Designing for the Functionality South African Internet Banking Websites Should Provide to Address the Needs of Generation-Y Users

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Abstract. Despite the widespread adoption of Internet banking there are no validated guidelines on the functionality the younger, techno-savvy Generation-Y customer segment (18-35 year age bracket) expect from Internet banking websites. This research investigated the functionality the Generation-Y customer segment require from South-African Internet banking websites. The User Centred Design (UCD) philosophy with a mixed method research design was utilised. Generation-Y technological characteristics and preferences abstracted from the literature were aligned with functionality trends of future Internet banking websites to formulate an initial list of Generation-Y aligned Internet banking functionality guidelines. These were evaluated during interviews with representative Generation-Y customers and also used in the heuristic evaluation of the Internet banking platforms of five South African banks. The findings were integrated towards synthesizing functionality guidelines. A visual representation of these functionality guidelines was constructed as a wireframe prototype for evaluation by Generation-Y users. The main contribution of the study is the validated list of Internet banking functionality guidelines for Generation-Y banking customers.

Keywords: Functionality, Internet banking, Generation-Y, User Experience.

1   Introduction

Internet banking is the second most used service on the Internet in South Africa, the most-used service being email [1]. In the face of expanding ecosystems of legacy websites, mobile sites and applications, banking institutions need guidelines to help best align their users' experiences with their expectations. A number of studies have been performed around the expectations users have of the Internet banking platform, but none of them have explicitly outlined functionality guidelines for the strategically important and strongly differentiated Generation-Y customer segment. Unlike any other predecessor generation, Generation-Y members are the first generation to be brought up with ubiquitous exposure to digital technologies, and because of this, have adopted technology as a primary tool for communication, education, as well as information gathering and sharing [2]; all qualities that shape the perceptions they have of

websites [3]. Given these unique characteristics, providing relevant online experiences for them is important, as it is likely to translate into profitable future investments for organisations [4].

Research evaluating functionality on the Internet banking websites of six of the largest banks in the United States (Bank of America, Chase, Citibank, PNC Bank, U.S. Bank, and Wells Fargo) [5], uses a Website User Experience and Functionality Benchmark methodology to evaluate how the different banks measure against an already established set of Internet banking functionality guidelines. These guidelines outline conventional functionality currently existing on Internet banking platforms, such as paying beneficiaries, inter-account transfers, etc., but do not explore the next level of functionality innovation this platform can offer to banking customers.

In his research, Ravendram [6] identifies a single advanced functionality component of Internet banking in the Australian context, namely *customisation*. Herein, he explains that customisation is an imperative functionality dimension for the Internet banking platform, particularly among the younger generation, and continues to stipulate relevant technology that may assist to bring this dimension to life. Although customisation is identified as a vital functionality need, the paper does not identify additional functionality dimensions that may satisfy this younger segment of banking clients; nor does the paper reveal the characteristics of these banking clients that result in their inclination to customisation.

A study by Green and van Belle [7] investigated expectations of Internet banking in South Africa, and found that customers were satisfied with the basic Internet banking experience, but not with cost issues, speed, lack of integration with other banking channels and more advanced functionality. Besides identifying the need for advanced functionality, they do not expand on what this functionality could be.

The possible mismatch between the expectations of Generation-Y banking customers, and the functionality currently offered by South African Internet banking websites provide the rationale for this study. The research is guided by the following question: What functionality should South African Internet banking websites provide to address the needs of Generation-Y users?

Functionality, together with branding, usability and content has been identified as one of the key contributors to a positive user experience [8]. Therefore we argue that this study on Internet banking functionality contributes to the debate on human-computer user experience and especially designing for diversity.

Supporting documentation is available online to provide additional information that goes beyond the scope of this paper. Where relevant, these documents (referenced in the text as [23-25, 33, 36-37]), are cited for providing additional information related to this study. Section 2 describes the research design, while Section 3 sets the theoretical foundation and outlines the Generation-Y technological characteristics. Section 4 provides an overview of the literature leading to the formulation of the initial list of Internet banking functionality guidelines, while section 5 depicts how these functionality guidelines were validated. Section 6 discusses these findings, and leads to Section 7, which concludes the paper.

