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# The Current State of Technology Acceptance: A Comparative Study

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***Abstract:****The emerging technologies hold promises of an easy life as they activate new trajectories for sustainable development. The affordances of technology are substantial and consequential, but they do not guarantee all implementers of the same technology would endorse use and acceptance in the same way. Indeed, we cannot imitate success implementations of technology and expect similar results. The context of implementation for any given technology has particularities of its own, not necessarily compatible with other contexts. Many factors interfere with the process of implementation and cause the implementers a lot of doubt and apprehension. The intent of this paper is to reveal the areas of convergence and divergence in the technology acceptance field of research. In particular, ten technology acceptance models are estimated: the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB), the Technology Acceptance Model (TAM), the extended TAM (TAM2), the Innovation Diffusion Theory (IDT), the Social Cognitive Theory (SCT), the Hierarchical Model of Intrinsic and Extrinsic Motivation (HMIEM), the Model of PC Utilization (MPCU), the Combined TAM and TPB (C-TAM-TPB), the Unified Theory of Acceptance and Use of Technology (UTAUT). The body parts of this paper expose the fundamental structures of distinct technology acceptance models on a comparative basis that outlines the progress made from one technology acceptance model to another. The outputs from this study gave evidence of reciprocity and mutual agreement between the technology acceptance models under investigation in this paper.*

***Key Word****: behaviour; ICT, motivation; TAM,technology acceptance; UTAUT.*

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## I. Introduction

Societies all over the globe use and adapt to a wide range of technological devices. The influences from technology are almost impossible to resist and this is the reason why technology should be optimised and made advantageous to a large and varied population of technology users. A substantial body of research is intended to offer valid perspectives from where to explain the factors that influence use and acceptance of technology. These are models and theories of technology use and acceptance. They vary in in their internal structures as they theorise different itineraries of regression and causation; still, they serve the same purpose. The knowledge base on technology acceptance strives for a statistically significant model, capable of predicting technology use in different circumstances.

On a comparative basis, this study outlines the evolution and extension of ten models of technology use and acceptance: TRA, TAM, TAM2, HMIEM, TPB, C-TAM-TPB, MPCU, IDT, SCT, and UTAUT (Ventakesh et al., 2003) [1].The comparative analysis in this paper is carried out as a means for investigating the reciprocity between distinct technology acceptance models, which are also estimated against the knowledge base on technology use and acceptance. This paper also emphasises the limitations of the theories and models under investigation.

## II. Theory of Reasoned Action

TRA is traced back to social psychology. It offers a framework for the analysis and prediction of human behaviour (Ajzen&Fishbein, 1980, p. 13)[2]. The structures of TRA capitalise on the connections between four major constructs: attitude toward behaviour, subjective norm, behavioural intention and behaviour.

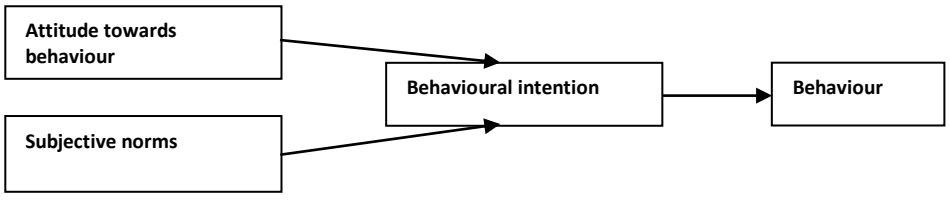


**Figure no1:** The Theory of Reasoned Action [2]

As noted in Figure no 1, behavioural intention has a central role in TRA. This is due to the determinant's ability to mediate the effect of two independent variables: attitude toward behaviour and subjective norms. Attitude toward behaviour designates the individual's assessment of the target behaviour. Use behaviour is the function of the individual's evaluation of gains and losses in relationto the intended behaviour. Simultaneously, the impact of subjective norms on behavioural intention emphasises the influences others exert on an individual's readiness to perform a behaviour. The odds of performance for any given behaviour increase in parallel with positive perception of that behaviour on the part others.

## III. Theory of Planned Behaviour

TPB is a modified version of TRA (Ajzen, 1985) [3]. The initial structures of TPB are extended by means of perceived behavioural control. This construct activates new itineraries of causation. It simultaneously impacts behavioural intention and usage intention.

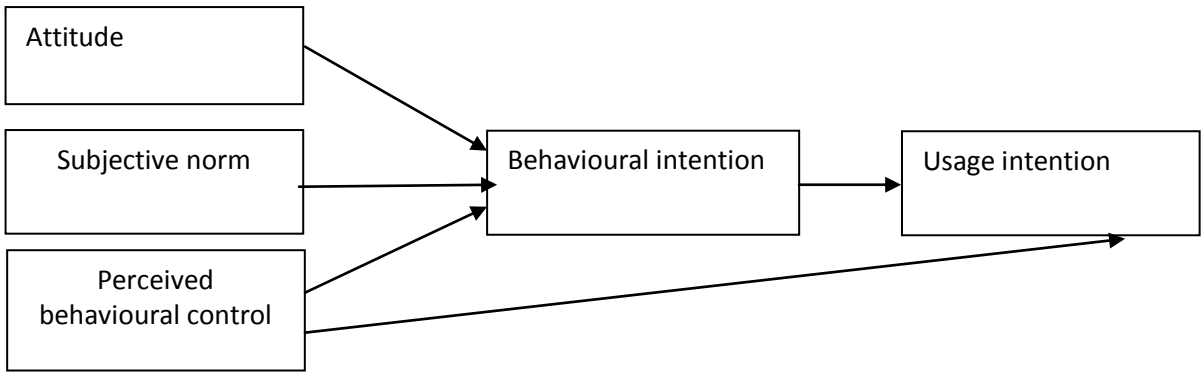


**Figure no 2:**The Theory of Planned Behaviour [3]

As noted in Figure no 2 TPB offers an interactive framework where beliefs, attitudes and norms impact one another to account for intentional and actual use of behaviour. The theory emphasises the influences from three determinants of behavioural intention and behavioural use. Attitudes towards performance account for the potential benefits associated with the target behaviour. Subjective norms designate the social influences affecting the individual's choice to perform or not to perform the behaviour in question. When people of high esteem have a good opinion of a distinct behaviour, the individual feels the need to act accordingly for them to attain similar levels of esteem. In parallel, normative beliefs emphasise the expectations made about the completion of a distinct behaviour. These expectations are the function of the social beliefs held about the behaviour in question. Perceived behavioural control, on the other hand, does not relate to the extrinsic influences made by others. Instead, it emphasises the individual's perceptions of their own abilities to perform the target behaviour. Perceived behavioural control is also the only construct with a double impact on both intention and behaviour.

## IV. Technology Acceptance Model

TAM is traced back to Ajzen and FIshbein's (1980)[2] TRA. The initial structures of TRA are optimised to theorise the core determinants of technology acceptance and use (Davis, Bagozzi&Warshaw, 1989)[4]. Both models emphasise the connection linking intentional behaviour to use behaviour. Still, TAM manages the inclusion of two constructs: perceived usefulness and perceived ease of use. These are external factors that help shape the individual's attitude towards using the target technology, Figure no 3. Perceived usefulness is presented as "the prospective user's subjective probability that using a specific application system will increase his or her job performance within an organisational context" (*ibid,* p.985) [4]. It designates the susceptibility of the target technology to enhance an individual's productivity in a given context. In parallel, perceived ease of use is defined as" the degree to which the prospective user expects the target system to be free of effort" (*ibid)* [4].It relates to the extent to which the individual's use of technology would minimise the effort needed for the completion of a given task.

