

### Extended Abstract

# Technology Addiction in the Digital Economy and Suggested Solutions\*

Adnan Veysel Ertemel<sup>1</sup>  
İstanbul Commerce University

Gökhan Aydın<sup>2</sup>  
İstanbul Medipol University

### Abstract

This study argues that technology addiction is a natural consequence of current digital ecosystem characterized with attention economy. The fact that technology platforms architect addictive experiences by exploiting weaknesses of human brain results in consumers' spending prolonged periods of time on screens. To remedy this problem, this paper proposes various solutions and best practices using a comprehensive approach. Proposals at individual level, family level, organization level and ultimately societal and governmental level are discussed, in order, to overcome technology addiction problem.

### Keywords

Technology addiction • Attention economy • Internet addiction • Online addiction

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**1 Correspondence to:** Adnan Veysel Ertemel, Department of International Trade, İstanbul Commerce University, Beyoğlu, İstanbul 34445 Turkey. Email: [avertemel@ticaret.edu.tr](mailto:avertemel@ticaret.edu.tr)

**2** Department of Health Management, İstanbul Medipol University, Beykoz, İstanbul 34810 Turkey. Email: [gaydin@medipol.edu.tr](mailto:gaydin@medipol.edu.tr)

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In the highly digitized and competitive marketplaces of the 21<sup>st</sup> century, the volume of produced data has been exponentially increasing. Due to this increase in information available to individuals, grabbing attention becomes ever more difficult for businesses. As such, the current digital ecosystem is primarily based on attention economics (Davenport, 2001), and businesses compete for consumers' attention. In return, they strive to provide entertaining and informative content unavailable elsewhere. The Attention Economy monetizes consumers' attention by advertising revenue. In recent years, technology platforms have resorted to findings in behavioral psychology to increase the time people spend onscreen, thereby boosting their own revenues (Eyal, 2014; Fogg, 2002; Ertemel, 2016). As a consequence, this study argues technology addiction to be an architected phenomenon naturally resulting from attention economy.

### **How the Defining Characteristics of Digital Media Lead to Technology Addiction**

Digital medium encompasses unique characteristics that don't exist in other mediums such as TV, radio, magazine, and so on. These characteristics are discussed as follows.

**Absence of a stop sign.** Stop signs are an indication of the end of an activity. In digital media, various techniques eliminate or blur the so-called stop signs of digital activities. The infinite scroll feature (virtually unlimited content on one page/interface) in mobile applications for various social media platforms, the auto-play feature for suggested videos at the end of video clips on related platforms (i.e., YouTube, Netflix) are examples of this phenomenon. This leads to constant consumption of digital media without awareness of the passing of time.

**Fear of Missing Out (FoMo).** The phenomenon of the fear of missing out (FoMo) is characterized by feeling stressed thinking that something exciting or interesting might be happening elsewhere that the individual is missing. Through constant social-media exposure and being connected all the time, this feeling gets stretched, ultimately leading to obsessive behaviors such as continuously checking mobile phones/notifications (Przybylski, 2013).

**Variable rewards.** Stimulating the brain with variable rewards results in activating the brain's reward area, the amygdala. This results in routine actions turning into addictive behavior. The same mechanism is employed by various technology platforms to make users curious and develops expectations about how many people will "like" their postings and who is talking about what (trends, friends' shares, etc.) on social media (Harris, 2016b).

### **Addiction as an Architected Phenomenon**

The concept of habit loops explains brain activity that happens when individuals act in auto-pilot mode. It consists of a trigger (stimuli), action (routine), and reward loop.

Based on this model, Eyal (2014) added “investment (to platform)” as the fourth step in the loop in order to propose a new model on building addictive digital experiences.

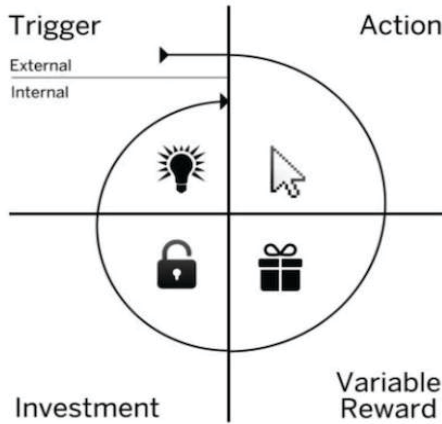


Figure 1. The Hook Model (Eyal, 2014).