2   Research Design Overview

There are three types of research methods, namely qualitative, quantitative and mixed methods [9]. This study utilised mixed method research, with elements of both quantitative and qualitative approaches present, as demonstrated below in the next two paragraphs and in Fig. 1.

A literature review was conducted to identify the characteristics that influence the online preferences of Generation-Y users. A second literature review was conducted on the forecasted functionality of online financial services like Internet banking, to identify specific future functionality trends. These trends were then mapped to the Generation-Y characteristics previously identified to synthesise an initial list of innovative Internet banking functionality guidelines.

The philosophy of User Centred Design (UCD), advocates the active involvement of users for a clear understanding of user and task requirements [10]. Hence, a questionnaire was formulated and used in interviews with representative Generation-Y users, to validate the initial list of functionality guidelines gathered from the literature, and to identify new, desired functionality areas. The initial guidelines were then consolidated with the additional user input from the interviews, to formulate a list of functionality heuristics that were used to inspect the Internet banking websites of five banks in South Africa (Standard Bank, ABSA, FNB, Nedbank and Capitec).

This inspection, investigated whether the functionality currently available on the banks' Internet banking websites met the gathered Generation-Y functionality guidelines while seeking to uncover existing functionality deemed as pioneering, and worthy of being part of the Internet banking platform of the future.

A set of updated Generation-Y Internet banking functionality guidelines was synthesised from the reports and visually represented in the form of a semi-functional, HTML wireframe prototype. Generation-Y Internet banking users evaluated the prototype to validate the guidelines. The research design flow is depicted in Fig 1, which shows the three main data capturing methods, used (interviews, heuristic evaluation and prototyping), and which are further discussed in section 5.

3   Identifying Generation-Y Characteristics

"Today's multichannel customers demand better experiences than they get from institutions that design underperforming, one-off touch points … Institutions need a plan that will help them align their investments with their customers' most pressing needs. How can they do this? They can accomplish this by taking a user-centred approach to understanding the needs and behaviours of their customers and filling in the experience gaps" [11:1]. This quote emphasises the importance of understanding how diverse user groups' expectations and behaviour influences their perceptions of technology and consequently online banking platforms. Generation-Y technological characteristics, supporting specific online inclinations they have are discussed in Section 3.1.
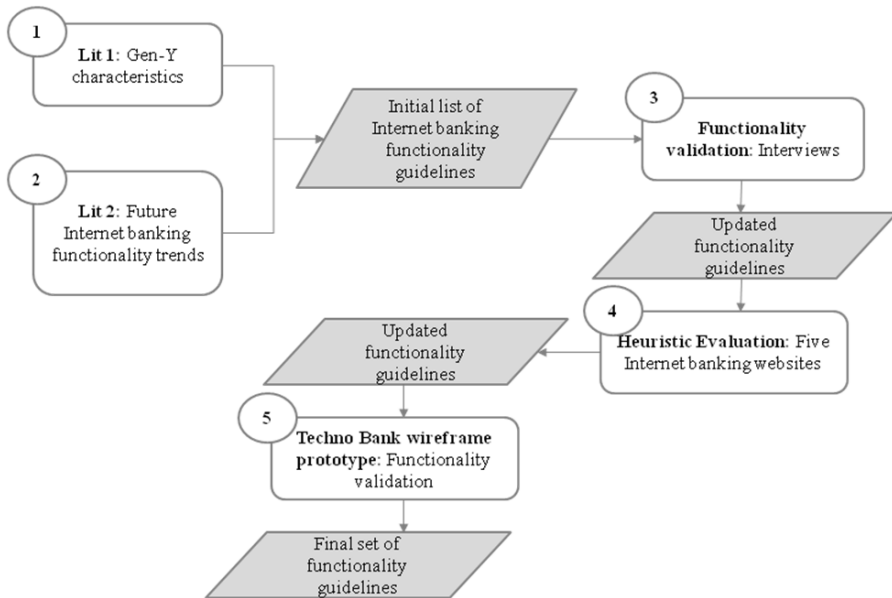
Fig. 1. Phases leading to the synthesis of the final Internet banking functionality guidelines