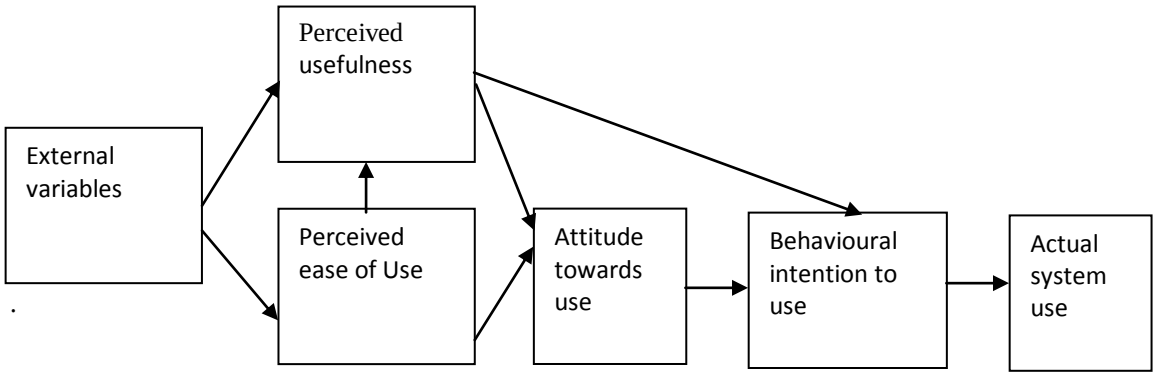


**Figure no 3:**Technology Acceptance Model (TAM) [4]

Indeed, TAM is an established framework for understanding the enabling factors of technology acceptance and use. As shown in Figure no 3, the actual use of technology is the culmination of a strong behavioural intention that is empowered by means of positive attitude. An individual's attitude towards using technology provides for the effect of two external variables which are mutually inclusive. Perceived usefulness, as a determinant of technology use, simultaneously impacts attitude towards use and behavioural intention to use. Also, it moderates the effect of perceived ease of use on attitudes. Perceived usefulness is definitely the key determinant needed to ease the multiple connections and correlations within TAM.

## V. The extended Technology Acceptance Model

The original structures of TAM are extended by Ventakesh and Davis (2000)[5] to be referred to as TAM2. In this modified version of TAM, the influence of perceived usefulness is enhanced by means of two distinct processes: social influence processes and cognitive instrumental processes. The two processes vary in their architecture; also, they specify distinct paths of causation and correlation.

Social influence processes include subjective norms, image and voluntariness. Subjective norms relate to the perceptions and beliefs held about socially accepted behaviour. These perceptions combine with a positive image of the intended behaviour. Also, the individual's readiness to perform a given behaviour increases in mandatory contexts compared to voluntary contexts.

Simultaneously, cognitive instrumental processes account for the impact of job relevance, output quality and result demonstrability on perceived usefulness. Job relevance is defined as "an individual's perception regarding the degree to which the target system is applicable to the individual's job" (*ibid*, p. 191)[5]. Indeed, job relevance relates to the degrees of compatibility between the adopted technology and the performed tasks at work. High levels of compatibility positively impact the individual's perceptions of the usefulness of the target technology. Output quality designates the individual's assessment of the outcomes from the actual use of technology. The perceived usefulness of technology is enhanced by the individual's recognition of the added values obtained from technology use. Result demonstrability denotes the perceptible advantages from technology use. It relates to the individual's ability to quantify the benefits from the use of the target technology. Result demonstrability is another determinant of perceived usefulness which maximises the odds for the actual use of technology.

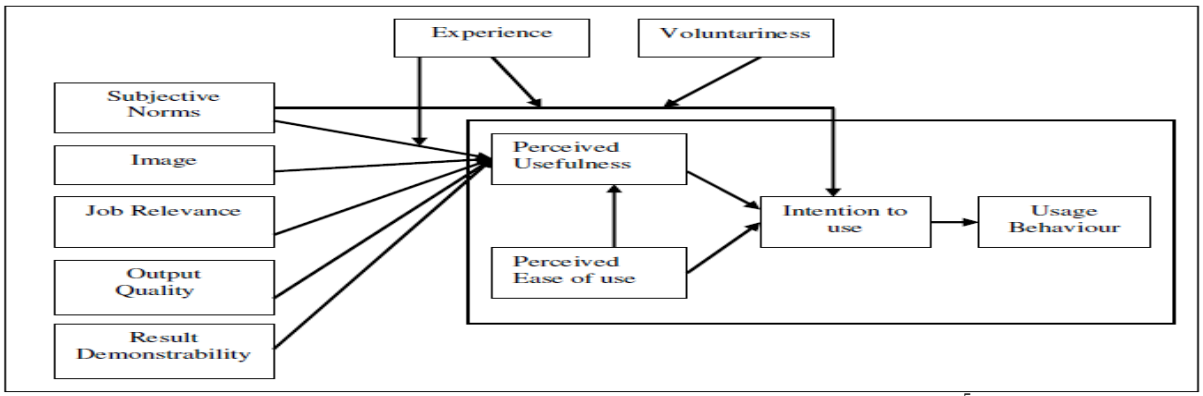


**Figure no 4:**The Extended Technology Acceptance Model (TAM2) [5]

Also, as noted in Figure no 4, the theoretically enhanced TAM emphasises the mediating role of experience and voluntariness. The two constructs mediate the effects of the variables accounting for social influence processes and cognitive instrumental processes. Voluntariness contrasts mandatory contexts for technology use to voluntary ones, and an assumption is made about the susceptibility of mandatory contexts to increase the odds for technology use. Experience weighs the impact of subjective norms on intention to use among experienced and inexperienced users of technology.

TAM is another landmark in the literature on technology acceptance and use. It departs from previously validated frameworks to theorise new paths of causation with new determinants of technology use. Most importantly, TAM enables new perspectives for extensibility and refinement.

## VI. Innovation Diffusion Theory

IDT is another statistically significant framework for understanding the logic by which innovations spread out over space and time (Rogers, 1983)[6]. IDT capitalises on a sociological orientation in research, one that is made perceptible in the studies carried out by Trade (1903), Kroeber (1937) and Ryan and Gross (1943) (as cited in Rogers, 1983, pp. 38-85)[6]. IDT is traced back to the theoretical foundation of diffusionism, a wider theoretical perspective that accounts for the spread of thoughts and artefacts.

As noted in Figure no 5, the intent of IDT is to expose the trajectories of proliferation for distinct technologies in a given social context. The core constructs of IDT combine into three distinct factors that account for technology acceptance and use. These factors are labelled as the innovation-decision process, the characteristics of an innovation and the adopters' characteristics.

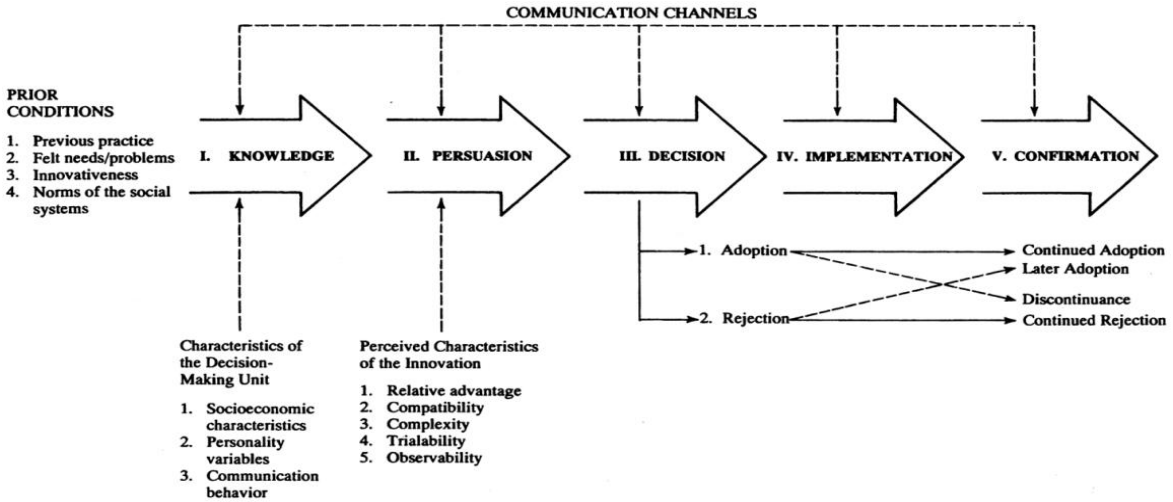


**Figure no 5:**Innovation Diffusion Theory (IDT) (*ibid*, p. 165)[6]

The innovation decision process is presented as "a series of actions and choices over time through which an individual or an organisation evaluates a new idea and decides whether or not to incorporate the new idea into ongoing practice" (*ibid*, p. 163) [6]. Figure no 5chronologically illustrates the five stages that determine the innovation-decision process.