### A Comprehensive Approach to Confronting Technology Addiction

Digital service providers’ design of addictive experiences that utilize behavioral economics and psychologists calls for the mandate to develop new comprehensive strategies and policies at the individual, familial, organizational, and societal levels for confronting technology addiction. Several recommendations for dealing with technology addiction at different levels are provided in the following sections.

#### Recommendations at the Individual Level

The most effective approach to combatting this addiction is to perform the exact-opposite actions defined in the hook model. Eyal (2014) argued that, if the hook model is designed with purely capitalist motives, “unhooking” should be practiced. In unhooking, the effect of each of the four steps in the addiction loop is mitigated with opposing actions.

As the first step, in order to avoid the effects of a trigger, stimuli should be removed by turning off all notifications from each black-listed mobile app. Recognizing that only 18% of mobile users change default settings and turn off mobile-push notifications, this-generally overlooked-action is simple yet effective.

The second step involves making the required action consciously more difficult to perform. This can be in the form of moving addictive, time-consuming mobile apps to farther places in the smartphone menu, such as second or third screens or inside other folders. In this way, individuals will regain control and make more

conscious decisions. Increasing the difficulty of the action can also involve removing the relevant mobile apps (Facebook, Instagram, etc.) altogether from the smartphone, instead using the smartphone's browser to access these platforms. Signing in and out each time to further intentionally complicate the process will increase the difficulty and may dissuade addictive use behavior.

In the third step, the reward can be saved for later use. For example, when an individual researches a particular subject from their smartphone in the spur of the moment, the individual might feel the unconscious urge to read all related articles they come across. However, instead of reading all the articles from beginning to end, if the user saves them to a reading list or use a facilitator app like "Pocket" (<https://getpocket.com/>) for later use, this delaying strategy results in no more need to read most of the articles later. Such a delaying strategy lessens the need to read saved articles later.

Another reward type is receiving and sending messages back and forth with someone, which is reinforced through certain mechanisms like notification sounds and visuals. Counter-strategies could involve not always being available to reply to instant messages or emails and consciously delaying the time in between messages. This results in lowering the counter party's expectation to receive an immediate response. Applications like Boomerangmail (<https://boomerangmail.com>) serve this purpose.

In addition to the mentioned unhooking strategies, the mindfulness technique is also effective in combatting technology addiction (Ampofo, 2015; Williams & Kraft, 2012). Mindfulness techniques help an individual win back control and take conscious steps to avoid addiction. Intentionally making the steps taken for accessing the time-consuming apps mentioned above more difficult can be classified in this category.

### **Recommendations at the Family Level**

Technology-free times and places can be determined as a family policy. Such policies can include forbidding smartphone or tablet use in the bedroom or during dinner and/or breakfast time.

### **Recommendations at the Organizational Level**

Many large scale organizations have started adopting phoneless meeting policies (Zeldes, 2008). Likewise, many organizations have policies encouraging workers to set their smartphones in "do not disturb" mode at specific times to increase productivity (Harris, 2016a).

### **Recommendations at the Societal Level**

Increasing awareness is vital, as is developing new beliefs/norms about technology addiction at the societal level. Much like the case with other addictions such as

alcohol, tobacco, and drugs, different categories of technology addiction might also be considered restricted to specific ages at certain times and places. When considering the need for new social norms, Graham (2015) coined a new term, “social anti-buddy.” When someone suddenly pulls his phone out of his pocket in the middle of a daily conversation, someone in the group, the “social anti-buddy,” might take an active role by showing intolerance of this misbehavior. Gradually, newly-formed bad habits like these could be prohibited in social settings with these social norms.

Likewise, new regulations could be made or new government-backed initiatives can be started to further increase public awareness about the seriousness of the issue.

### Conclusion

Nowadays, digital technology providers get help from psychologists for designing addictive experiences. By hooking consumers to various screens, they can maximize the monetization of the attention given to their platforms. These powerful weapons in the digital toolbox are expected to more profoundly affect consumers, as digitization will likely become more pervasive in daily life through augmented reality and the Internet of things. Hence, technology addiction will become a serious problem in the upcoming years. Public awareness about the causes and consequences of this addiction should be increased further. Using a comprehensive approach, this study has analyzed techniques for addressing addictive experiences and has proposed practical counter-strategies for confronting technology addiction.

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