3.1   Technological Characteristics of Generation-Y Users

Generation-Y users are likely to own multiple digital devices as they desire continuous connectedness [12]. From this, general mannerisms such as "SMS language" have emerged, resulting in recommendations that online platforms speak to them in a tone they can relate to, always seeking to shorten and simplify instructions, and where possible use visual cues instead of long text [3]. They are mostly influenced by peers and family, are continuously looking for online human connections and exchange of real experiences that makes them feel a sense of community, respect and acceptance [13]. Tools of expression that enable them to communicate with others are therefore recommended on any online platform aiming to cater for this user base.

These users expect instant gratification, and expect online processes to execute promptly. Therefore, websites have to be designed with immediacy in mind, exposing the value of key pages and regularly updating content, whilst providing constant feedback to these users [14]. These users are more than mere consumers of online content, but are also active creators, continuously updating online blogs and sharing generic life events. Because of their diverse and expressive nature, they expect to be provided with high levels of personalisation and customisation where they are able to change interactions, and even products and services to reflect their individual personalities [3]. These discussed technological characteristics can be summarised into three main categories with supporting sub-categories as shown in Table 1.

Table 1. Technological characteristics of Generation-Y users [3]

Category 1: Technologically fluid and highly networked	
Sub-characteristic	Explanation
Continually connected	These are owners and users of multiple technology gadgets like portable MP3 players, laptops, tablet devices, smartphones, etc. and never want to be seen as "out of touch" [12].

Category 2: Emotionally looking for connections	
Sub-characteristic	Explanation
Influenced by peers	This generation highly relies on recommendations from friends and family, hence the high prevalence of use on social networking platforms such as Facebook. Therefore, online platforms should seek to provide self-expression tools that will allow these users to communicate with others.
Enjoy humour with an odd slant	Most of these users spend time actively seeking online experiences that are both humorous and entertaining.
Speak their own language	Generation-Y users are influenced by communication technologies like chat, text and instant messaging. Because of this, this user base has developed their own language ("SMS language") comprising of acronyms, emoticons, modified spelling, and slang. It is recommend that online platforms speak in a tone that authentically addresses these users, as well as keep instructions simple, using shorter sentences, and where possible substituting long text with images and other interactive visuals [14].

Category 3: Unpredictable and creative	
Sub-characteristic	Explanation
Skim content very quickly, and are easily bored	This generation is used to instant technology, and therefore quickly scans through information and rapidly absorb content, without dwelling on or reading any text-heavy pages. Online platforms designed for Generation users should therefore expose immediate value on key pages of the website, as well as update and refresh content, whilst regularly providing them with feedback [14].
Expressive	Most of these users are active content creators, continuously updating blogs, uploading videos, sharing pictures, etc. They are also expressive and respond to online experiences that provide them with the freedom to personalise and customise interactions and products and services in a manner they believe befit their individual personalities.

4   Identifying the Functionality Trends and Guidelines

4.1   Internet Banking Functionality Trends

Website functionality is an important part of the way an organisation does business by using a computer [15]. The use of digital technology provides access to those extensions of an organisation's services that can be accessed at the customer's convenience. Customers now prefer to pay bills, apply for services, initiate bill disputes and more, all from the convenience of their home or office [16]. This is made possible by the functionality offered on various online self-service platforms.

As noted, functionality is one of the four key contributors to a positive user experience (together with branding, usability and content) [8]. Functionality needs to cater for all technical and task supporting processes and applications that entail the delivery of the website's interactive services according to the unique needs of the user on the site.

