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Towards Explaining the Use of Self-Tracking Devices: Conceptual Development of a Continuance and Discontinuance Model

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Research-in-Progress

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Abstract

Users of digital self-tracking devices benefit from information about themselves. Thereby, the explanatory power of this information heavily depends on post-adoption continued usage of these devices. Thus, the aim of our research is to empirically analyze the factors that lead to continuous use of self-tracking devices. So far, research has largely focused on phases until IS adoption in a work environment and little on post-adoption use in a consumer context which centers on either continuance or discontinuance. To advance research in this area, we develop a conceptual model that combines both in one comprehensive model by building on established post-adoption theories. We will continue our research with a quantitative-empirical evaluation of the developed model. With our research, we aim at contributing to both a better theoretical understanding in the field of IS post-adoption in a consumer context and giving practical implications for producers of self-tracking devices.

Keywords: Self-tracking, information systems continuance, information systems discontinuance, quantified self, technology use, information systems adoption, consumer behavior

Introduction

Self-tracking, life-logging, quantified-self, personal analytics, and personal informatics are terms for the current trend to collect and analyze specific features of the life on a regular basis through mobile and wearable digital devices (Lupton 2014a). Self-tracking devices are placed in the category of wearable electronics and/or multi-sensor platforms in the field of the Internet of Things (Swan 2012). These devices can take the shape of smartwatches, wristband sensors, wearable sensor patches, artificial reality-augmented glasses, brain computer interfaces, or wearable body metric textiles (Swan 2012). They enable the individual to capture daily activities, exercises, vital parameters, disease symptoms, or nutrition, among others (Gimpel et al. 2013). In this paper, we will henceforth refer to self-tracking devices solely as smartwatches and wristband sensors because they are the major products in the consumer focus these days and account for more than 90% of the worldwide market share (IDC 2015). Next to an increasing interest in self-tracking devices from an academic point of view, we also observe a surge of interest in practice. Even though the private collection and analysis of one's personal data has been done before (e.g., handwritten or with Excel charts), the topic becomes vibrant again due to new technologies, decreasing sensor sizes, and increasing smartphone usage, which enable the user to do this practice in a more convenient way (Gimpel et al. 2013; Lupton 2014b). Major players in the consumer electronic market, such as Apple, Google and Microsoft, as well as start-ups, such as Pebble or Jawbone, launched their own self-tracking devices (e.g., Apple Watch, Android Wear, Jawbone UP, Microsoft Band, and Pebble Watch) and start to build up software and hardware ecosystems around them. It is expected that the shipment of self-tracking devices will grow from less than 20 million units in 2014 to more than 100 million units in 2019 (IDC 2015).

The first generation of self-tracking devices can be seen as products that generate revenues at the point of sale only and solely run tracking and analyzing software which is provided by the producer. Hence, in terms of direct revenue generation for the specific product through a particular customer, it is not important how long the customer uses the device after the initial adoption. However, in terms of brand reputation and rebuy intention, an ongoing use is aspired by the producers of self-tracking devices. Additionally, in the near future with the emergence of the next generation of self-tracking devices, it is expected that these devices will also function as a platform for an entirely new ecosystem of applications and services of third-party providers which generate revenue over time (e.g., personalized sport and fitness support, dynamic health-insurances, and health-care support) (Lupton 2014a). These applications and services have in common that the associated business and service models rely on the continuous supply with data recorded by the basic technology – the self-tracking device. Consequently, for the success of these applications and services, it is a necessary requirement that the self-tracking device is used regularly and continuously after the initial adoption. Therefore, by identifying the influencing factors that promote and inhibit continuous use, we want to answer the following research question:

RQ: How can individual continuous use of self-tracking devices in a consumer-context be explained?

While much research has focused on both pre-adoption and adoption phases of information systems (IS) in general, especially in a work context, relatively little research has been carried out on continuous use and, more particularly, the discontinuance of IS in a consumer context. Salient contributions on continuance use in a consumer context were published by Bhattacherjee (2001) and Limayem et al. (2007), whereas Recker (2014) proposed a conceptual model with a focus on discontinuance in the work context. In the specific self-tracking domain, Gimpel et al. (2013) identified five motivational factors which explain the individual's activity of self-tracking, while Sjöklint et al. (2015) investigated how individuals use self-tracking devices and how they cope with personal data provided in everyday life. Taking these approaches together, they will serve as a promising basis for the identification of influencing factors of continuance use and discontinuance in a consumer context, in particular for self-tracking devices. Therefore, based on what we learn from these theoretical approaches, we aim at deductively developing a research model that will help us to answer our research question. After successfully laying the conceptual groundwork with this peace of research, our future research activities will comprise an empirical validation of the conceptual model.