- The knowledge stage marks the first contact with a given innovation and thereby validates awareness of its capabilities *(ibid,* pp. 164-168) [6]. Once there is mental recognition of the distinct character of an innovation, a series of questions are raised about the prospects for implementation. These speculations relate to three types of knowledge: "Awareness knowledge", "how- to knowledge" and "principles knowledge". "Awareness knowledge" ensures consciousness about the availability of the innovation. " How-to knowledge" denotes the knowledge needed for proper use of the innovation. "Principles knowledge" is specific to the well-functioning of the innovation.
- The persuasion stage designates the feedback the individual has on the innovation (*ibid,* pp. 169-170) [6]. Unlike the "knowledge stage" where the orientation is cognitive, the "persuasion stage" allows for the interference of feelings that help shape attitudes towards the use of the innovation. Still, there is overt intent on the part of the individual to assess the uncertainties about the assumed advantages and disadvantages of the innovation.
- The decision phase designates the individual's explicit decision to either endorse or refute the use of the innovation (*ibid,* p.172) [6]. In this vein, adoption is presented as the culmination of positive attitudes towards the innovation which translate into behavioural use; whereas, rejection concretises negative attitudes towards the use of the technology.

- The implementation stage marks the behavioural use of an innovation. Eventually, this phase constitutes a shift in the innovation-decision process because the purely cognitive progression from the preceding stages finally translates into perceptible behaviour. Still, the implementation phase is not problem-free. A special kind of uncertainty may obstruct further progression in the innovation-decision process. Indeed, varied degrees of uncertainty on the part of the implementer may trigger questions like "Where do I obtain the innovation? How do I use it? What operational problems am I likely to encounter?"" (*ibid,* p. 174) [6]. The uncertainties specific to the practical use of an innovation are more inhibiting when the implementation is carried out on a large scale because the uncertainties increase in parallel with the number of adopters who are expected to vary the perspectives of adoption.
- The confirmation stage comes at the end of the innovation-decision process (*ibid,* pp. 184-191) [6]. It does not guarantee infallible endorsement on the part of the implementers. During this stage, the implementers seeks to validate the recently made decision to use the target innovation by means of positive reinforcement. Indeed, the positive attitudes towards the use of the innovation are vital to behavioural use for the long term. On the other hand, a completely different situation may happen where the adopters feel the need to reject the innovation. This is what Rogers (*ibid*) refers to as a state of dissonance. This is a mental state on the part of the implementer who fails to validate the legitimacy of the implemented innovation. Many factors contribute to this mental state of dissatisfaction such as access to an innovation with better profile, or newly obtained information that discredit the merits of the innovation.

**Attributes of innovation**

In parallel with what has been noted on the stages of the innovation decision process, Rogers (*ibid,* pp 210-238)[6] exposes the intrinsic characteristics of innovation, which are essential to the diffusion of any given technology. In this regard, five distinct attributes of innovation are presented.

- Relative advantage is the added value of an innovation. The relative advantage from the use of an innovation converts into perceptible gains for the users. An innovation is presented as an asset for those who decide to use it because of its abilities to trigger positive change which can be measured by means different variables (social, economic, or psychological).
- Compatibilitydesignates the extent to which an innovation is likely to synchronise with the adopters' established patterns of thought and behaviour. High levels of compatibility are claimed to lower the uncertainties that might impede the adoption of a technology (*ibid,* p. 223) [6].
- Complexity is as a key feature of an innovation that impacts the prospects of diffusion. Complexity is assessed against a scale of usability for the adopters of the target technology. A user-friendly innovation has the potential to attract more adopters than a relatively complex innovation, which is due to the adopters' inclinations to opt for competing innovations with less complex structures.
- Trailability is referred to as "the degree to which an innovation may be experimented with on a limited basis" (*ibid,* p. 231) [6].A user-friendly innovation has better rate of adoption. Trialblility is claimed to be more consequential for the first implementers of an innovation who explore and experiment with the distinct structures of the innovation. On the other hand, the later implementers pay little regard to trailability because the innovation in question has already proved its value to a population of adopters. Experienced implementers exert positive influence on the later implementers
- Observability has to do with the perceptible gains from an innovation (*ibid,* p. 232) [6]. The rate of adoption increases in parallel with the ability of an innovation to benefit the adopters. In this respect, innovations with tangible representations are easily observed for their quantifiable outcomes while purely theoretical innovations present a difficulty when it comes to evaluating their impacts.

Indeed, the attributes of innovation further expose the structures of the innovation diffusion process. Relative advantage, compatibility, complexity, trialability and observability are the core attributes of an innovation. They stand dependently of one another and they outline the characteristics needed for an innovation to ensure maximum acceptance.

**Adopter categories**

Because an innovation does not cause identical responses from a uniform population of adopters, Rogers (*ibid,* p. 241) [6]classifies adopters into distinct categories; This classification of adopters centres on the time factor that impacts the innovation-diffusion process. The diffusion of an innovation stretches over fixed time intervals, which specify they stage of adoption and the type of adopters. In particular, Rogers (1983) [6] pinpoints five adopter categories: innovators, early adopters, early majority, later majority and laggards.

- Innovators are presented with an intrinsic fascination with new ideas and inventions. They are predestined to favour an experimental model of an innovation over its prior and established versions. Innovators are expected to exhibit high levels of flexibility in dealing with pioneering innovations. This

is due to the increased levels of uncertainty that arise from the structures of the newly introduced innovation. Eventually, the innovation diffusion process depends largely on the innovators'' first contact with the innovation. They help clear the complexity specific to the manipulation of the innovation and thereby shape the prospects for expansion.

- The early adopters attract the highest levels of esteem because of their capacity to influence and lead their community members. The early adopters' assessment of an innovation is vital to its further expansion because it serves as a valid point of reference for those who seek counsel and guidance. Indeed, the early adopters are conscious of their role in the social structure where they belong. They cannot afford to misjudge the circumstances surrounding the use of an innovative idea. This is the only way from them to maintain a relative advantage over another group of common adopters.
- The early majority stands at a level below the early adopters. This category of adopters designates the members of a social group who are quick to endorse the use of a particular innovation, only because it has been approved by the early adopters. The early majority may not take the credit for activating the innovation diffusion process; still, it manages to ensure further expansion of the same innovation.
- The late majority demonstrates low levels of reactivity when dealing with new ideas and inventions. For the late majority, the adoption of an innovation comes as an inescapable option that is motivated by extrinsic pressures. Still, after the actual adoption, the early majority never questions the legitimacy of the adopted innovation.
- Laggards belong at the bottom of the hierarchy of adopters. These individuals show no interest in the upgrade of their physical environments. They only trust what has been tried and observed from past experiences. Laggards are likely to resist all sorts of innovations because they fear for their own security. In their view, change is itself a kind of disorientation that is likely to enervate long-standing comfort. This is the reason why an innovation attracts the attention of the laggards only when it commences losing its leading-edge attributes.

Different categories of adopters contribute different meanings to the innovation diffusion process. Each category of adopters has its own realities; also, it furthers the diffusion process. The innovators have a responsibility towards the early adopters and the same logic applies to the other categories. The five categories of adopters specify the chain reaction that causes the proliferation of innovations among a varied population of adopters.

## VII. Social Cognitive Theory

SCT is an established theoretical orientation in psychology. It exposes the patterns of human behaviour and the fundamentals of acquisition (Miller & Dollard, 1941, as cited in Pajares, 2002)[7]. SCT refutes the behaviourist assumptions about acquisition. The input-output model is criticised for being untrue to human cognition. The process of learning is not the same for humans and animals. Humans have more complex mental processes that cannot be confined to the automaticity of the stimulus-response theory. Use behaviour is the function of the individual's trust in their own abilities to execute distinct behaviours, and this is what social cognitivists refer to as self-efficacy (*ibid*)[7].

Eventually, self-efficacy is claimed to have "a pivotal role in the casual structure of SCT because efficacy beliefs affect adaptation and change not only in their own right, but through their impact on their determinants" (Bandura, 2001, p. 10)[8]. Indeed, the principle of self-efficacy is made central to the structures of SCT due to its ability to moderate human agency. The accent is placed on cognition, which is a prerequisite for the actual adoption of behaviour. This process entails a conscious and reflective evaluation of the different patterns of the intended behaviour. Self-efficacy causes the individual to construct an opinion of what should be an advantageous or disadvantageous situation. Positive reinforcement of one's self-efficacy increases the odds for performance.

The Social Cognitive orientation has consequences on the existing accounts about behavioural acquisition (Compeau& Higgins, 1995, pp. 190-191)[9]. Pro-activity and reflectivity are made essential to human agency. Because of these, human activity is empowered and freed of all sorts of determinism. The structures of acquisition are empowered by means of cognition. The individual has equal chances to impact their environment.