The analysis revealed seven distinct functionality trend categories as pioneering and definitive of future digital financial services such as Internet banking. These are personal financial management (PFM) [17], multi-device banking [18], personalisation [19], process automation [19], content presentation [20], human touch [21], and social banking [22]. The analysis also revealed early-adopter banking institutions around the world already implementing some of these functionality guidelines [23]. These include Mybarclaycard (UK), BBVA (Spain), Jyske Bank's (Denmark), Commonwealth Bank (Australia), 22Seven, Standard Bank, Nedbank and FNB (South Africa), as well as Hapoalim Bank (Israel). Explanations of what each of the seven functionality categories represent are given below.

- *Personal financial management (PFM):* This alludes to transactional banking users being able to manage their money by using money aggregation technology that enables them to have a consolidated view of their financial standing, usually across a number of financial services providers. Where relevant, users are provided with personalised budgeting and money management hints and tips.
- *Multi-device banking:* Due to the prevalence of portable mobile devices such as smartphones and tablets, banking organisations have to ensure that their online platforms can be viewed comfortably, regardless of the device being used.
- *Personalisation:* Future digital financial services will award users the opportunity to determine their own website settings in a manner that befits their personal preferences (e.g. change of interface theme, navigation rearrangement, etc.). This platform will also learn about the user's financial profile, and recommend relevant products, website content and functionality.
- *Content presentation:* It is no longer enough to have the right content; but content needs to be presented in more creative ways (e.g. video) that makes it easy to read and comprehend, resulting in users quickly absorbing key details.
- *Process automation:* This category addresses banking functionality that will enable users to perform certain transactions, from start to finish, without having to access a physical bank branch. These transactions include increasing of certain account limits, product applications, etc.

- *Human touch:* Banking technology should be balanced with human interaction, by allowing users to access human assistance from the bank whenever the need arises.
- *Social banking:* Digital financial services of the future will demand integration across several processes, systems, applications, and channels; with social media being part of this equation.

4.2   Initial Generation-Y Functionality Guidelines

Having discussed the Generation-Y characteristics (Section 3.1) and the projected functionality trends for banking websites (Section 4.1), we now consider the desired user experience on future digital financial services. This can be summarised in terms of the S.U.P.E.R. acronym [19] where the meaning of the letter can be explained as follows:

- *Simple:* It will be much easier for customers to achieve goals and tasks on digital financial websites, if products and services information are presented in a manner that is easy to comprehend.
- *Ubiquitous:* Customers will seamlessly interact with their financial services provider through an increasing number of touch points like mobile devices and social networks. There will be continuity and consistency across all these platforms, making users comfortable and assured that their needs are met regardless of the device and platform they choose to transact on.
- *Personal:* The entire online experience will be relevant to unique customer needs, and will not use a one-size fits all approach when it comes to the handling of customers' financial data.
- *Empowering:* Customers will be able to take action by themselves, as they will be provided with an aggregated view of their finances, from multiple sources. This aggregation will put them in control of their financial lives, as they will have a single and solid point of reference for all their financial information.
- *Reassuring:* As human beings still remain the best sales and service channel for many high-value interactions, future digital financial services will provide human help whenever the user feels the need.

With acquired knowledge of Generation-Y characteristics (Table 1), future functionality trend categories (Section 4.1), and an overview of the expected user experience on digital financial services (S.U.P.E.R [19]), it became possible to draw similarities between these different sources of information from the literature, and assess whether the functionality trends and the projected user experience aligned with the gathered traits of Generation-Y users.

Table 2 depicts the triangulation between these three aspects, mapping the functionality trends and user experience elements to the most relevant Generation-Y technological characteristics.

The projected user experience, and functionality categories align in many ways with the technological traits of Generation-Y users, accentuating that the type of functionality trends gathered from the literature could potentially be appealing to this users base. This was validated during interviews with Generation-Y users (Section 5.1).

Due to its functionality encompassing nature, the S.U.P.E.R acronym was used as main categories, in which the seven functionality trend categories (Section 4.1) were grouped. From these trend categories, an initial list of thirty specific functionality guidelines was synthesized for use during the user validation (interview) phase of the study [24].