We organize this article as follows. Section 2 outlines the theoretical foundations of our study by introducing established theories in the field of continuance and discontinuance of IS use. In Section 3, we describe the development of our constructs and propositions for explaining use of self-tracking devices,

finally synthesizing them into a conceptual model. In Section 4, we point out our main contributions before we conclude with the limitations and the future research process.

Theoretical Foundations

Previous research extensively analyzes the adoption of IS, most often relying on the technology acceptance model (TAM) (Davis 1989) and the innovation diffusion theory (Moore and Benbasat 1989) as two prominent theories in this area. While these theories have been central in investigations on the pre-adoption of IS, new IT-enabled business models whose focus is on a continuous relationship with a customer require theories which go beyond the pre-adoption phase. To illustrate this point, we deem the self-tracking device as a good example because the value for users is built upon the explanatory power of continuously collected data. By utilizing the gathered information, users benefit from improvements to tracked aspects of their life. Furthermore, companies can use the data to segment the market, to improve next generation devices, and to provide new services to consumers, for example by offering them interesting information on the basis of the data collected (Porter and Heppelmann 2014). However, the pre-adoption models introduced before only deliver limited insights into an individual's continued and discontinued usage of IS. For instance, Kim and Malhotra (2005) showed that applying the untailored TAM does not capture the actual processes involved in continued use. Furthermore, Karahanna et al. (1999) analyzed how the behavioral intentions for IT adoption and continued usage are influenced. According to their findings, while behavioral intentions for IT adoption can be explained by subjective norm alone, behavioral intentions for continued IT usage are only influenced by attitude. They also find attitudes toward adopting and continuing to use to be influenced by different preceding factors, except perceived usefulness, underlining the case for analyzing pre- and post-adoption separately.

Since pre-adoption theories are not useful to explain continued usage behavior, Bhattacherjee (2001) opens up the domain of post-adoption theories. He zeroes in on continued usage of IS and suggests that usage is driven by the continuance intention which in turn is influenced by the satisfaction with and the perceived usefulness of the IS. By drawing on the work of Bhattacherjee (2001), Limayem et al. (2007) find evidence that habit plays a significant role. More particularly, they suggest that the usage of an IS is not only the outcome of the continuance intention, but also of the habit to use the system. This raises the question whether other factors exist to explain IS usage. Several empirical studies were carried out to identify those relevant factors. Petter et al. (2008) provide a summary of 21 studies in which usage and other IS success-related variables are explained by only a few different factors on the individual level, among them perceived usefulness. They show that in most empirical studies *no* factor consistently and significantly explains usage.

Venkatesh et al. (2012) analyze the relationships between use, behavioral intention, and influencing factors. Thereby, they reason that those relationships need to be investigated context-specific. Thus, to explain usage, research should address continued use and discontinuance in a context-specific way. To illustrate this point in the case of self-tracking, devices collecting data on people's health may raise concerns whether those data are shared with an insurance company. Thus, trust placed in the supplier to not share those information may play an important role in the individual's decision-making process to continue or discontinue using the device. The idea of contextual factors suggests that variables explaining continued use and discontinuance differ from case to case and offers a possible explanation as to why Petter et al. (2008) find no strong support in the literature for any relationship explaining usage on the individual level.

