pockets of specialized knowledge (Mitchell 2006), project managers' status reporting behavior (Iacovou et al. 2009), and developing mutual understanding among key stakeholder groups (Jenkin et al. 2019). In addition, research within this theme has focused on understanding how to successfully manage different types of projects, such as offshore projects (Rai et al. 2009; Ramasubbu et al. 2008) and open-source projects (Singh et al. 2011). Finally, research in this theme also sought to understand project success or failure as socio-material accomplishments performed in and by project actor-networks involving developers, managers, and technologies (Cecez-Kecmanovic et al. 2014).

Project team management

Project team effectiveness as a key determinant of project success has been studied from the early days of *MIS Quarterly* until today. Research in this theme has focused on adapting project decision-making to team preferences (Biggs 1978), differences in personality and behavior characteristics across project roles (Kaiser and Bostrom 1982), and team composition considerations (White 1984). Several of these early papers have a distinct prescriptive dimension. Other work has expanded on the topic by addressing the role of open source software

(OSS) ideology in OSS development teams (Stewart and Gosain 2006), and how characteristics of cross-functional agile teams impact development agility and performance (Lee and Xia 2010). In addition, recent work has examined how different collaborative arrangements in project teams relate to team conflict and coordination outcomes (Kudaravalli et al. 2017).

Project estimation

Project estimation involves assessing the overall size of a project or the time required to complete the tasks that the project is comprised of, in order to understand the overall effort, time, and cost that will be required to complete the project. Research within this theme has focused on estimation techniques that have been described in the literature (Benbasat and Vessey 1980), how to model system size based on system requirements and design (Wrigley and Dexter 1991), and the development of a case-based reasoning model for software effort estimation (Mukhopadhyay et al. 1992).

Project risk management

Project risk management involves risk identification, risk analysis, risk response planning, and risk monitoring. Research within this theme has focused on using risk analysis to control prototype development (Baskerville and Stage 1996), managing risk in software process improvement (Iversen et al. 2004), and predicting the risk response decisions of IT project managers (Moeini and Rivard 2019). In addition to the research focused on project risk management, aspects of managing risk are also present in a few of the articles in other themes (e.g., project control, and project contract management), but not as a primary focus.

Project escalation and de-escalation

Project escalation occurs when managers become committed to failing courses of action, continuing to fund projects that are performing poorly and not likely to ever deliver the value for which they were undertaken in the first place. Research within this theme has focused on factors that promote project escalation (Keil 1995; Keil et al. 2000a; Newman and Sabherwal 1996), cross-cultural differences in escalation of commitment behavior (Keil et al. 2000b), and the process through which projects that have gone awry can be de-escalated (Montealegre and Keil 2000).

Project contract management

Articles addressing outsourcing contracts for IT projects have focused largely on the relationships between contractual arrangements, project and relational characteristics, and project outcomes. This includes work on identifying cost drivers outside of contracts that affect project performance (Dibbern et al. 2008), understanding how prior customer – supplier relationships affect contractual arrangements (Gefen et al. 2008), and probing how relational capabilities relate to certain project outcomes (Gopal and Koka 2012). Recent work has examined the balancing between ex ante and ex post transaction costs in contract design (Benaroch et al. 2016), as well as the sharing of intellectual property rights in outsourcing relationships (Chen et al. 2017).

Project control

Control of IT projects encompasses activities intended to align the behaviors of project members and other stakeholders with project goals. Work in this area has extended control theory by focusing on the role of social capital in informal control (Chua et al. 2012), understanding dynamics of control balancing in offshored IT projects (Gregory et al. 2013), and how control configuration and control enactment combine to achieve desired control outcomes (Wiener et al. 2016).

4. Conclusion

This curation illustrates the breadth of research on IT project management over the past 40 years in *MIS Quarterly*. We hope that these articles will provide a foundation for further research on the critical issue of IT project management.