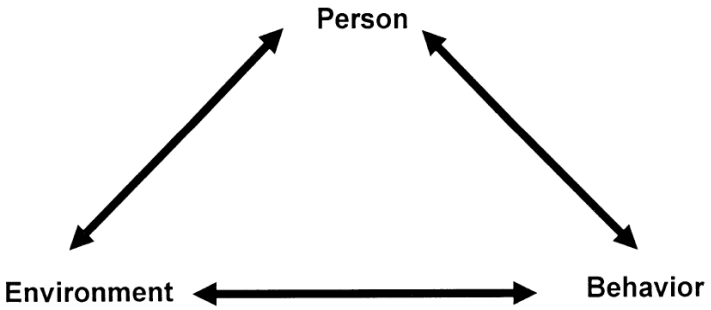


**Figure no 6:**. The Theory of Reciprocal Determinism (Bandura, 1986, as cited in *ibid*, p.190)[9]

As noted in Figure no 6, Behavioural, personal and environmental factors interconnect and impact one another. The acquisition process takes through the meanings the individual attaches to their environment, and for these to be feasible there must be a mental action and interaction before the execution of behaviour.

**Application of SCT to the context of technology use and acceptance**

SCT generates a structured approach for understanding the different patterns of human behaviour. Also, the far-reaching magnitude of SCT is consequential in the context of technology use and acceptance. In this vein, Campeau and Higgins (1995)[9] forwards a model of technology use and acceptance that stems from the theoretical basis of SCT.

Campeau and Higgins (*ibid*) enquires on the impact of self-efficacy on behavioural use of technology. Self-efficacy is made the core construct of the research model and it is presented as "the belief that one has the capability to perform a particular behaviour" (*ibid*, p. 189)[9]. Three perspectives are used in the understanding of self-efficacy: magnitude, strength and generalisibility *(ibid* p. 192)[9]. Magnitude designates the competency levels one manages to exert vis-a-vis the completion of tasks of varied levels of complexity. Strengthdenotes the individual's ability to resist the multiple barriers that may impede the completion of the intended task. Generalizabilityis presented as the multiple projections of self-efficacy. High levels of generalizability are well observed in the individual's expertise in dealing with a distinct system or technology in unfamiliar contexts and under different conditions. Eventually, the principle of self-efficacy is a fast-evolving construct. It emphasises the individual's ability to adapt to their environment and make good use of the available resources. In the context of technology use and acceptance, self-efficacy is a key determinant of usage. It negotiates all the paths leading to the actual usage of technology.

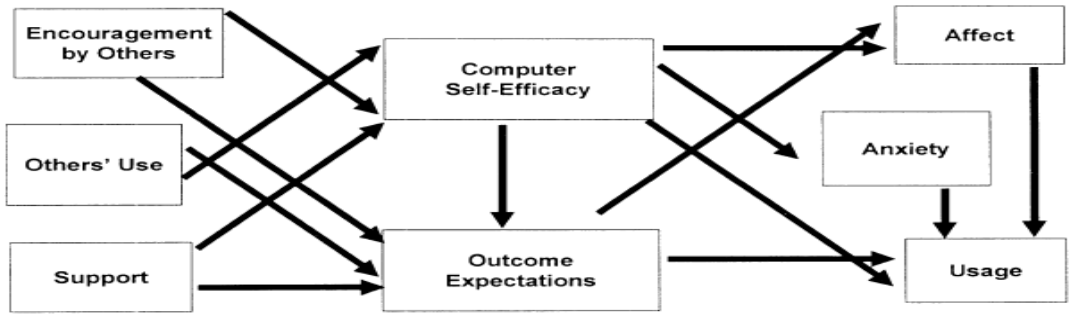


**Figure no 7:**The Theory of Self-Efficacy Measure (*ibid*, p. 194)[9]

Figure no 7 highlights the itineraries of causation and mediation by which computer self-efficacy substantiates technology use. This model is inclusive of a wide range factors that determine technology use. These factors trace back to SCT. They synchronise cognitive factors, behavioural factors and environmental factors. In particular, computer self-efficacy directly impacts usage; also, it manages indirect effect on usage throughout the variables of affect, anxiety and outcome expectations. These are mediators of usage. They negotiate the influence of computer self-efficacy on usage. In parallel, the influence of self-efficacy on usage emphasises the impacts from encouragement by others, others' use and support. These are the only true independent variables in the model because they exert an influence that is free of moderation and mediation.

The theory of self-efficacy derives from the social cognitivist school of psychology to offer an explanatory framework capable of specifying the paths of causation and correlation leading to technology use. Self-efficacy is the centrepiece of this technology acceptance model. It does not only load on the actual use of technology but it also mediates and enables a wide range of influences on use behaviour of technology.

## VIII. Hierarchical Model of Intrinsic and Extrinsic Motivation

A substantial body of research has been carried out for the purpose of understanding the processes by which patterns of motivation apply to behavioural attitudes and performances (Deci& Ryan, 1980; porter & Lawler, 1968; Deci, 1971, as cited in Vallerand, 1997)[10]. Eventually, the literature on motivation theories specifies two distinct manifestations of motivation: intrinsic motivation and extrinsic motivation (*ibid.,* p. 173)[10]. Intrinsic motivation relates to the satisfaction the individual obtains from the performed behaviour. The emphasis is on the positive experiences or contents that arise from the execution of the target behaviour. On the other hand, extrinsic motivation belongs dependently of external reward. An individual performs behaviour because of incentives that come from without. Intrinsic motivation and extrinsic motivation constitute the basis for the theories on motivation. There are two common orientations in motivation research. One advocates the inclusive character of intrinsic motivation and extrinsic motivation and the ability of the two to synchronise and ease the execution of behaviour. The other orientation negates the assumed automaticity between intrinsic and extrinsic motivation. The endorsement of intrinsic motivation may not be profitable to extrinsic motivation, and vice versa. The two types of motivation may require conflicting structures. Apparently, the intrinsic-extrinsic dichotomy is central to a wide range of models and theories of motivation, among which is the Hierarchical Model of Intrinsic and Extrinsic Motivation (HMIEM) by Vallerand (*ibid*) [10]. This model of motivation manages to expose the multiple manifestations of motivation and the processes by which motivation happens to substantiate the performance of behaviour.HMIEM is a theoretical framework for understanding the fundamental structures and representations of motivation. In particular, the core tenets of are presented as follows:

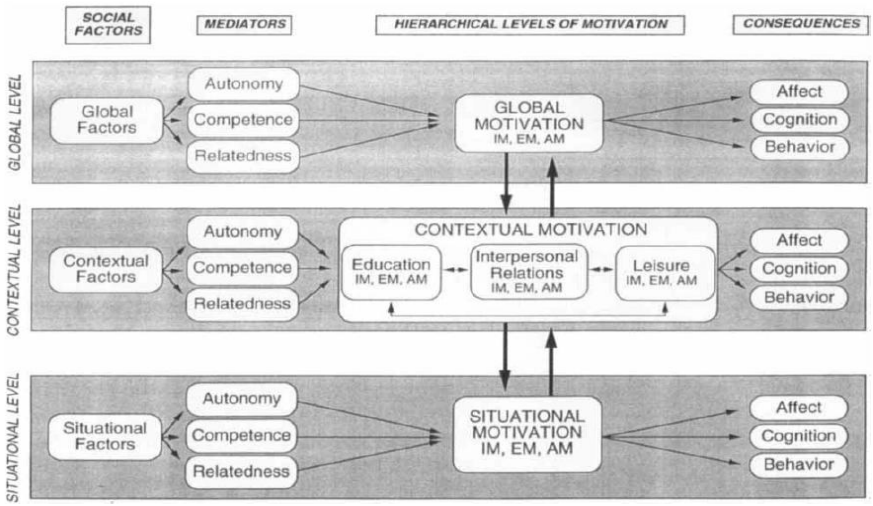


**Figure no 8:** The Hierarchal Model of Intrinsic and Extrinsic motivation (ibid., 1997, p. 274)[10]

As outlined in Figueno 8, HMIEM is inclusive of three distinct manifestations of motivation: "intrinsic motivation", "extrinsic motivation" and "amotivation" (*ibid*,pp. 278-287) [10]. Intrinsic motivation and extrinsic motivation have been explained earlier in this sub-section while amotivation designates a state of no motivation, be it intrinsic or extrinsic. More than that, HMIEM conceives a three-level hierarchy of motivation: the global level, the contextual level and situational level. The global level refers to the individual's readiness to interact with their environment. It attaches different meanings to the individual's multiple interactions with their environment. Global factors have the largest scale effect on the individual's perceptions of their environment. They persist over time and space. Contextual factors are specific to distinct social registers. For instance, the effect of contextual factors could affect the individual's behavioural attitudes at the work place, but this effect cannot be the same in other life domains. Situational factors have limited effect on the individual's motivation. The influence from situational factors is limited to the time and space of the situation where they happen to be exerted. Most importantly, the effect of social factors on motivation is simultaneously negotiated by three moderators: competence, autonomy and relatedness. These are personal perceptions on the part on the individual. They moderate the interferences between social factors and the personal needs of the individual and thereby help determine the final traits of motivation. Eventually, competenceis presented as a spontaneous behavioural attitude on the part of human beings who seek to control patterns of their environment to the best of their abilities. Autonomy designates the individual's inclinations to pursue a personalised course of action where the virtues of volition receive fair treatment. The principle of relatedness is observed in the individual's commitment to organisms bigger than theirs. It is the conscious process by which one subscribes to a social orientation and deploys the necessary means to ensure esteem.

