

Technology use and innovation for solving business problems: a preliminary report

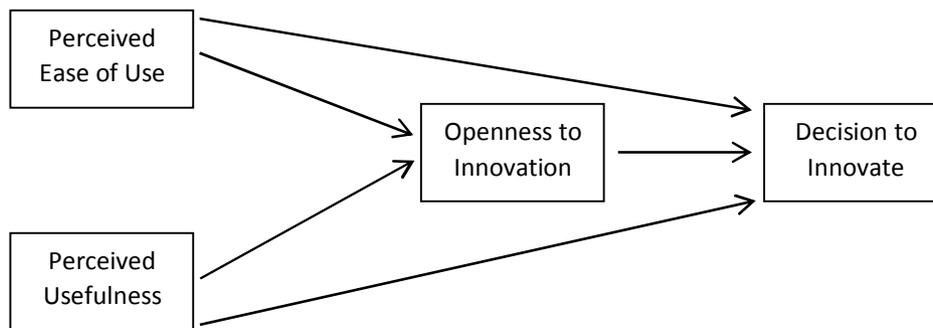
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Extended abstract

The theory of innovation diffusion and numerous empirical studies (e.g., Davis, 1989; Avci-Yücel&Gülbahar, 2013; Marangunić&Granić, 2014, Alghalith, 2012; Jayawickrama, Liu, & Smith, 2014; Qutaishat, Khattab, Zaid, & Al-Manasra, 2012) attempted to explain the process and outcome of technological innovation and its adoption in management. And yet, there is not much solid evidence presented that senior management of small and medium size business in fact use the diffusion-theory based, carefully calculated mathematical model in adopting the innovation or technology use as a solution to their business problems. Building upon the diffusion of innovations theory (Rogers, 2003, Davis, 1989; Avci-Yücel&Gülbahar, 2013; Marangunić&Granić, 2014), when managers of small and medium size businesses perceive that a new technology is useful and easy to use, they are open to the innovation and would likely adopt the new innovation. See Figure 1.

Figure 1. Theoretical Model



Out of the 1,000 randomly selected senior managers of small to medium sized organizations in the U.S. invited to participate via email, 154 managers completed the survey for the study: 106 men (68.8%) and 48 women (31.2%). All participants except 9 (5.8%) completed college or some college level education. Four business scenarios were constructed, each of which presents four different combinations of the following factors: the age of the current software, customer satisfaction, projected increase in growth after technology adoption, projected reduction in inventory turns, and cost of the upgrade. Study participants were presented with randomly selected one of the four scenarios; and was asked to choose decision options regarding adoption of a new technological innovation for a fictional company.

The bivariate analyses also reveal that perceived ease of use of an innovation is positively and significantly correlated with the perceived usefulness of an innovation ($r = 0.28$, $p < .01$), and that men are more likely to perceive the ease of use of an innovation than women in the sample ($r = 0.16$, $p < .01$). The perceived usefulness of an innovation was positively correlated with the educational level of respondents ($r = 0.16$, $p < .05$). A negative correlation exists openness to innovation and the age of a respondent, ($r = -0.20$, $p < .05$), which suggests that as age increases, openness to innovation decreases. Further analyses with multiple regressions did not produce statistical significance as initially proposed except the perceived ease and the perceived usefulness of

technology. Implications of the study for further research and practice are discussed.

Table 1. Correlation Coefficients of Study Variables.

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | |
|-----------|-------|-------|----|-------|-------|-------|-------|-------|------|----|------|
| 1 | 1 | | | | | | | | | | |
| 2 | -0.10 | 1 | | | | | | | | | |
| 3 | -0.10 | 0.28 | ** | 1 | | | | | | | |
| 4 | -0.02 | 0.03 | | 0.15 | 1 | | | | | | |
| 5 | 0.06 | 0.00 | | 0.13 | 0.05 | 1 | | | | | |
| 6 | 0.03 | 0.07 | | 0.14 | 0.04 | 0.12 | 1 | | | | |
| 7 | -0.05 | 0.16 | * | 0.07 | -0.13 | -0.16 | * | -0.07 | 1 | | |
| 8 | 0.16 | -0.08 | | -0.10 | -0.20 | * | -0.12 | -0.12 | 0.23 | ** | 1 |
| 9 | 0.00 | -0.07 | | 0.16 | * | 0.05 | 0.01 | 0.01 | 0.02 | | 0.07 |

Note. 1: decision to innovate; 2: perceived ease of use; 3: perceived usefulness; 4: individual innovativeness; 5: number of employees at company; 6: company engages in eCommerce, 7: gender, 8: age, 9: education level.

Selected References

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