On the organizational level, there is some prior literature on IS continuance, but only few researchers have addressed the question of IS discontinuance. Furneaux and Wade (2011) are the first in the discontinuance domain. They reason that discontinuance is determined by (1) change forces such as environment or system shortcomings as well as by (2) continuance inertia, e.g., system embeddedness or investments into it. Although all of those factors are relevant for organizations, only some of them seem to be applicable in a consumer's discontinuance decision process. Recker (2014) conceptualizes IS discontinuance in an individual's working environment and suggests several factors based on past works on technology use (perceived ease of use, perceived usefulness, perceived work impediment) and status quo bias (perceived inertia and perceived sunk costs), all of which influence the formation of the continuance and discontinuance intentions. At this point, it is important to understand that continuance and discontinuance intentions are considered not one bipolar construct, but rather dual-factored

constructs similar to the motivation-hygiene theory (Herzberg 1959) or the enabler inhibitor concept (Cenfetelli 2004). They are formed by dividing a presumed bipolar construct into two independent parts with often different preceding influencing factors. For example, the occurrence of an error in a system increases the intention to discontinue the use of a system. However, the absence of this error does not necessarily build up the intention to continue using the system. Since previous research in an individual consumer context is rare and not specifically carried out with the aim to explain self-tracking usage, we propose a new theoretical model including relevant factors from related previous literature in case they are also applicable to the self-tracking domain in an individual consumer context.

Conceptual Development

Having looked at past research in the area of continued and discontinued usage, we will now explain the different constructs and propositions we will rely on for explaining usage in the context of self-tracking devices. The context of self-tracking devices in our understanding is not only the hardware but also the software and the associated ecosystem.

Usage as well as Continuance and Discontinuance Intentions

Continued IS usage is defined as "behavioral patterns reflecting continued use of a particular IS" (Limayem et al. 2007, p. 707). As a form of behavior, it results from either a consciously build intention (in our case, the continuance or discontinuance intention) or from an unconsciously driven and established habit (Ouellette and Wood 1998). This way, usage is not a one-time outcome but rather a behavior that is caused by a cycle of repeating or changing situations in which an individual intendedly or automatically uses the IS until the individual decides to discontinue (Limayem et al. 2007). By intendedly using the system, the user builds up a continuance intention which basically reflects all factors driving a person towards the conscious choice to continue using the system. Analogous to the continuance intention, the discontinuance intention reflects all factors that lead to an individual's conscious choice to stop using an IS. For clarification purposes, however, we stress that discontinuance does not comprise the stopping of the activity (e.g., running) within which the self-tracking device was used, nor discontinuance as a result of substitution. In this first step, we particularly focus on factors linked to the self-tracking device that may lead an individual to discontinue using the device at all (while continuing the actual activity (e.g., running)). Our proposed relationships are based on the theory of planed behavior (Ajzen 1985) and the theory of reasoned action (Fishbein and Ajzen 1975) in which several beliefs form intentions that ultimately result in behavior. Thus, we posit:

P1: Continuance intention is positively related to usage.

P2: Discontinuance intention is negatively related to usage.

Habit

Over the lifetime, a person forms many habits, which become part of the individual's regular behaviors, by repeatedly proceeding from intentions to actions. Eventually, such behavior results in an automatic habit and is done unconsciously (Hutchison 2013). We argue that this particularly applies to the field of self-tracking devices, since their frequent, often even daily usage supports the transition process into a habit.

In general, habits differ from person to person and are characterized by the frequency, the automaticity, and the context in which they are triggered (Verplanken 2011). An important difference between habit and earlier described intentions is that an intention can be formed towards continuance as well as discontinuance, while a habit might automatically lead to continue doing an activity (Guinea and Markus 2009). It can be defined as "the extent to which people tend to perform behaviors (use IS) automatically because of learning" (Limayem et al. 2007, p. 709). Since this research focuses on self-tracking devices, we define habit in this context as the extent to which behavior causes the unconscious and automatic routinely usage of the self-tracking device.

Limayem et al. (2007) reason that habit intervenes in the relationship between intention and usage. Because of learned routinely behavior, habitual-driven activities are difficult to change for most people, even if reasons and intentions against the routine exist, e.g., bad habits (Mangal 2007). The reason for this is rooted in the automaticity of behavior, resulting from learned routinely usage. As a consequence of

frequently repeating the identical action, the automaticity prevents an individual from consciously and intendedly doing an activity. Ultimately, fully habitual-driven activities are performed without any influence from intention on usage (Limayem et al. 2007). Thus, independent of the formation of intentions, a learned habit suppresses any intention put into a use (James 1890) and therefore negatively moderates the relationship between intention (continuance as well as discontinuance) and usage (Limayem et al. 2007). Hence, we posit:

P3: Habit negatively moderates the relationship between continuance intention and usage.

P4: Habit negatively moderates the relationship between discontinuance intention and usage.