In HMIEM, the connection between the global, social and situational levels of motivation challenges the logic of a unidirectional agency where lower levels in the hierarchy repeatedly show the effect from the above levels (*ibid*, pp. 295-314) [10]. An individual who constantly develops high levels of intrinsic situational motivation may end up developing similar amounts of contextual intrinsic motivation in the long term. This motivational change is understood to be the reaction of a pre-established positive experience that has managed to condition contexts other than its. This particular characteristic of HMIEM is consequential because it accounts for the evolving character of motivation.

In parallel, a distinction is made between three categories of the consequences of motivation: cognition, affect and behaviour (*ibid*, 319-329) [10]. The cognitive effect of motivation is well expressed in the individual's relatively enhanced abilities in dealing with their environment. The affective consequences of motivation translate into positive attitudes towards the performed activity. The behavioural outcomes of motivation are well contained in the individual's persistence and commitment to the completion of the intended behaviour. This taxonomy of consequences is needed because it helps understand the correspondence between distinct manifestations of motivation and their respective outcomes. The idea is to separate the projections of motivation from their source codes for better grasp of the interconnectivity between the different variables within the hierarchal model of motivation.

HMIEM offers a sound conceptualisation of the core determinants of motivation. The model capitalises on the interactivity between many variables which are brought to operate on a multi-level structure. Indeed, the complexity of the model is redeemed by the pertinence of its protocols of analysis. HMIEM is definitely a systematic approach in psychology for explaining the different patterns of motivation. Most importantly, the model manages to be a point of reference in different fields of study and the technology acceptance field of research is no exception.

**Application of Vallerand (1997)'s motivational theory to the context of technology use and acceptance.**

As noted earlier in this paper, the research on motivation is a framework of reference for understanding the attributes and manifestations of motivation in different contexts. The technology acceptance field of research is no exception. Many studies depart form the research on motivation for better understanding of the determining factors of technology use.

Davis, Bagozzi, and Warshaw (1992, p.1112)[11] accounts for the influence of intrinsic and extrinsic motivation in a technology acceptance model. The study enquires on the validity of two determinants of both behavioural intention and use of technology in the workplace. The determinants in question are usefulness" and enjoyment. They account for the inherent duality in motivation in which its perceived manifestations are either intrinsic or extrinsic. In this respect, usefulness is understood to be part of the extrinsic attributes of motivation because of its susceptibility to yield quality outcomes for technology users. Simultaneously, enjoyment is claimed to be user-specific due to its inherent ability to load from intrinsic motivation and thereby substantiate behavioural intention and use of technology. Two more constructs are instilled into the motivational model: perceived ease of use and perceived output quality. Perceived ease of use relates to the amounts of efforts needed throughout the completion of the intended task and perceived output quality is specific to the added value from the actual use of the technology in question. The two constructs simultaneously moderate the effect of enjoyment and usefulness on behavioural intention and use of technology. The findings from the study corroborate the theorised causality-effect within the motivational model. Eventually, the use of technology in the workplace is proved to be determined by the individual's perception of the extent to which the adopted technology is likely to enhance the quality of the performed task. Enjoyment is also held accountable for positive influence on technology usage. Still, the influence of the two variables on technology use varies in intensity. The influence Perceived usefulness of technology on technology use is approximately six times superior to the determining effect of enjoyment.

Within the same line of thought, Ventakesh and Speier (1999) [12] capitalises on the theoretical foundation of HMIEM to optimise a motivational model that is specific to the context of technology use and acceptance. The research model exposes the short-term and long-term effect of mood-enhanced motivations on technology implementers. Mood is made a core determinant of the multiple manifestations of motivation which are essential to the actual usage of technology. Positive mood positively impacts intrinsic motivation. On the other hand, negative mood translates into low levels of motivation and thereby obstructs the actual use of technology.

Motivational models are well established frameworks for understanding the multiple manifestations of motivation along with the variables that help account for behavioural intention and use of technology. Most importantly, the research on motivation is a promising field of enquiry because of a far-reaching susceptibility to investigate varied social phenomena in different contexts. The technology acceptance field of research is no exception.

## IX. Model of PC Utilization

The Model of PC Utilisation (MPCU)is statistically solid framework for researching patterns of technology use and acceptance (Thompson , Higgins & Howell, 1991)[13]. MPCU is traced back to a prominent orientation in social psychology known as the Theory of Interpersonal Behaviour (TIB) (Triandis, 1977 as cited inMoody &Siponen, 2013, pp. 324-326)[14]. TIB is an established reference in psychology which theorises the fundamentals of human behaviour. The influence of TIB on the technology acceptance field of research is not exclusive to MPCU. It is credited for the impact it has on both TPB and TRA. The conceptual framework of TIB is presented as follows.

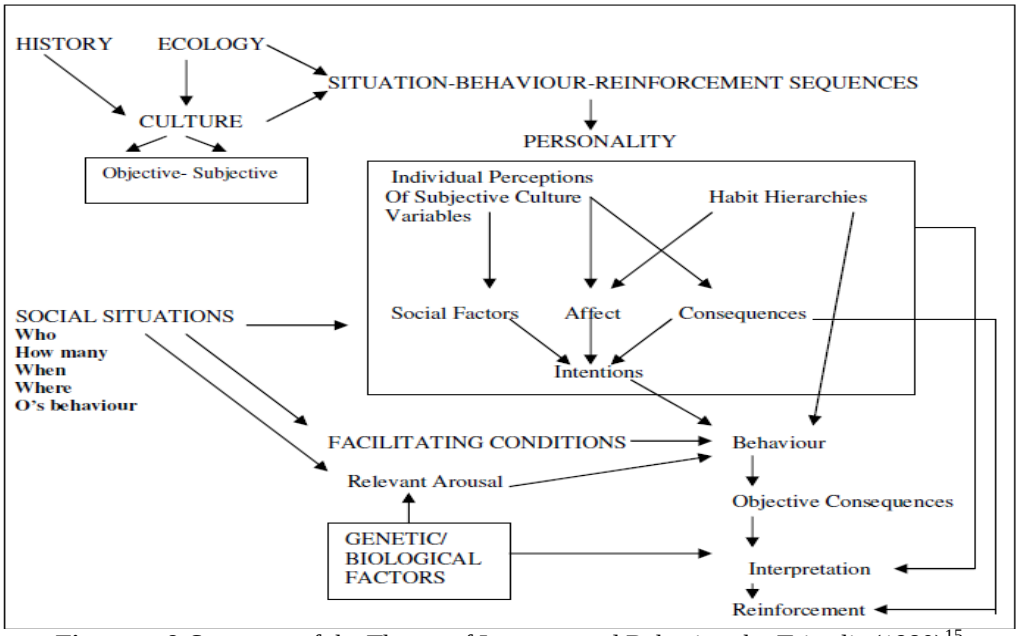


**Figure no9:**Summary of the Theory of Interpersonal Behaviour by Triandis (1980)[15]

As shown in Figure no 9, TIB is an extended version TPB and TRA. It enables new trajectories of correlation and causation. Affect is TIB's most consequential construct. It terminates the long-standing relationship connecting cognition to use behaviour. The individual's emotional state of mind is made a major determinant of behaviour. Also, affect belongs dependently of a number of variables that are identified for the influence they exert on the individual's feelings regarding the performance of the intended behaviour. These variables are labelled as individual perceptions of subjective culture and habit hierarchies. The former relates to the varying levels of subjectivity with the ability to interfere with the individual's cognitive processes while the latter accounts for the affective responses on the part of the individual who is brought to manifest the same range of preferences in similar contexts. Most importantly, the influence of habit hierarchies is not exclusive to the individual's affective state as it directly impact behaviour without any mediation of intentions. This is a consequential stand within TIB because it legitimises the theoretical foundation of the behavioural doctrine. The repeated manifestations of uniform preferences and behaviours are likely to condition future responses. Also, use behaviour is not necessarily a function of conscious cognition. Behaviour is presented as a stimulus-response reaction to finite contextual determinants

The theoretical load of TIB is optimised by Thompson et al. (1991)[13] for the purpose of constructing a model of technology acceptance and use, known as MPCU. The model is presented as an offspring of Triandis' conceptualisation of human behaviour in the totality of its aspects and manifestations. It builds on the fundamental structures of TIB to theorise the determinants and predictors of PC utilisation. In particular, the individual's actual use of a PC is determined by "the individual's feelings (affect) toward using PCs, social norms in the work place concerning PC use, habits associated with computer usage, the individual's expected consequences of using a PC, and facilitating conditions in the environment conductive to PC use"(*ibid*, p. 126)[13].