Table 2. Triangulation of functionality trend categories, S.U.P.E.R and Generation-Y characteristics

Projected user experience on digital financial services	Functionality trend	Generation-Y technological characteristic
Simple	Process automation and content presentation	Skim content very quickly, and are easily bored
Ubiquitous	Multi device banking and social banking	Continually connected and influenced by peers
Personal	Personalisation	Expressive and creative, speak their own language, and enjoy humour with an odd slant
Empowering	Personal financial management	Expressive and creative
Reassuring	Human touch	Influenced by peers

5   Validating the Functionality Guidelines

To validate the characteristics and functionality guidelines, interviews, heuristic evaluation and prototype evaluation were used.

5.1   Interviews

Interviews were conducted with representative Generation-Y users. Participants were sampled from AquaOnline (Pty) Ltd., a full service digital and direct marketing agency. The average age of employees in this organisation is 31 years. Due to the nature of the business, employees are required to have a wide knowledge of and exposure to digital technology in general, positioning the company to provide a representative sample of the Generation-Y population at large. Twelve Generation-Y participants were sourced, with the questionnaire utilised during the interviews [25] designed to:

- Validate the demographic details of the participants.
- Gather perceptions they currently have of their respective Internet banking platforms.
- Validate the literature gathered list of thirty Internet banking innovative functionality guidelines.
- Ascertain whether participants could identify any additional functionality innovation not yet uncovered by the thirty guidelines [24] presented to them.

A rating scale is the most efficient manner of capturing self-reported data [10]. In order for each participant to demonstrate their level of agreement or disagreement with the functionality guidelines presented to them [24], a 5-point Likert scale was used. Participants were requested to rate the different guidelines, and where relevant, provide substantiation for their rating. The questionnaire design allowed for both qualitative (participants' substantiation on functionality rating, and additional functionality recommendations from them) and quantitative data (participants' functionality acceptance rating) capturing, thus providing a holistic understanding of the importance participants were placing on the different functionality guidelines presented to them.

The interviews exposed the perception participants currently have of their Internet banking platforms, with their input revealing that most are happy with the basic transactional capabilities this platform offers (i.e. paying beneficiaries, buying airtime, inter-account transfers, etc.). Even though this is the case, they acknowledged that the functionality on this platform could be improved, by providing them with the ability to better manage their financial lives. This was further supported by the participants' views that they believe this platform should be playing a role of a "financial adviser", which it currently does not fulfil.

When asked to validate the functionality guidelines presented within the various categories (i.e. simple, ubiquitous, personal, empowerment; reassuring), it was revealed that Generation-Y users are looking for full process automation, where they would be able to perform actions that currently require a branch visit (e.g. increasing transactional limits) online. They are wary of security complications the introduction of functions like electronic signatures may introduce, and strongly communicated the need for additional layers of security like One Time Passwords (OTPs) should such functionality be incorporated. This input yielded an acceptance rating of 4.2 (agree with proposed functionality), for functionality listed within the Simple category.

Participants agreed with the idea of being notified about other channels of banking (e.g. via a mobile app) however, being able to undertake their banking on social networking websites like the notion of social banking suggested was unsettling to them. The functionality listed within the Ubiquitous category therefore yielded an acceptance rating of 3.2 (Neither agree, nor disagree with proposed functionality).

Even though they supported the idea of customising the platform according to their needs (e.g. change of interface colour, navigation rearrangement, etc.), participants communicated that what users who are permitted to modify on the platform interface should be closely monitored. They felt it could interfere with the overall branding of the organisation; a component of the interface they believe is key in depicting the stature and credibility of the banking institution. An inclination towards personalisation, rather than customisation was observed, where they preferred the bank to make targeted promotions based on products they do not currently have, rather than allowing them to change the background colour of their transacting interface. The Personal category therefore returned a 3.8 acceptance rating (agree with proposed functionality).