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5. List of Articles

Abdel-Hamid, T. K., Sengupta, K., and Swett, C. 1999. "The Impact of Goals on Software Project Management: An Experimental Investigation," *MIS Quarterly* (23:4), pp. 531-555.

Barki, H., and Hartwick, J. 2001. "Interpersonal Conflict and Its Management in Information System Development," *MIS Quarterly* (25:2), pp. 195-228.

Baskerville, R. L., and Stage, J. 1996. "Controlling Prototype Development through Risk Analysis," *MIS Quarterly* (20:4), pp. 481-504.

Benaroch, M., Lichtenstein, Y., and Fink, L. 2016. "Contract Design Choices and the Balance of Ex-Ante and Ex-Post Transaction Costs in Software Development Outsourcing," *MIS Quarterly* (40:1), pp. 57-82.

Benbasat, I., and Vessey, I. 1980. "Programmer and Analyst Time/Cost Estimation," *MIS Quarterly* (4:2), pp. 31-43.

Biggs, S. F. 1978. "Group Participation in Mis Project Teams? Let's Look at the Contingencies First!," *MiS Quarterly* (2:1), pp. 19-26.

Cecez-Kecmanovic, D., Kautz, K., and Abrahall, R. 2014. "Reframing Success and Failure of Information Systems," *MIS Quarterly* (38:2), pp. 561-588.

Chen, Y., Bharadwaj, A., and Goh, K.-Y. 2017. "An Empirical Analysis of Intellectual Property Rights Sharing in Software Development Outsourcing," *MIS Quarterly* (41:1), pp. 131-161.

Chua, C. E. H., Lim, W.-K., Soh, C., and Sia, S. K. 2012. "Enacting Clan Control in Complex It Projects: A Social Capital Perspective," *MIS Quarterly* (36:2), pp. 577-600.

Dibbern, J., Winkler, J., and Heinzl, A. 2008. "Explaining Variations in Client Extra Costs between Software Projects Offshored to India," *MIS Quarterly* (32:2), pp. 333-366.
Ewusi-Mensah, K., and Przasnyski, Z. H. 1991. "On Information Systems Project Abandonment: An Exploratory Study of Organizational Practices," *MIS Quarterly* (15:1), pp. 67-86.
Felix, R. G., and Harrison, W. L. 1984. "Project Management Considerations for Distributed Processing Applications," *MIS Quarterly* (8:3), pp. 161-170.
Gefen, D., Wyss, S., and Lichtenstein, Y. 2008. "Business Familiarity as Risk Mitigation in Software Development Outsourcing Contracts," *MIS Quarterly* (32:3), pp. 531-551.
Gopal, A., and Koka, B. R. 2012. "The Asymmetric Benefits of Relational Flexibility: Evidence from Software Development Outsourcing," *MIS Quarterly* (36:2), pp. 553-576.
Gregory, R. W., Beck, R., and Keil, M. 2013. "Control Balancing in Information Systems Development Offshoring Projects," *MIS Quarterly* (37:4), pp. 1211-1232.
Iacovou, C. L., Thompson, R. L., and Smith, H. J. 2009. "Selective Status Reporting in Information Systems Projects: A Dyadic-Level Investigation," *MIS Quarterly* (33:4), pp. 785-810.
Iversen, J. H., Mathiassen, L., and Nielsen, P. A. 2004. "Managing Risk in Software Process Improvement: An Action Research Approach," *MIS Quarterly* (28:3), pp. 395-433.
Jenkin, T. A., Chan, Y. E., and Sabherwal, R. 2019. "Mutual Understanding in Information Systems Development: Changes within and across Projects," *MIS Quarterly* (43:2), pp. 649-672.
Kaiser, K. M., and Bostrom, R. P. 1982. "Personality Characteristics of Mis Project Teams: An Empirical Study and Action-Research Design," *MIS Quarterly* (6:4), pp. 43-60.
Keil, M. 1995. "Pulling the Plug: Software Project Management and the Problem of Project Escalation," *MIS Quarterly* (19:4), pp. 421-447.
Keil, M., Mann, J., and Rai, A. 2000a. "Why Software Projects Escalate: An Empirical Analysis and Test of Four Theoretical Models," *MIS Quarterly* (24:4), pp. 631-664.
Keil, M., Tan, B. C., Wei, K.-K., Saarinen, T., Tuunainen, V., and Wassenaar, A. 2000b. "A Cross-Cultural Study on Escalation of Commitment Behavior in Software Projects," *MIS Quarterly* (24:2), pp. 299-325.
Kudaravalli, S., Faraj, S., and Johnson, S. L. 2017. "A Configural Approach to Coordinating Expertise in Software Development Teams," *MIS Quarterly* (41:1), pp. 43-64.
Lee, G., and Xia, W. 2010. "Toward Agile: An Integrated Analysis of Quantitative and Qualitative Field Data on Software Development Agility," *MIS Quarterly* (34:1), pp. 87-114.
Mitchell, V. L. 2006. "Knowledge Integration and Information Technology Project Performance," *MIS Quarterly* (30:4), pp. 919-939.
Moeini, M., and Rivard, S. 2019. "Responding—or Not—to Information Technology Project Risks: An Integrative Model," *MIS Quarterly* (43:2), pp. 475-500.
Montealegre, R., and Keil, M. 2000. "De-Escalating Information Technology Projects: Lessons from the Denver International Airport," *MIS Quarterly* (24:3), pp. 417-447.
Mukhopadhyay, T., Vicinanza, S. S., and Prietula, M. J. 1992. "Examining the Feasibility of a Case-Based Reasoning Model for Software Effort Estimation," *MIS Quarterly* (16:2), pp. 155-171.
Newman, M., and Sabherwal, R. 1996. "Determinants of Commitment to Information Systems Development: A Longitudinal Investigation," *MIS Quarterly* (20:1), pp. 23-54.

