

Name of theory

Technology Acceptance Model (TAM)

Key reference

(Davis, 1989)

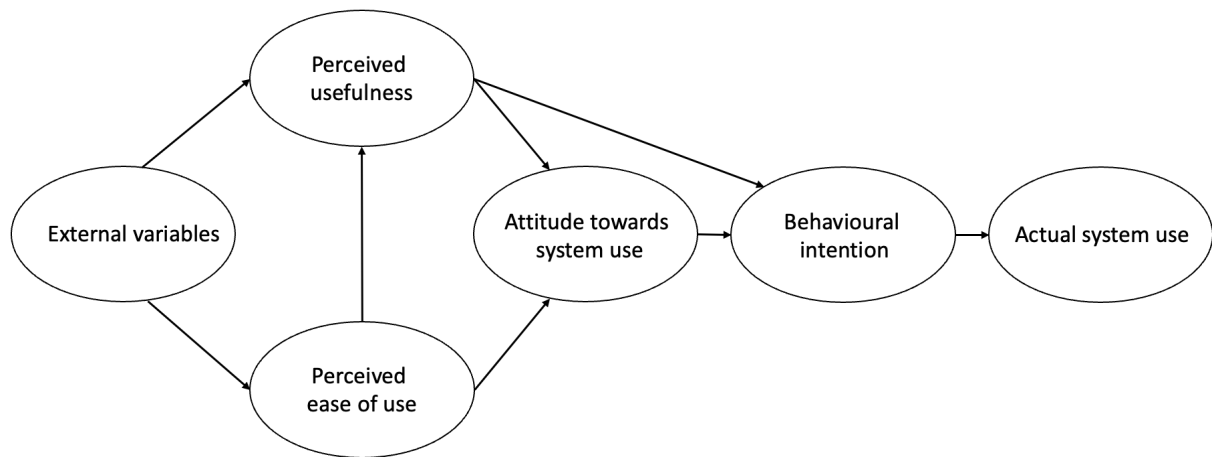


Figure 1. The Technology Acceptance Model

Description

The Technology Acceptance Model (TAM) describes the process by which end-users decide whether or not to adopt a new technology. This can be the use of a physical product, but also the use of an app or website. The TAM consists of several elements, with perceived usefulness and perceived ease of use lying at the heart of the model. The **perceived usefulness** is the perception of end-users to which extent the technology will prove to be beneficial if the end-user decides to adopt that technology. The **perceived ease of use** focuses on whether end-users feel that the use of the technology would be easy and lies within their possibilities. These two factors lead to an end-user's **attitude towards adopting the new technology**, which in turn influences the intention to do so, as well as actual behaviour that can be measured. **External factors** such as situational aspects are included in the model as potential predictors of the perceived usefulness and perceived ease of use. Over time, the model has been expanded upon towards a TAM2 which incorporates more factors into the TAM, such as to what extent the adoption of the new technology is perceived to be voluntary.

Application within the field of cybersecurity

TAM can help explain why cybersecurity solutions are adopted or not. The focus on perceptions of ease of use and usefulness can help improve existing technology so that incorporating these into cybersecurity policies becomes more natural. For example, to improve two-factor authentication uptake, improving the perceived usefulness in terms of the extra security added, and what this means for personal data might be a suitable way to increase the uptake. Similarly, if two-factor authentication is difficult to set up, or to use in day-to-day activities, end-users are likely to be hesitant to set up this extra layer of security. Reducing the barriers to the day-to-day workflow can then help to increase uptake of two-factor authentication settings.

Annotated bibliography

Davis (1989). Davis outlines the first set of factors that have become the Technology Acceptance Model (TAM). The paper focuses mostly on perceived usefulness and perceived ease of use as predictors of technology uptake. The paper contains a scale to measure these two factors, as well as outlining these two general concepts of TAM.

Tsourela & Nerantzaki (2020). Tsourela and Nerantzaki investigated whether the TAM could be used to understand the adoption of Internet of Things (IoT) devices. They found that the regular factors of TAM showed to be predictive of IoT uptake, but also added factors specific to IoT such as cyber resilience showed to also be relevant. The authors then present an IoT TAM model that they coined as IoTAM.

Venkatesh & Davis (2000). The authors test and outline an updated form of TAM, referred to as TAM2. In this new model, various extra factors have been added, such as voluntariness (whether people are free to choose whether to adopt the new technology or not), subjective norms (perceptions about behaviour/views of others), job relevance and outcome quality. In four studies they test the effectiveness of TAM2, showing that this model is an improvement over the classing TAM.

References

- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.
- Tsourela, M., & Nerantzaki, D. M. (2020). An internet of things (IoT) acceptance model. Assessing consumer's behavior toward IoT products and applications. *Future Internet*, 12(11), 191.
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, 46(2), 186-204.