Status Quo Bias

Recker (2014) reasons that continuance and discontinuance intentions are influenced by the status quo bias which can be described as a person consciously choosing to continue with a routine. In general, this results when people perceive disadvantages of change or discontinuance to be greater than the advantages (Samuelson and Zeckhauser 1988). In the context of self-tracking devices, discontinuance would generate little advantages, except that users save the negligible effort of equipping and using it. However, since self-tracking devices collect data over time, particularly a change or discontinuance would (usually) result in a loss of the accumulated information and be perceived as a disadvantage. Additionally, users of self-tracking devices often find themselves within an ecosystem or community around their device or its brand, sharing experience and information. We posit that being aware of those disadvantages, a person would prefer retaining the status quo.

Furthermore, following Recker (2014), an individual forms an attachment to routines (in our case to the self-tracking device), leading to a conscious will to continue using the system although the individual is informed about better alternatives (Recker 2014). He refers to this concept as cognitive-based inertia. Thus, we posit:

P5: Perceived cognitive-based inertia has a positive effect on the continuance intention.

Next to the cognitive-based inertia, Recker (2014) identifies another economic phenomenon that leads an individual to remain in the status quo, the evaluation of transition costs in comparison to sunk costs. The construct perceived sunk costs is defined as "comparison of transition costs such as time and effort of adapting to a new situation versus the time and effort already invested in learning to use the existing system" (Recker 2014, p. 5). Transition costs are especially relevant in the case of switching to another system or routine. However, within the context of self-tracking devices, neither continuance nor discontinuance creates transition costs. Though, this does not apply to sunk costs because after an investment is made, an individual wants to draw as much benefit as possible from the investment (due to the money, time, and effort already invested), even when the individual can partially regain the financial investment by reselling the device. That consequently creates a status quo bias with the intention to continue using the current system, regardless of whether reasons for discontinuance are present (Polites and Karahanna 2012). The extent to which an individual wants to retain the status quo depends on the individual's perception of the investment. Thus, we posit:

P6: Perceived sunk costs have a positive effect on the continuance intention.

Social Influence

Social influence in a consumer context is defined as "the extent to which consumers perceive that important others (e.g., family and friends) believe they should use a particular technology" (Venkatesh et al. 2012, p. 159). While social influence has been referred to using the terms subjective norm, social factors, and image in previous research (e.g., Ajzen 1991; Moore and Benbasat 1991; Thompson et al. 1991), Venkatesh et al. (2003, p. 451) argue, that "each of these constructs contains the explicit or implicit notion that the individual's behavior is influenced by the way in which others will view them as a result of having used the technology". Image is defined as "the degree to which use of an innovation is perceived to enhance one's image or status in one's social system" (Moore and Benbasat 1991, p. 195). Consumer technology, such as mobile devices, may be regarded as a symbol for fashion and wealth if the diffusion of the technology is not yet substantial (Sarker and Wells 2003). Individuals therefore adopt the technology to increase their self-importance (Lu et al. 2005). We argue that consumer technology, such as self-

tracking devices, are highly personal mobile devices which are mostly worn visibly daylong and therefore also function as a technology to increase one's self-importance. Furthermore, subjective norm refers to "the perceived social pressure to perform or not to perform the behavior" (Ajzen 1991, p. 188). Because self-tracking devices offer a new and unfamiliar way to collect and analyze highly personal data, we argue that this practice may lead to a strong formation of opinion and controversial discussion of one's social group concerning the use.

While social influence is often discussed within the pre-adoption and adoption literature, it has not been considered so far in the continuance and discontinuance literature. This may be because research shows that social influence decreases with a growing experience with the technology (Venkatesh et al. 2003; Venkatesh and Morris 2000). In contrast, we argue that for vibrant and controversial new technologies, such as self-tracking devices, social influence by one's social group does not just occur within the pre-adoption and adoption phase but continuously, and can change the intended effective direction due to new circumstances (e.g., loss of trustworthiness). We further propose dividing social influence into two separate variables – positive and negative social influence. Following the dual-factor theory (Recker 2014), it seems reasonable to argue that the absence of a positive social influence is not naturally leading to an increased discontinuance intention. However, we expect that a negative social influence of one's social group affects the perception whether to use a certain technology and therefore influences the discontinuance intention. Hence, we define positive social influence as the extent to which consumers perceive that important others believe they should continue to use a particular technology and negative social influence as the extent to which consumers perceive that important others believe they should discontinue to use a particular technology and posit:

P7: Positive social influence has a positive effect on the continuance intention.