As noted in Figure no 10, five constructs from TIB are managed to theorise the determining factors specific to PC utilisation: social factors, affect, perceived consequences, and facilitating conditions. Conversely, the constructs of intentional behaviour and habits are omitted because the intent of the model is to enquire on the use of PCs rather that the intention that may or may not substantiate actual use. Also, the construct of habits is discarded because it interferes with the cognitive process thought to be consequential on PC use.

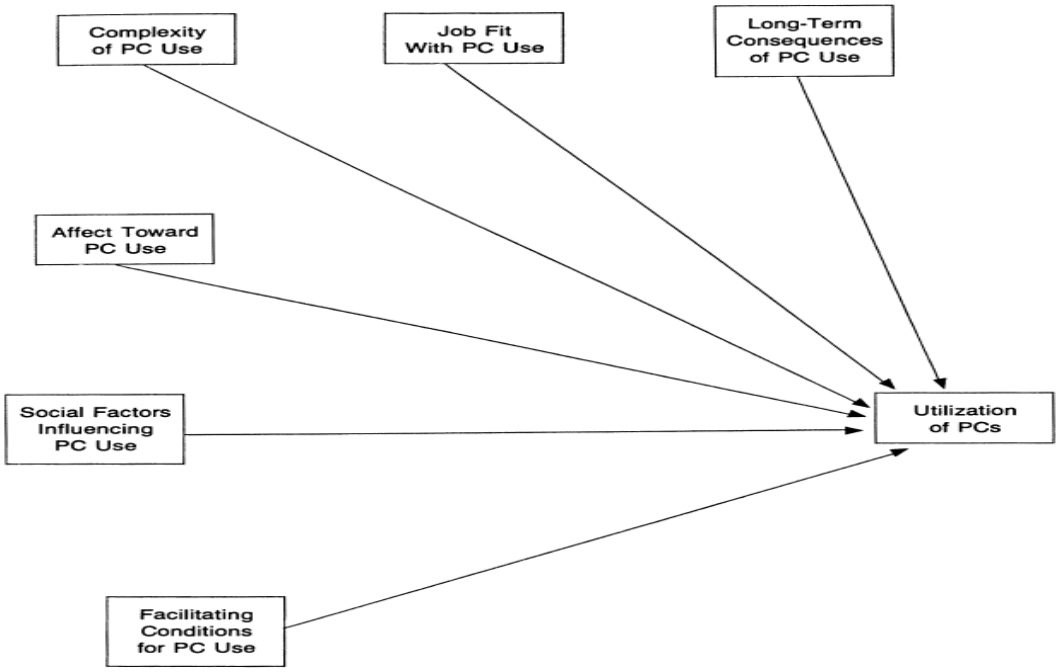


**Figure no 10:**The determinants of PC utilisation (*ibid*, 1991, p. 131)[13]

MPCU is a statistically solid technology acceptance model. The model combines six determinants of PC utilisation: facilitating conditions for PC use, social factors influencing PC use, affect toward PC use, complexity of PC use, job fit with PC use and long-term consequences of PC use. The influence of TIB on MPCU is evidenced by the model's capacity to synchronise cognitive, affective and environmental determinants of PC use. Job fit and complexity account for the cognitive processes needed for determining the functional attributes of a given technology and the levels of complexity associated with its use. Affect, on the other hand, values how the feelings associated with the use and manipulation of technology can impact and determine the actual use of PCs. The environmental factors in MPCU are presented as facilitating conditions for Pc uses and social factors influencing PC uses. Facilitating conditions designate the user's perceptions of the infrastructures needed for optimal use of the target technology while social factors centre on the influence of worthy others on the implementer's choice to use the technology in question.

MPCU is a valuable contribution to the literature on technology use and acceptance. The model does not only reorient previous research to the context of computer utilisation, but it also innovates in exploring patterns of attitudes and behaviour that have not been interrogated before. Most importantly, MPCU allows itself to be a reference for an increasing number of models of technology use and acceptance.

## X. Combined TAM and TPB

C-TAM-TPB is a hybrid framework for conceptualising technology use in view of its ability to synchronise two pre-established technology acceptance models (Taylor & Todd, 1995)[16]. The initial structures of TAM are extended to activate new perspectives for understanding behavioural use of technology. Most importantly, C-TAM-TPB does not only innovate in the reconfiguration of prior models of technology use, but it also widens the perspectives form where to investigate the determinants of behavioural use on a population of experienced and inexperienced technology users.

Apparently, the conceptual framework of TAM is void of the effect of social factors and control behavioural factors on technology use (*ibid*)[16]. Accordingly, the fundamental structures of TAM are updated with two constructs from TPB. The determinants in question are subjective norm and controlled perceived behaviour.

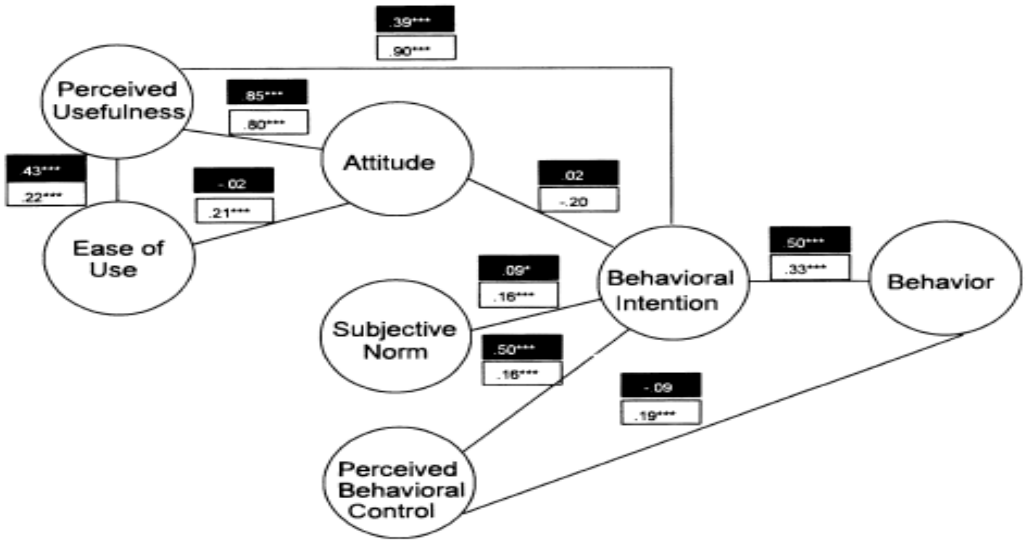


**Figure no11:**The Theory of Combined TAM and TPB (*ibid,* p. 562)[16]

As noted in Figure no 11, the enhanced version of TAM is tested on two populations of technology users. One is presented with experience in use of technology while the other is totally inexperienced. This remains a major contribution of C-TAM-TPB to the technology acceptance discourse. Experienced and inexperienced users of technology have different perceptions of technology. Also, the context of implementation must adapt to the needs of the two groups. For example, the correlation between behavioural intention and behavioural use is more significant for experienced users because they have prior knowledge on the use of the target technology. In parallel, the effect of perceived usefulness is more consequential on inexperienced users' intentional use of technology while experienced users positively react to perceived behavioural control. Indeed, C-TAM-TPB is credited for many contributions to the technology acceptance field of research among which are:

- Experience is a key moderator of technology use in view of the multi-level effect it exerts on the key determinants technology use.
- Experience activates the transition of intentional behaviour to use behaviour of technology.
- Prior knowledge on the attributes of a given technology prioritises its adoption by a population of users who are more alert to the physical factors that may either hinder or ease the utilisation of the target technology.