Participants were keen to see the transformation of the Internet banking platform into a money aggregation site, where they would be able to have a better view of, and manage their finances more efficiently. They want to be able to set and monitor

savings targets, put spending alerts into place, budget online, track their spending on certain categories like groceries, entertainment, fuel, airtime etc. The empowerment category averaged at a 4.6 acceptance rating (strongly agree with proposed functionality). Participants also supported the idea of having direct human contact on the platform, with the click-to-chat and request a call back functions being the most preferred. The Reassuring category yielded a 3.8 acceptance rating (agree with proposed functionality).

When asked to identify additional functionality not listed in the guidelines, Generation-Y users communicated that they want to be able to access the Internet banking platform more easily, by being able to select their own username and passwords; and not have to memorise lengthy card and profile numbers. They are looking at this platform to start offering more than just banking solutions, but start addressing other aspects of their lives (e.g. what a healthy combination of financial products is, and where the users are falling short). They are expecting this platform to offer financial education not necessarily related to their existing product set (e.g. share trading tutorials, investment tips, etc.), as well as make product offers not necessarily related to banking (e.g. discounted holidays, sales on certain makes of mobile devices, etc.).

To them, the Internet banking platform is an extension of other electronic based ways of transacting, thus they want to easily extend their transactions on a mobile device of their choice (e.g. on a smartphone or tablet), while on the move, without the experience being tainted. Overall, Generation-Y participants require their online transacting platform to be a one-stop-shop that has their overall financial well-being at the core of the offering, while slowly starting to creatively integrate other parts of their lives.

5.2   Heuristic Evaluation

The functionality guidelines validated and further recommended by participants during the interviews were then used to formulate a list of heuristics that was used to inspect the Internet banking websites of Standard Bank [26], FNB [27], ABSA [28], Nedbank [29] and Capitec Bank [30]. Although a commonly known set of Nielsen's usability principles [31] is usually used during a heuristic evaluation, Pinelle, Wong and Stach [32] advocate that a heuristic evaluation is flexible and versatile enough to be adapted to specialised domains [32].

Five expert evaluators, all of them experienced user experience professionals accustomed to the heuristic evaluation process, took part in the evaluation [33]. Each evaluator compiled a heuristic report on their findings, stipulating how they felt each of the Internet banking websites faired against the functionality guidelines gathered thus far. The evaluation also identified functionality on current Internet banking platforms the evaluators deemed worthy of being labelled "innovative".

For Standard Bank, FNB and Capitec Bank, transactional capabilities are still the main focus of the platforms, with ABSA and Nedbank breaking the norm by beginning to position their Internet banking websites as interactive money management platforms. These two banks have started to introduce, to a certain extent, personal financial management capabilities, and offer users generic financial education that is

aimed at helping them understand various financial topics. The account aggregation ability (i.e. a consolidation across multiple accounts), is still manual on the ABSA site, and on a platform outside Internet banking for Nedbank. However, the general consensus from evaluators was that these two banks did at least plant a seed of advanced financial consciousness in their users' mind, and allows the websites to be positioned as more than a platform where basic transactions happen, but rather "partners in their financial well-being".

FNB is making headway on the cross selling of products on the site. Evaluators identified an additional functionality type they deemed original on the websites of this bank, as well as Nedbank. The functionality enables users to rename accounts that appear on their transacting homepage, effectively making products they have with the bank easily memorable and identifiable. None of the five banks evaluated satisfactorily portrayed all the recommended functionality guidelines in a manner that could comprehensively cater for the identified needs of Generation-Y users.

Although Nedbank and ABSA show potential, their platforms are not yet a seamless representation of all the functionality guidelines gathered in this study. All the evaluators emphasised the value and importance of this study for banking institutions wishing to target this particular customer segment.

5.3   Functionality Validation with Wireframes

Wireframes are schematic presentations that define a webpage's content and functionality structure in order to portray the page concept before it is designed and developed [34]. Based on the functionality guidelines gathered and updated throughout the different phases of the study (literature, interviews and heuristic evaluation) a semi-functional, HTML wireframe prototype for a fictitious bank ("Techno Bank") was created [35]. Fig. 2 depicts a screenshot of the money management section of the prototype; an entry point to the empowering category functionality guidelines. For instance, in this section of the prototype, a user is able to see a consolidated view of all their financial accounts, and is also able to track their spending progress over a certain amount of time; all functionality validated and deemed important by Generation-y participants during the interviews.