P8: Negative social influence has a positive effect on the discontinuance intention.

System Performance

Following Recker's (2014) line of reasoning, we assume that users distinguish between performance advantages and disadvantages of an IS. In terms of performance advantages, the two variables perceived usefulness (PU) and perceived ease of use (PEOU) are widely accepted within the IS acceptance research stream. Initially used and defined by Davis (1985; 1989) for his technology acceptance model (TAM) as "the degree to which a person believes that using a particular system would enhance his or her job performance" (PU) and "the degree to which a person believes that using a particular system would be free of effort" (PEOU), both variables have been used in extensions of TAM and alternative IS acceptance models (Davis 1989, p. 320) . While PU and PEOU are the main antecedents in the pre-acceptance stage, it seems plausible to argue that both variables also influence the continuance decision (Bhattacherjee 2001).

While PU has been considered in several previous studies (Bhattacherjee 2001; Limayem et al. 2007; Recker 2014), the integration of PEOU should be discussed in more detail. Referring to empirical studies, Bhattacherjee (2001) discards PEOU from his expectation-confirmation model of IS continuance, following the line of reasoning that it becomes non-significant in the post-acceptance stage due to the fact that users who gain experience with a system resolve their PEOU concerns. Similarly, Venkatesh et al. (2003, p. 450) within their Unified Theory of Acceptance and Use of Technology (UTAUT) state that the effort expectancy, which is defined "as the degree of ease associated with the use of the system", becomes non-significant when the technology is used extensively and sustainably. We follow the line of reasoning of Bhattacherjee (2001) and Venkatesh et al. (2003) and therefore do not include PEOU in our model.

By transferring PU into the self-tracking context, we redefine PU as the degree to which a person believes that using a self-tracking device would enhance his or her personal living condition. We argue that data that is regularly and continuously collected by a self-tracking device, shared with the associated ecosystem and analyzed by the user can contribute positively to one's well-being, fitness and/or health. As long as this circumstance is believed by a user, PU will have a positive effect on the continuance intention. Hence, we posit:

P9: Perceived usefulness has a positive effect on the continuance intention.

Concerning the performance disadvantages, Recker (2014, p. 6) includes in his model a variable called perceived work impediment which is defined as "the individual assessment of system use in terms of a detriment to work task performance due to a need to comply with the ineffectual requirements of system use". For a deeper understanding which specific performance disadvantages influence the discontinuance intention in a consumer context, we transfer perceived work impediment into perceived routine constraints. In addition, we adapt two variables from Furneaux and Wade (2011) which seem suitable in a consumer context – system unreliability and system capability shortcomings – and finally include another variable, perceived trustworthiness (Mayer et al. 1995; Mayer and Davis 1999).

System reliability is defined as "the extent to which a system can be counted on to perform its intended tasks" (Furneaux and Wade 2011, p. 582) . They hypothesized that a reduced system reliability leads to an increased replacement intention due to the fact that the continued use of an unreliable system is seen as a risk to the business (Furneaux and Wade 2011). We adapt this hypothesis to the consumer context of self-tracking, arguing that the unreliable measurement of data by a self-tracking device frustrates the user and therefore effects the discontinuance intention positively. We further assume that it is thereby not important whether the unreliable data measurement is caused by a software or a hardware defect. We posit:

P10: System unreliability has a positive effect on the discontinuance intention.

System capability shortcomings, which we also adopt from Furneaux and Wade (2011, p. 582) to the individual level, is defined as "a limitation in the functionality of an IS that undermines its ability to meet individual needs". In our case, it refers to the perceived shortcomings of the self-tracking device related to the individual user's needs in terms of software, hardware, and the associated ecosystem. For instance, the self-tracking system may not be compatible to the individual's preferred smartphone application or may no longer be supported by the smartphone's operating system. Another shortcoming might be, when the collected data cannot be shared with one's social group due to an incompatibility with the ecosystem. We posit that capability shortcomings of the self-tracking system ultimately contribute to an individual's intention to discontinue using the device. Thus, we posit:

P11: System capability shortcomings are positively related to the discontinuance intention.

