Book Review: *The Technology Acceptance Model - 30 Years of TAM* by F. D. Davis and A. Granic.

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Abstract

The book *The Technology Acceptance Model – 30 years of TAM* by Davis and Granic is a retrospective, a state of play, and a look forward at the Technology Acceptance Model. It will appeal to a cross section of readers, including those new to the field, existing researchers, and people interested in theory development. The book discusses the development of the theory, described in terms of Smith and Hitt's theory of development; a review of recent research in the field, presented as a meta-review of work between 2003 and 2023; a proposal for the future development of the theory including a proposal for the adoption of NeuroIS as a method for data collection; and set of principles for refining the theory a variety of contexts. The book is comprehensive, systematic and thought provoking. It is an interesting addition to the body of work on technology acceptance.

Keywords: Technology acceptance, TAM, theory development

Citation

Introduction

Fred Davis, the father of the Technology Acceptance Model (TAM) (Davis, 1989) and a major figure in the field of technology acceptance research, has published a new book. The book is entitled: *The Technology Acceptance Model 30 Years of TAM* and has been written with Andrina Granic. It marks a return to publishing in the field for him after a few years where his research has been focussed elsewhere.

The book is divided into four distinct sections (plus an appendix), which could each be read as stand-alone sections. However, the parts are clearly related and there is a good strong narrative throughout the book, so although each part has the potential to be read as a stand-alone piece, the book, as a whole, is better than the sum of its parts. It presents very much a: "why" TAM was needed in the first place, a "how" it was developed and refined, a "what" it is, and it has been applied to, and a "where" it should go now.

The background to TAM

The book starts with an introductory chapter "Once Upon A TAM". It reads very much as a personal narrative and sets out the context of the antecedents of TAM. Three key points are raised in the chapter. Firstly, TAM grew from Davis' PhD (Davis, 1986) work on the user acceptance problem, which, at that time, was considered "unsolvable". TAM was posited as an acceptance theory that offered "consistent prediction, explanation, and improvement of user acceptance" and the model was innovative in that by placing perceived usefulness and ease of use as the key constructs and measurements of user behaviour and intention, it created the basis of a causal link between system design and user acceptance. Secondly, it was intended as a tool for Human Computer Interaction (HCI), specifically to address a "blind spot" in usability of usefulness. Thirdly, Davis also considered that it could be a test that was carried out early in the system development lifecycle, and that it was one that did not require hands on experience of the system to be carried out.

In considering these key aims of the model, it is interesting to see now, with hindsight, how the model has fared in terms of fulfilling these aims. Certainly, it has advanced, some might even say established, technology acceptance as a sub discipline within information systems and, in terms of prediction and explanation of user acceptance, it can be argued that it has been highly successful. However, TAM hasn't become part of the HCI toolkit. A brief perusal of any of the seminal HCI texts such as Shneiderman's *Designing the User Interface* (Shneiderman et al., 2017), or Norman's *The Design of Everyday Things* (Norman, 2013) will not show many, if any, references to TAM. Instead, TAM has developed into a very effective academic research theory, but not, as intended, an HCI test.

The chapter is a good account of how one of the most enduring theories within information systems research was germinated and developed. It allows us to see "why" it was developed, what Davis wanted it to achieve and the context within which he created it. As well as being useful for technology acceptance scholars, for anyone interested in the process of theory development, it is a detailed and clearly elucidated narrative and is a useful and structured exposition of the process.

The Evolution, Revolution and Future of TAM

Chapters 2, 3 and 4 of the book are entitled "Evolution of the TAM", which outlines the background to, and the development of, the theory. "Revolution of TAM", which tracks the development of the theory and "Epilogue: What Will the Future of TAM Be Like?", which sets out a future direction for

the theory. These chapters have a different lens to that of the introduction, being much more concerned with the theory as it exists now.

"Evolution of TAM", starts off with detailed and extensive descriptions of the major technology acceptance models beginning with those with their antecedents directly in TAM, notably, Augmented TAM, through TAM2, MDPEU and TAM 3. It then sets TAM in the wider context of the major technology acceptance models, noting its links to the earlier Theory of Reasoned Behaviour and Theory of Planned Action and the connections to the later UTAUT and UTAUT2 models. It also covers the most significant factors of behavioural intention that have been incorporated into the model, considering them individually and explaining why they were incorporated into the model, and outlining what their influences on behaviour, in the context of the model, are. For anyone new to the field or looking to develop a deep understanding TAM, this is an excellent reference. Perhaps the only criticism of this section is the lack of any detailed discussion of UTAUT (Venkatest et al, 2003), given that UTAUT is the other common model utilised and applied within technology acceptance alongside TAM and, also, given that it shares and incorporates many of the same factors and concepts, and that UTAUT's originator, Venkatesh, has worked extensively with Davis in the past.

"Revolution of TAM". Presents a state of play of the model as of now, in particular, how, and to what, the TAM has been applied to as a research/theoretical framework. It is based on a meta-review of the literature reviews and meta-analyses published from 2003 up to July 2023, supplemented by a systematic narrative review of primary research papers. This section has a very different style and feel to the previous chapter, it is written very much in the form of a review article.

Granic has written a number of well cited systematic reviews on TAM previously (Marangunic & Granic, 2015; Granic & Marangunic, 2019). It should be noted though, that the reviews that comprise this chapter are not the same as the previously published ones.

