



## Differences in Innovation Approaches between the Wearable Technology and Fashion Industries

Deepika Raj and Jung Ha-Brookshire, University of Missouri, USA

**Keywords: Wearable Technology, Transformational Leadership, Innovation**

According to the market research company IDtechEx, the market size of the Wearable Technology (WT) industry will grow from U.S. \$30 billion in 2016 to over U.S. \$100 billion by 2023 (Hayward et al., 2016). Despite this increase in market size, the experts have pointed out that fashion companies are lagging in innovation in the WT domain (Sultan, 2015). Researchers argue that, for successful product development, WT teams must have transformational leadership (TL), which is found to be a key factor for a team's innovative work behavior (IWB) (Boies et al., 2015). Especially when the team is consisted of diverse individuals, TL helps produce team members' inspiration, intellectual stimulation, and motivation, generating social capital of the team (Boies et al., 2015). In such IWB, three key stages are found including idea generation (IG), idea promotion (IP), and idea realization (IR) (Janssen, 2000).

According to a research conducted by Raj and Ha-Brookshire (2016), WT product development processes require interdisciplinary knowledge from different academic and/or professional backgrounds, such as electronics engineering, fashion, and so on. Therefore, for the team's IWB, the TL is thought to be more important for WT product development teams' IWB than that of traditional fashion product development teams (H1). Moreover, irrespective of the groups, the team that perceives high TL will display more IG, IP, and IR than the team with low TL (H2). In addition, because of the diverse backgrounds of the teams, IG, the initial brainstorming stage, was expected to be higher in WT teams than in traditional fashion product development teams (H3). IP, the stage of promoting new ideas to stakeholders and potential allies (Janssen, 2000), was also thought to be greater in WT product development teams than fashion (H4). Finally, IR, the stage focusing on producing tangible prototype, service, or process, was hypothesized to be greater in WT product development teams than traditional fashion product development teams (H5) for the same reasons mentioned above.

An online survey design was used to collect the data. Janssen's (2000) scale consisting of nine items (Cronbach alpha = .95) was used to measure the three stages of IWB, and Carless, et al.'s (2000) seven items (Cronbach alpha = .93) was used to measure TL. After the approval of the Institutional Review Board, the survey was distributed through an online data collection company, Qualtrics in spring 2017. A total of 114 usable responses were analyzed, out of which, 56 responses identified themselves as members of WT product development teams and 58 as those of traditional fashion product development teams.

An independent-samples t-test was conducted to compare the average presence of TL, IG, IP, and IR in WT and traditional product development teams. First, for TL there was no statistically

significant difference between WT and fashion product development members, rejecting the H1. Second, when the TL was transformed as a categorical variable (1=below average TL and 2=above average TL), there was a statistically significant relationship in the IG, IP, and IR between the two categories of TL. Groups exhibiting above-average TL displayed more IG ( $M=4.24$ ,  $SD=.587$ ), IP ( $M=4.27$ ,  $SD=.692$ ), and IR ( $M=4.30$ ,  $SD=.597$ ) behaviors than the other group, with  $t(112)$  ranging from 2.28 to 2.20 and  $p$  less than 0.05, supporting H2. Third, for IG, there was a statistically significant difference in the means between WT ( $M=4.24$ ,  $SD=.588$ ) and fashion ( $M=3.29$ ,  $SD=0.633$ ) groups ( $t(112)=2.28$ ,  $p=0.025$ ), supporting H3. Fourth, for IP, there was a statistically significant difference between the groups, and the means of WT ( $M=4.28$ ,  $SD=.692$ ) was higher than fashion ( $M=3.93$ ,  $SD=0.750$ ) ( $t(112)=2.533$ ,  $p=0.013$ ), supporting H4. Finally, for IR, there was also a statistically significant difference between WT ( $M=4.303$ ,  $SD=.597$ ) and fashion ( $M=4.023$ ,  $SD=0.746$ ) ( $t(112)=2.212$ ,  $p=0.029$ ), supporting H5.

This study is one of the first attempts to investigate different levels of team's TL and IWB between WT and fashion product development teams. The result identifies certain team behavior traits conducive for innovation, which fashion product development teams could utilize if they would like to compete against WT teams. The results also inform the managers of WT and fashion product development teams of the importance of TL for the team's innovate work behavior. The result of this study also informs the academicians who trains the future workforce of the WT and fashion industries so they could have skill sets for IWB. Future research could be done to assess the impact of other factors, such as work environment and personal characteristics of the workers, which might impact their IWB, and this would contribute to expanding the innovation capability for the fashion industry as a whole.

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