Adopted from Recker's (2014) idea of "work impediment" and transferred to the individual's private domain, we define perceived routine constraints as the individual assessment of system use in terms of a detriment to routine performance due to a need to comply with the ineffectual requirements of system use. While Recker (2014) referred to work impediments in general, we relate it to the private domain and zero in on the perceived constraints on an individual's daily routines due to the compliance with the requirements of a self-tracking device. For instance, the self-tracking system may disturb individual routines such as wearing specific clothes. We posit:

P12: Perceived routine constraints are positively related to the discontinuance intention.

Trust is defined as "the intention to accept vulnerability to a trustee based on positive expectations of his or her actions" (Colquitt et al. 2007, p. 909) and is significantly influenced by the trustworthiness of the trustee (Colquitt et al. 2007), which in this case is the company operating the IS. Perceived trustworthiness includes the three dimensions *ability*, *benevolence*, and *integrity* of the trustee (Mayer et al. 1995). Mayer and Davis (1999) posit that the relative importance of each of these three dimensions changes depending on specific situations in which any of facets may be more salient compared to the other facets. Ability refers to "that group of skills, competencies, and characteristics that allow a party to have influence within some domain", benevolence is "the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive", while integrity is "the trustor's perception that the trustee adheres to a set of principles that the trustor finds acceptable" (Mayer and Davis 1999, p. 124). Related to self-tracking devices, the construct thus comprises the ability of the self-tracking service provider to continuously protect the individual's data, continuous take actions in the individual's best interest and integrative behavior. We suggest that perceived trustworthiness is an important factor because the service provider continuously gathers and often analyzes data from the individual that is highly sensitive. If the perceived trustworthiness diminishes as judged by the individual user, we posit that this perception contributes to a discontinuance intention. We posit:

P13: Perceived trustworthiness is negatively related to the discontinuance intention.

Research Model

Summarizing, we primarily drew upon the continuance model of Bhattacherjee and Limayem (2001; 2007) and the discontinuance model of Recker (2014) in order to propose our continuance-discontinuance model in a consumer context. From Recker's (2014) conceptual framework, we adopted the status quo bias and the system performance. While the status quo bias is seen as a rational choice by the user (Recker 2014) and therefore influences the continuance intention directly, we also included habit as an unconscious decision to perform a behavior automatically. Following Limayem et al. (2007) we considered habit as a moderator between the continuance and discontinuance intention and usage. Concerning the system performance, we followed Recker's (2014) idea of perceived work impediment as an influencing variable for the discontinuance intention, further developed and transferred it into a consumer context, and added additional variables inspired by Furneaux and Wade (2011) and Mayer and Davis (1995; 1999). Finally, influenced by UTAUT and UTAUT2 (Venkatesh et al. 2003; Venkatesh et al. 2012), we additionally added the idea of positive and negative social influence of one's social group having an effect on the continuance and discontinuance intention. The final model is shown in Figure 1 and consists of 13 propositions.

