Has New Technology Affected Formula 1 Fans Satisfaction and Commitment to Watching the Sport?

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Formula 1 (F1) has been a technology-driven sport (Jenkins, 2010; Pfahl & Bates, 2008). During the early stages, in the 1950s-60s, F1 cars had a simple design fitted with large, loud and powerful 4.5 liter, V12 engines. Nowadays, the situation is quite different. The most recently introduced technologies include a kinetic energy recovery system (KERS) in 2009, the drag reduction system (DRS) in 2011, V6 engines in 2014, significant aerodynamic changes in 2017, and the revolutionary head protective system (HALO) in 2018. Despite safety benefits, technology has been accused of creating imbalance and making the sport more predictable and less exciting for spectators (Mastromarco & Runkel, 2009). This scenario has been associated with a reduction in 150 million TV spectators since 2008 (Mourao, 2017). TV spectatorship is a critical source of revenue, as TV rights generated US$500 million in the last five years (Mourao, 2017). Drawing upon the technology acceptance model (Davis et al., 1989), the purpose of this research was to investigate whether the use of new technology in F1 has affected fans satisfaction and commitment towards consumption of F1 as TV product.

Method.
Contacted via F1 forums, a sample of 459 fans responded to a questionnaire. Respondents were mostly male (83.7%), British (48.8%), with a higher education diploma (59.1%) and average age of 40.1 years (SD = 17.3). Attitude toward F1 technology use (Ballouli et al., 2016), satisfaction with F1 as a TV product (Brady et al., 2005) and commitment (Lin et al., 2016) to F1 viewership were latent variables, represented by three items each, answered on a 7-point-agreement scale. F1, team, and driver identification (Wann & Branscombe, 1993) were control variables. Data were analyzed via covariance-based structural equation modeling.

Results
The measurement model fit the data closely (RMSEA=.060; CFI=.986; TLI=.980). Cronbach’s alpha (from .764 to .942), AVE (from .56 to .85) and correlations (from .175 to .343) showed no concerns regarding reliability and construct validity of scales. A mediated model fit the data closely (RMSEA=.052; CFI=.980; TLI=.974) and showed that technology affects satisfaction ($\gamma=0.372; p<.001$), which affects commitment ($\beta=0.145; p=.003$). Indirect effect was significant (IND=.054; p=.006). Respondents expressed a moderate support for F1 technology use (M=4.75; SD=1.42) and satisfaction with F1 as a TV product (M=4.44; SD=1.68), but they were relatively highly committed to F1 viewership (M=5.85; SD=1.51). Results showed that commitment and satisfaction with F1 as a TV product depend on perceptions of technology use. Findings confirm previous studies, as they showed that fans have not been highly excited about technology changes in F1 (Mourao, 2017; Torgler, 2018). Increasing drop in satisfaction with technology use in F1 can lead to drop in TV audience. The governing body of F1 (FIA) should be aware of this risk and re-think about new technological introductions. Meanwhile, strategies to reestablish competitive balance among pilots/teams should help F1 to avoid failing as a sport TV product (Berkowitz et al., 2011). Future studies can investigate former fans who stopped being committed to watch F1 on TV to determine the influence of technology on their decisions.