The first section of the chapter is based on the meta-review and presents a meta-analysis of other systematic reviews on TAM. The second section is based upon the systematic narrative review of papers that were primary studies using TAM. The core of this section is an analysis of the key elements of the TAM. It categorises the work into 4 groups: determinants of usefulness and ease of use, predictive factors of attitude, antecedents of behavioural intentions and predictors of usage.

The chapter summarises many of the key findings of the research on TAM. Considering these, it can be seen that, firstly, it acknowledges that there is a proliferation of models based upon, or related to, TAM. Secondly, that TAM is robust and that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are strong predictors of Behavioural Intention (BI). However, it also notes from the systematic narrative that TAM studies that show strong predictive outcomes of BI tend to rely on self-reporting data and that they show weaker prediction of actual usage (USE). This is supported in the meta-review where it notes that prediction of actual usage is weak. The third consideration of interest shown in the chapter is that the main moderators of PU and PEOU across numerous studies are subjective norm, self-efficacy and enjoyment. A fourth interesting point highlighted in the chapter is that the authors note that TAM has been applied by researchers across the globe and across many different technologies and contexts.

This section provides a good, in depth and rounded understanding of the details of the factors of the model and how they contribute to the explanatory power of the model. For anyone looking to gain a clear understanding of the inner workings of the model, the factors that comprise it, and their relationships, this section provides a very good exposition of these. However, the format of the chapter being written as a review doesn't allow the author's voice to come though well. The four

key findings outlined above are buried within other numerous findings from the very extensive review process upon which the chapter is built. So although, this is as would be expected from a review, as this is a book and a personal one as well, it would have been good to see what the authors themselves thought the key findings of the work were, combined with how they felt the work reflected their own assessment of state of TAM, or even better, their own evaluation(s) of the TAM as it is now, particularly, what they feel the limitations of the model are and areas where TAM needs to develop. The material in the chapter does highlight some of these, for example, that whilst TAM is effective at predicting BI, it is not a strong predictor of USE and that whilst the versatility of TAM, in that it is easy to adapt and customise, accepting and incorporating different modifier variables for different contexts, is a strength, this can also be at the expense of generalisability. It would have been nice if these could have been drawn together explicitly.

"Epilogue - What will the future of TAM be like?"

In the final section of the book, the vision of the future development of TAM and a proposal to keep the model relevant, are set out. The vision draws upon the other significant body of Davis' work in NeuroIS (Neuro Information Systems), a field which is described in the book as interdisciplinary and operating at the intersection of Neuroscience and Information Systems. In chapter 3 above, it was observed that empirical research using TAM has been predominantly characterised by self-reporting of participants on PEOU and PU, and that much of the work infers the future BI of the respondents from this. Davis sees NeuroIS as a technique to reduce the reliance of TAM research on self-reporting and to enable automatic unconscious processes to be recorded and examined, something which the book proposes would extend the range of data gathering techniques available to TAM researchers and, in turn enable, broader insights into technology acceptance behaviour. The book suggests that the approach has benefits from both an ethical perspective and that it would enable personalised models of technology acceptance to be developed and explored.

NeuroIS would certainly add to the variety of techniques in the technology acceptance researcher's arsenal, however, although the book presents areas that it could be applied to, it doesn't present many examples or case studies to demonstrate the technique and the affordances to TAM researchers it offers. Given that this technique is likely to be new to many technology acceptance researchers, this certainly would help anyone considering the approach evaluate the benefits of adopting the technology.

"Appendix – The Actionable Principles"

The book concludes with a detailed appendix which sets out 7 Actionable Principles for customising TAM. Instead of presenting a new version of TAM the principles set out guidelines for researchers as a structure on how to customise TAM for different contexts. They place TAM at the centre of the process and set out guidelines on selection and incorporation of antecedents into the model, how to utilise moderators to account for context, and also on the integration of other theories with TAM. The principles are based on actions that many researchers in TAM may have been doing for some time now, but the encoding of them provides useful heuristics for researchers, and certainly sets out a good foundation for consistency of use and understanding. That this is an appendix does a disservice to the principles. They deserves to be incorporated into the main body and logically they would seem to fit best with Chapter 2. However, they aren't really referred to in the rest of the text and potentially could be easily overlooked or missed. I almost did and if I had done so I would have missed an important contribution of the book.

Summary

Overall, there is much to commend in the book to a cross section of readers. It is a very good reference for someone who wants a thorough in-depth exposition of the model and its key factors. It examines these in detail, sets them in context and gives tips/hints/guidelines as to how the model has been applied. Additionally, it is an excellent foundational text to any researcher developing their knowledge in technology acceptance. Furthermore, it is not just of interest to technology acceptance scholars, but also to anyone interested in theory development. It contains a detailed, systematic and comprehensive case study of the development of a theoretical model. It sets out, if not a step-by-step guide of the process, then, a detailed narrative of how the TAM was developed, from what and to what purpose. Finally, for well-established technology acceptance scholars, already conversant with the theory, Davis' proposals regarding how it should or could develop are novel and worth consideration.

To conclude, perhaps the best thing that can be said about the book, is that it is interesting, and it is interesting from different perspectives. It is certainly a very useful and informative addition to the corpus of work in the field, as a reference book, as a historical retrospective and as a proposal for a new direction for TAM to proceed and develop.

Acknowledgements

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