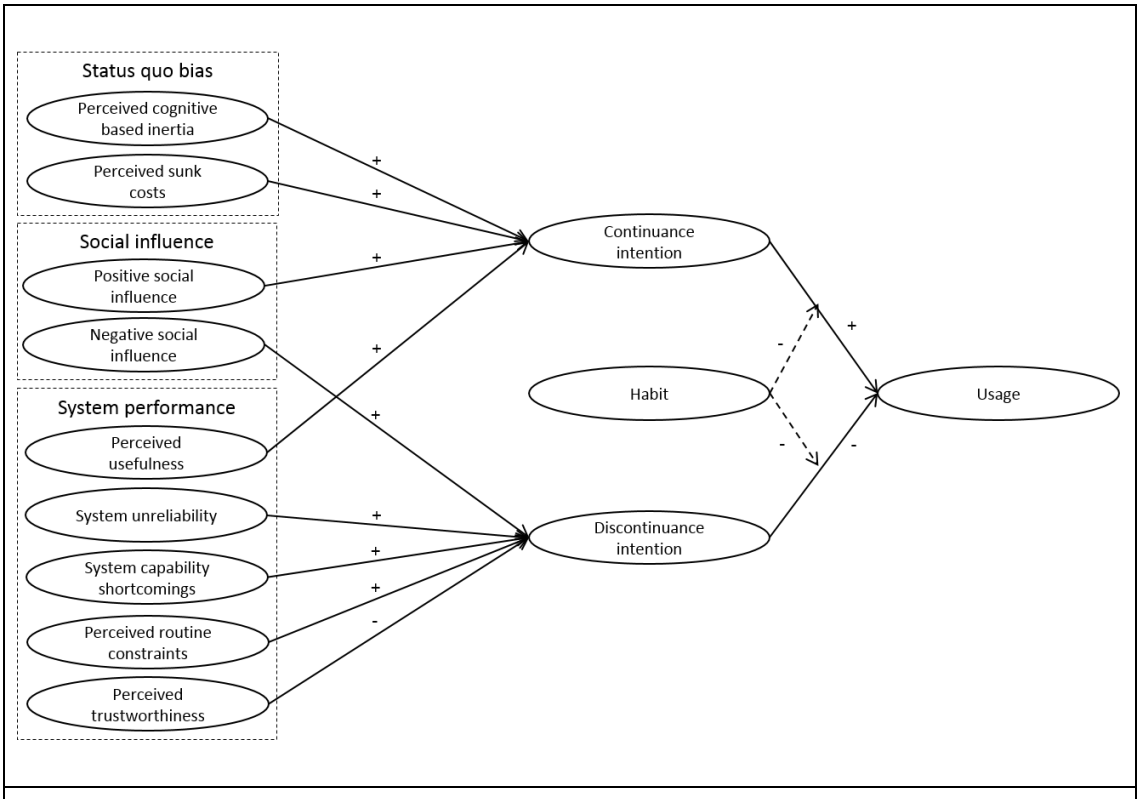

Figure 1. Research Model

Conclusion and Outlook

We set out to deductively build up a conceptual model with which we aim to explain an individual's continuous usage of a self-tracking device in the consumer context. While research on the individual-level continuance/discontinuance of IS is yet scarce, our study is one the first that further explores this promising path and suggests a comprehensive, yet parsimonious model that will be put forward to an empirical evaluation within the emerging research domain of wearables computing. We acknowledge two limitations. Firstly, our study, so far, only depicts a conceptual model for which we do not have any

empirical evidence as to how far our propositions reflect the reality and as to how strong the proposed relationships between constructs are. Thus, while the model is deductively derived on theoretical accounts, the empirical validation remains for future research. Secondly, in terms of the trade-off between the width and the depth of a model, we decided in favor of a broad model because we deem a validated broad model more valuable in the early stages of a research domain. Succeeding research may then narrow down the focus on specific aspects.

Regarding the specific next steps in this research endeavor, we deem quantitative-empirical methods as most suitable to validate our proposed research model. Thus, as specific next steps in this research project, we will define the measurement models, develop a suitable survey instrument, collect quantitative-empirical data, and finally analyze the data using a structural equation modeling approach (Straub 1989; Urbach and Ahlemann 2010). The sample will be users of self-tracking devices which have already implemented and adopted their device and use it regularly and continuously. We will invite them to participate in our study by drawing on online communities in the field of self-tracking and quantified-self as well as on vendors of self-tracking devices. Next to the variables of our research model, we will also collect demographic data, such as age, gender, education, and IT affinity. That will give us the additional opportunity to perform top-down segmentation, such as multi-group analysis (Henseler 2007; Urbach et al. 2010), as well as bottom-up segmentation procedures, such as FIMIX-PLS (Becker et al. 2013; Mohan and Urbach 2012), for further identification of heterogeneities in the continuous use of self-tracking devices. With our research we expect to give both, a further theoretical understanding in the field of IS post-adoption research in a consumer context and practical implications for practitioners in the field of self-tracking. As stated before, theoretical post-adoption research with a focus on continuous use and discontinuance had little attention so far. While the reviewed models focus on either continuance or discontinuance, our proposed model combines both facets in a comprehensive model. Furthermore, by focusing our research on the field of self-tracking, we transfer the current research into the consumer context. For producers of self-tracking devices and developers of third-party applications and services, our research will give a deeper understanding which positive and negative factors concerning self-tracking devices are important for customers and lead to a continuous use or discontinuance. Hence they will be able to better focus on critical aspects when developing new hardware, software or the associated ecosystem.

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