C-TAM-TPB reiterates the need for an inclusive technology acceptance model, which is applicable to different contexts of implementation. Most importantly, C-TAM-TPB activates a new tradition in the technology acceptance research. It overtly synchronises two models of technology use.

## XI. Unified Theory of Acceptance and Use of Technology

UTAUT is an enhanced theoretical orientation in the technology acceptance field of research. The theory generates a wide-ranging perspective from where to understand the essential patterns of intentional and behavioural use of technology (Ventakeshet al, 2003, p. 425)[1]. The theory bears the mark and influence of eight models of technology use and acceptance: the TRA, TAM, HMIEM, TPB, C-TAM-TPB, MPCU, IDT, and SCT (*ibid).* UTAUT is the culmination of a large body of research gathered from different models of technology use and acceptance. UTAUT reconciles the findings from eight competing models of technology acceptance for the purpose of a comprehensive framework capable of exposing the core constructs and moderators of intentional and behavioural use of technology.

UTAUT is viable alternative to remedy for the shortcomings of distinct models of technology use and acceptance. UTAUT manages to substantiate the contributions from eight models into a unified framework that is simultaneously free of potential theoretical gaps and empowered by a multitude of source codes.

Indeed, UTAUT offers a comprehensive framework for understanding the factors that determine technology use and acceptance as it successfully synchronises findings from eight established models in the field of information technology. The fundamental structures of UTAUT are presented in Figure no 12.

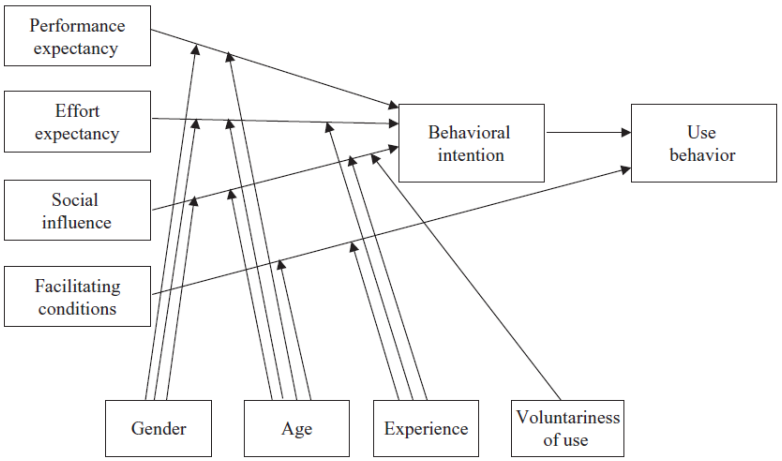


**Figure no 12:**The UTAUT model (Ventakesh et al. 2003, p. 447)[1]

Accordingly, UTAUT combines four core determinants of behavioural intention and use behaviour of technology. As shown in Figure no 12, four constructs are presented with the ability to impact behavioural intention and use behaviour:

- Performance expectancy is presented as "the degree to which an individual believes that using the system will help him or her to attain gains in job performance" (*ibid*)[1]. Performance expectancy is suggestive of the theoretical load from prior models and theories of technology acceptance. In particular, performance expectancy draws on the perceived usefulness construct from TAM, the extrinsic motivation construct from HMIEM, the job fit construct from MPCU, the relative advantage construct from IDT, and the outcome expectations construct from SCT. Performance expectancy allows itself to be a direct determinant of behavioural intention. Also, there is evidence of the moderating effect by gender and age on the path connecting performance expectancy to intentional behaviour. Indeed, the literature on gender corroborates the assumed differences between women and men in regard to performance expectancy in which men happen to be more task-centred (Minton & Schneider, 1980, cited in *ibid* p. 449)[1]. Yet, the male predispositions to be more focused on the completion of professional duties are not biological, but cultural orientations. In parallel, the age variable moderates the effect of performance expectancy on behavioural intention. Young implementers of technology relate more to the theoretical load of performance expectancy.
- Effort expectancy is another core determinant of use behaviour in UTAUT. It is referred to as "the degree of ease associated with the use of the system" (*ibid* p. 450)[1]. Effort expectancy originates from the fundamental structures of prior research orientations in the field of technology use and acceptance, notably the perceived ease of use construct from TAM, the complexity construct from MPCU, and the ease of use construct from IDT. The legitimacy of these determinants is further developed and synthesised to fit into the initial structures of UTAU. Effort expectancy is managed to show the moderating effects of gender, age and experience. In this vein, gender differences are understood to moderate the influence of effort expectancy on behavioural intention in which women are expected to value the usability of technology more than men. Simultaneously, age happens to favour the impact of effort expectancy on a relatively more aged population of technology users who are arguably in a better position to take advantage of the usability of any given technology. Also, the influence of effort expectancy is reportedly vulnerable to the moderating effect of experience. The immediate use of a new technology is understood to be determined by the users' estimation of effort expectancy; yet, repeated use of technology causes the effort expectancy construct to lose intensity. This is due to the users' familiarity with the usability of the adopted technology.
- Social influence directly impacts intention and thereby accounts for the actual use of technology. The social influence construct is defined as "the degree to which an individual perceives that important others believe he or she should use the new system" (*ibid* p. 451)[1]. This is another hybrid determinant in UTAUT in view of its reciprocity with three constructs from prior models and theories of technology use and acceptance, notably subjective norm from TRA, social factors from MPCU, and image from IDT. The social influence construct concretises the influence the social environment exerts on the individual's inclinations to venture the utilisation of technology. It offers a perspective from where to observe the meanings the individual attaches to the social realities from their environment. Most importantly, the effect social influence has on behavioural intention is presented with maximum liability to the moderating effect from age, gender, experience and voluntariness of use. In this respect,

technology users are arguably more alert to the social image associated with the performed behaviour in the early phase of performance. Over time and after repeated use of the target technology, the users are gradually freed off the social concerns over the validity of their acts as they start constructing their own schemas about the performed behaviour. Also, the effect social influence has on technology users is more consequential on women who are claimed to be socially predisposed to react to social judgment in view of the sex-roles they have been assigned to (*ibid*, p.453)[1]. The age variable is also significant. In this respect, the youngest technology users would be the least affected by the social attributes surrounding technology use while the eldest technology users would attach maximum considerations to these social patterns.

- The Facilitating conditions construct is another core determinant in UTAUT which is presented as "the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (*ibid*)[1]. The facilitating conditions construct is not a pure product of the UTAUT model. It is a key determinant of technology use in MPCU. Indeed, the intent in UTAUT is to reconfigure the theoretical load of facilitating conditions to be inclusive of a wide range on meanings. Notably, the perceived behavioural control construct from TPB and the compatibility construct from IDT. Facilitating conditions is the only determinant of technology to impact use behaviour without the mediation of behavioural intention. In this vein, the omission of behavioural intention draws on the existence of performance expectancy and effort expectancy. The two constructs help operationalise the meaning of facilitating conditions and thereby delimit the overall influence it exerts in the technology acceptance model. Also, the influence of facilitating conditions increases in parallel with the levels of experience on the part of the users. Simultaneously, the susceptibility of technology users to react to facilitating conditions accentuates with age.

Indeed, the fundamental structures of UTAUT are statically valid and capable of predicting technology use and acceptance. The theory does not only synthesise the research on technology use and acceptance, but it also forwards a creative framework for understanding new patterns of behaviour. Most importantly, UTAUT is carefully optimised to be flexible and compatible with new trajectories of causation and correlation.

## XII. Limitations on the theories and models of technology acceptance in this study

The theories and models investigated in this paper vary in their source codes also they propose different itineraries of causation and correlation. Still, they share the same theoretical backgrounds as they chronologically outline the progress made in relation to technology acceptance and use. Most importantly, these theories and models carry the same range of limitations that are also new trajectories for future research. In this vein, Table no 1 exposes the limitations of the ten research models under investigation in this study.

