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Using Web 2.0 Applications for Front End of Innovation Activities: A Multi-Theoretic Approach

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Abstract

In this research-in-process paper, we develop a model for understanding the individual's adoption and use of Web 2.0 applications for activities at the front-end of innovation, by integrating theories of technology acceptance, task-technology fit, adaptive structuration, and institutional view. Web 2.0 tools often exhibit organic pathways to adoption, which differ from the IT department-led technology adoption more commonly studied. Web 2.0 applications, and tasks at the front end of innovation are similar. The former are highly structurable and given to flexible use. The latter, such as knowledge sharing, collaboration and information search are decentralized and unstructured. It is thus reasonable to assume that Web 2.0 tools should be beneficial for these tasks. Implications for theory and practice are addressed.

Keywords: Front End of Innovation, Web 2.0 applications, Innovation, Knowledge Management

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**Using Web 2.0 Applications for Front End of Innovation Activities:
A Multi-Theoretic Approach**

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Extended Abstract

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Key Words: *Front End of Innovation, Web 2.0 applications, Innovation, Knowledge Management*

The front end of innovation (FEI) includes activities occurring during the formation of an idea through the time it becomes formalized as an innovation project. Success at the FEI is critical to an organization's overall success at innovating [7]. Activities constituting FEI include opportunity identification, idea genesis, opportunity analysis, idea selection, and concept and technology development [4]. The ability to search and mine internal and external knowledge bases and identify communities of interest and expertise are critical capabilities for achieving success in these tasks. Web 2.0 and social media are ideal for tasks that call for collaboration, communication and information sharing. It is thus reasonable to assume that Web 2.0 tools should be beneficial to FEI tasks. Whether innovators have been able to take advantage of Web 2.0, and if so, how, has not been explored in prior research. We thus examine the research question, "*How can use of Web.0 and social media applications enhance FEI activities and outcomes?*"

We draw from the Technology Acceptance Model (TAM), Task-Technology Fit (TTF), Adaptive Structuration Theory (AST), and Institutional views to propose a multi-theoretic model for understanding how innovators use Web 2.0 applications for FEI activities. TAM [1] explains users' acceptance of technology by predicting their adoption intentions based on perceived usefulness and perceived ease of use. The TTF model [3] states that the utilization of an application depends on the extent to which its functionality fits the requirements of the task that the user executes, using that application. Greater fit is associated with greater utilization. AST [2,5] suggests that the use of a particular application depends on how it is appropriated by the user. Appropriation is influenced by the technical characteristics of the application and the task accomplished using the application. Institution Theory [6] states that for organizational members to accomplish particular actions, institutional support for them is necessary.

Drawing from these four views, we hypothesize that the adoption of Web 2.0 applications for FEI tasks will be positively associated with user comfort with IT and social media (H1), user belief in Web 2.0 (H2), tasks characteristics of knowledge management, collaboration etc. (H3), technical characteristics of Web 2.0 applications such as flexibility and structurability (H4), IT support for innovation (H5), IT support for Web 2.0 (H6), and organizational support for innovation (H7). Such adoption is positively associated with FEI task outcomes (H8) and FEI outcomes (H9). Figure 1 in the Appendix illustrates the research model and mentions the particular theoretical basis for each relationship.

The potential contribution of our research is in developing a basis for understanding how highly structurable applications, such as Web 2.0 applications, can be used for FEI processes, which require collaboration, knowledge sharing and information search. We intend to validate the research model using qualitative and quantitative data. For the former, we are in the process of interviewing with researchers/innovators working on FEI tasks, to analyze and possibly refine the relationships we have envisaged. For the latter, we are in the process of designing a web-based survey to be self-administered to FEI innovators working in and for corporate R&D departments.

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Appendix

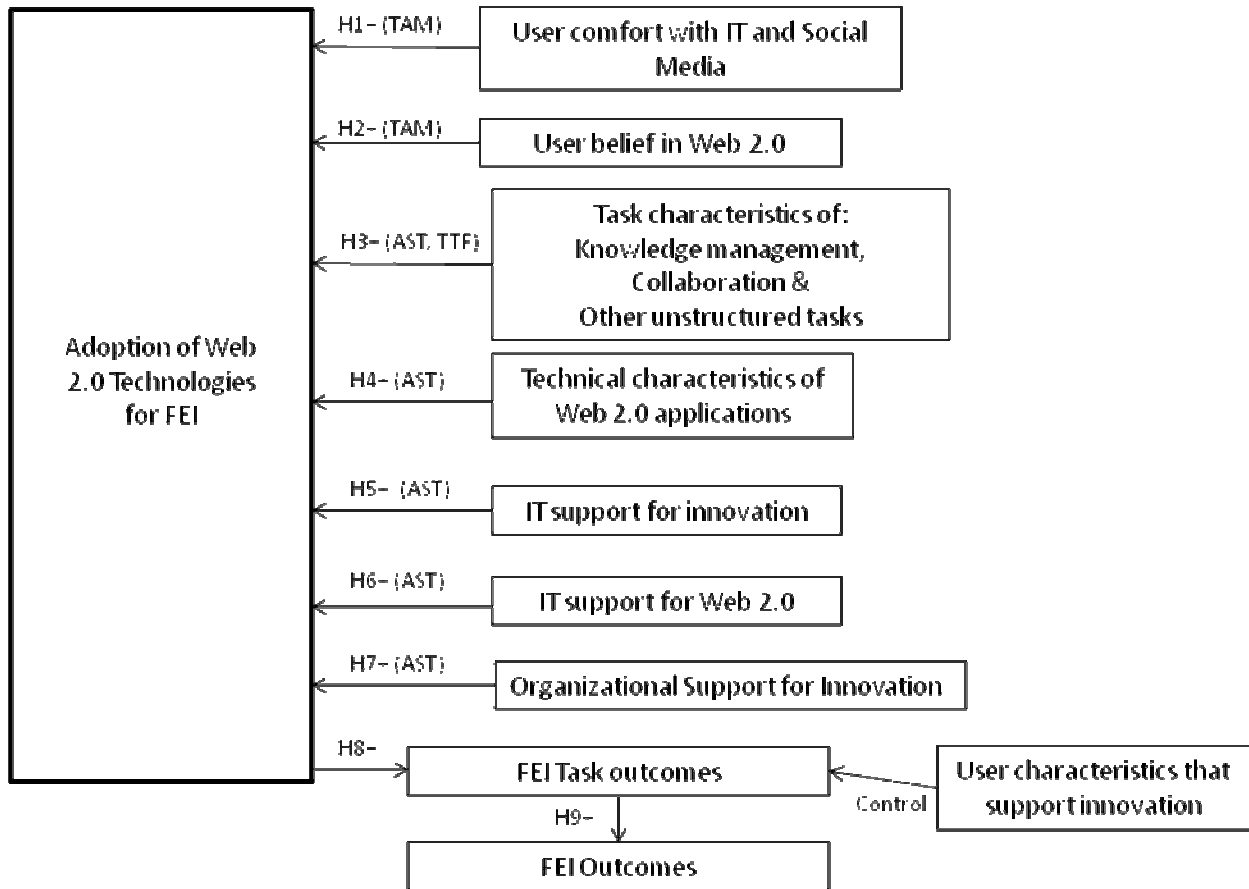


Figure 1: Research Model

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