Rai, A., Maruping, L. M., and Venkatesh, V. 2009. "Offshore Information Systems Project Success: The Role of Social Embeddedness and Cultural Characteristics," *MIS Quarterly* (33:3), pp. 617-641.
Ramasubbu, N., Mithas, S., Krishnan, M. S., and Kemerer, C. F. 2008. "Work Dispersion, Process-Based Learning, and Offshore Software Development Performance," *MIS Quarterly* (32:2), pp. 437-458.
Schmitt, J. W., and Kozar, K. A. 1978. "Management's Role in Information System Development Failures: A Case Study," *MIS Quarterly* (2:2), pp. 7-16.
Singh, P. V., Tan, Y., and Mookerjee, V. 2011. "Network Effects: The Influence of Structural Capital on Open Source Project Success," *MIS Quarterly* (35:4), pp. 813-829.
Stewart, K. J., and Gosain, S. 2006. "The Impact of Ideology on Effectiveness in Open Source Software Development Teams," *MIS Quarterly* (30:2), pp. 291-314.
White, K. B. 1984. "Mis Project Teams: An Investigation of Cognitive Style Implications," *MIS Quarterly* (8:2), pp. 95-101.
White, K. B., and Leifer, R. 1986. "Information Systems Development Success: Perspectives from Project Team Participants," *MIS Quarterly* (10:3), pp. 215-223.
Wiener, M., Mähring, M., Remus, U., and Saunders, C. 2016. "Control Configuration and Control Enactment in Information Systems Projects: Review and Expanded Theoretical Framework," *MIS Quarterly* (40:3), pp. 741-774.
Wrigley, C. D., and Dexter, A. S. 1991. "A Model for Measuring Information System Size," *MIS Quarterly* (15:2), pp. 245-257.
Zmud, R. W. 1980. "Management of Large Software Development Efforts," *MIS Quarterly* (4:2), pp. 45-55.