**Table no1:** *Limitations of the theories and models of technology acceptance in this study*

| **Models and theories of technology use and acceptance** | **Limitations** |
|---|---|
| **TRA** | • The automaticity between "intentional behaviour" and "actual behaviour" is not without exceptions (Davis et al., 1989, pp. 983-984) [4].<br>• The beliefs which are assumed to impact "attitude towards behaviour" are not specified (*ibid)* [4]. |
| **TAM** | • Perceived usefulness is presented as a core construct in TAM; still, it is not fully researched for the moderators that affect its impact on behavioural intention to use ( Ventakesh& Davis, 2000, p. 187)[5].<br>• TAM does not manage to account for the variances in the correlation between "behavioural intention to use" and "actual use" over different points in time (Davis *et al*., 1989, pp. 996-999)[4].<br>• TAM does not consider the variances in technology acceptance on the part of inexperienced users and inexperienced users (*ibid*) [4]. |
| **TAM 2** | • The fundamental structures of TAM were extended enhanced by means of two processes: social influence processes and cognitive instrumental processes. The ability of these to predict technology use was not supported in many implementations of TAM 2 (Lu, Yao&Yu, 2015)19. The fact is that the ability of TAM2 is still sensitive to the context of implementation. What was a limitation in TAM is still a disability in TAM2. |
| **HMEIM** | • The key feature of HMEIM resides in its multi-level structures where a relatively large number constructs interconnect. Still, this trait of HMEIM poses a threat to the model's organic unity. In this respect, a number of interactions are likely to conflict with the agreed causality principle in the model to leave areas of doubt in need of further investigation (Deci& Ryan, 2002, pp. 55-58) [17].<br>• In HMEIM, variables of age, gender and ethnicity are not researched for their influence on the multiple manifestations of motivation ( Vallerand, 1997, pp. 338- |

| | |
|---|---|
| | 339) [10]. |
| **TPB** | • The overall effect of subjective norm on actual usage is not well contained. The inconsistencies of the determining effect of subjective norm vary in accordance to the stages of implementation (Hartwick&Barki, 1994, as cited in Taylor & Todd, 1995b, p. 150) [16].<br>• The construct of perceived behavioural control is not well operationalised and thereby fails to inform on the belief patterns that help shape its influence on actual usage (*ibid*)[16]. |
| **C-TAM-TPB** | • C-TAM-TPB's major contribution resides in its ability to enquire on the variances in technology acceptance among a varied population of experienced and inexperienced users; still, the model fails to clear the concerns over its content validity. In this vein, Taylor and Todd (1995, p. 566)[16] forwards five major limitations of the model:<br>1. The research model is carried out on a population of students and there is a concern over its ability to produce similar results in different contexts of implementation.<br>2. Variables of gender, age and seniority are disregarded.<br>3. The research model scores low levels in some indices.<br>4. The model investigates a distinct information system and there is no evidence the findings from the enquiry can extend to a wider range of technologies.<br>5. The construct of experience could be further exploited for better grasp of the variances in technology acceptance among experienced and inexperienced users. |
| **MPCU** | • As it has been detailed earlier in this section, MPCU is an optimisation of TIB by Triandis (1980) [15] for the purpose of researching the determinants PC utilisation. The assumed limitations of MPCU in determining the patterns of behavioural use of computers arise from the internal structures of TIB. In this context, the following limitations are identified (Thompson et al, 1991, pp.138-139):<br>1. The effects from social factors and facilitating conditions cannot be singled out and traced back to their respective source codes.<br>2. Affect is presented as a consequential determinant of PC utilisation, but it is not fully researched for its multiple manifestations and the ways through which these manifestations impact the actual use of PC. |
| **IDT** | The theoretical foundation of IDT is called into question in view of the following:<br>• Eveland and Tornatzky (1990, as cited in Attewell, 1992, p. 4)[18] posits that the normal course of action within the diffusion model is obstructed when the innovative attributes of a technology are of a level of complexity that cannot be contained by the adopter' mental abilities ( as cited in Attewell, 1992, p. 4) [18].<br>• Another limitation of IDT resides in the theory's inability to account for the distinct roles knowledge and communication play in the diffusion of technology. In this respect, a failed adoption of technology could be traced back to the misconception of the role of knowledge and communication on the part of the originators. This is what Attewell (*ibid*)[18] refers to as a failure "to distinguish between two types of communication (or information) involved in the diffusion process: signalling versus know-how, or technical knowledge" [18]. |
| **SCT** | • SCT offers a solid knowledge base for a wide range of technology acceptance theories and models. Earlier in this subsection, the model of technology acceptance by Campeau and Higgins (1995)[9] was reviewed and traced back to the tenets of SCT. The model capitalises on the Social Cognitivist thinking to enquire on the impact of self-efficacy on behavioural use of technology. The self-efficacy construct presents measurement difficulties. The respondents are invited to take part in a hypothetic situation by answering a number of questions regarding the utilisation of prospective software package (*ibid.,* p 205)[9]. Eventually, there might be a concern over the validity of the research protocol throughout the enquiry. |
| **UTAUT** | • The explanatory power of UTAUT is not without exceptions. It was first elaborated and validated in a given context. We cannot expect UTAUT to be successfully applicable in all contexts. This is why it is highly recommended to personalise the initial structures of UTAUT bearing in mind all the particularities that characterise distinct contexts for technology use and acceptance (Morchid, 2019)[20]. |

The limitations of the models and theories assessed in this paper do not refute their legitimacy. Instead, they manage to offer new perspectives from where to construct new theories and advance the research on technology acceptance. The ambivalence of UTAUT is well observed in the theory's intent to identify the weaknesses in prior models of technology use and acceptance while remaining connected to their fundamental structures. More than that, UTAUT itself is not without limitations. The first implementers of UTAUT make it clear that "future research should focus on identifying constructs that can add to the prediction of intention and behaviour over and above what is already known and understood" Venkatesh et al. (2003, p. 471)[1].

## XIII. Conclusion

This paper exposed different theories and models of technology use and acceptance. These theories and models vary in their theoretical foundations as they purposefully subscribe to different, but not conflicting epistemological stands. They converge towards the need for a systemic structure, capable of exposing the behavioural patterns of technology use. Evolution and extensibility are the key features of the technology acceptance field of research. As noted earlier in this paper, TPB is an extended version of TRA and so is TAM. UTAUT is itself an amalgam of research orientations, carefully optimised to facilitate the prediction of technology use.

## References


[1]. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.

[2]. Ajzen, I.&Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

[3]. Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In *Action control*. Springer Berlin Heidelberg.

[4]. Davis, F. D., Bagozzi, R. P., &Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, *35*(8), 982-1003.

[5]. Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, *46*(2), 186-204.

[6]. Rogers, E. M. (1983). *Diffusion of innovations* (3rded.). New York: Free Press.

[7]. Pajares (2002). *Overview of social cognitive theory and of selfefficacy*. Retreived on January 7th, 2017, from http://www.emory.edu/EDUCATION/mfp/eff.html

[8]. Bandura, A. (2001). Social cognitive theory: An agentic perspective. Annual review of psychology, 52(1), 1-26.

[9]. Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. MIS quarterly, 189-211.

[10]. Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. Advances in experimental social psychology, 29, 271-360.

[11]. Davis, F. D., Bagozzi, R. P., &Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace1. Journal of applied social psychology, 22(14), 1111-1132.

[12]. Venkatesh, V., &Speier, C. (1999). Computer technology training in the workplace: A longitudinal investigation of the effect of mood. Organizational behavior and human decision processes, 79(1), 1-28.

[13]. Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal computing: toward a conceptual model of utilization. MIS quarterly, 125-143.

[14]. Moody, G. D., &Siponen, M. (2013). Using the theory of interpersonal behavior to explain non-work-related personal use of the Internet at work. Information & Management, 50(6), 322-335.

[15]. Triandis, H. C. (1980). Values, attitudes, and interpersonal behavior. Nebraska symposium on motivation. Lincoln, NE: University of Nebraska Press.

[16]. Taylor, S., & Todd, P. (1995). Assessing IT usage: The role of prior experience. MIS quarterly, 561-570.

[17]. Deci, E. L., & Ryan, R. M. (2002). *Handbook of self-determination research*. University Rochester Press.

[18]. Attewell, P. (1992). Technology diffusion and organizational learning: The case of business computing. *Organization Science*, *3*(1), 1-19.

[19]. Lu, J., Yao, J. E., & Yu, C. S. (2005). Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology. *The Journal of Strategic Information Systems*, *14*(3), 245-268.

[20]. Morchid, N. (2019). The Determinants of Use and Acceptance of Mobile Assisted Language Learning: The Case of EFL Students in Morocco. *Arab World English Journal (AWEJ) Special Issue on CALL*, (5).


Nabil MORCHID, etal. "The Current State of Technology Acceptance: A Comparative Study." *IOSR Journal of Business and Management (IOSR-JBM)*, 22(2), 2020, pp. 01-16.