Functionality representing the other four requirement groups (i.e. simple, ubiquitous, personal; reassuring) is also contained in the prototype. Users are able to, amongst other things, view bank products recommend to them based on their unique financial profile, access financial education in order to improve their financial standing, download banking applications (apps) for other devices like their tablets and smartphones, and initiate an instant chat session with their respective banker; all functionality they supported during the validation phases of the study. Ten representative Generation-Y users were requested to access this prototype, and validate whether they would be satisfied with the functionality proposed, on their actual Internet banking platforms. Participants were given tasks [36], representative of all the gathered functionality guidelines to ensure they were familiar with the different functionality guidelines, thus enabling them to provide informed functionality validation feedback. Similarly to the functionality validation process during the interviews, participants herein also demonstrated their level of agreement or disagreement with the prototype functionality by utilising, a 5-point Likert scale.

Fig. 2. Example of the Techno Bank *empowerment* section of the prototype

Overall, participants reached a consensus that functionality projected in the "Techno Bank" prototype is the kind they would like to have on their Internet banking platform of the future. For each functionality category, a functionality acceptance rating was captured, with participants further elaborating on certain aspects of the proposed functionality. Their input for each functionality category is summarised below.

- *Simple* (Acceptance rating 4.6: Strongly agree with proposed functionality): Participants agreed that simplifying transactions and the consumption of product related information were important functions to have on an Internet banking site. They communicated that having direct access to calls-to-action such as ''apply now'' was very important for them on the site. They expect to action their needs immediately when a tool or product presented is of interest to them. They also supported the idea of the bank reusing personal information (i.e. their full name, identity number, income and address details) it already has about them to help them complete certain online processes (e.g. applying for a new product) quicker. Other media of communication such as video were also supported, with users communicating that this is a good alternative for those who do not wish to read lengthy

product details. When asked to validate the ability for users to action a transaction by using an electronic signature, users were concerned and agreed only on condition that an extra layer of security (such as a One Time Password), be provided. Although this functionality innovation would further automate transactions, users surprisingly expressed the view that they would still prefer going into a bank branch to render a physical signature. Issues of security and trust remain a concern to them despite their early exposure to technology.

- *Ubiquitous* (Acceptance rating 5: Strongly agree with proposed functionality): All users agreed that being notified of other ways of banking, as well as being able to instantly download any new apps on the site was a useful feature to have. They also communicated that they would like the banks' apps to be linked to their mobile app store, where they would be able to be notified of any new app developments the bank is introducing. All participants agreed on excluding social media integration from the platform. They contended that this should not be incorporated at all, even in more subtle ways like the sharing of an interesting educational article posted by the bank in the education section of the prototype.

- *Personal* (Acceptance rating 4.8: Strongly agree with proposed functionality): Users noted that any promotion the bank extends to them should add value to their financial lives. They spoke strongly against what they termed "irresponsible targeting", where the bank pushes promotion messages without taking a closer look at what their actual financial needs really are. Generally, they supported the idea of being able to customise the site by rearranging certain interface elements, as well as renaming the different bank accounts the user has. Changing the background of the site's interface to a different colour or theme was, however, met with scepticism, with most of the users expressing that they felt this is one aspect of the bank that depicts its credibility, and therefore allowing users to have too much leeway with this, would mean the bank letting go of a sense of trustworthiness usually presented by its brand identity (i.e. certain logo, colours, etc.).

- *Empowering* (Acceptance rating 5: Strongly agree with proposed functionality): All users agreed that having a consolidated view of their finances would help make them conscious of how they spend, and act as a catalyst to help them make better financial decisions. They supported the functionality that allows them to track their spending within a particular category (e.g. hair and makeup, groceries, fuel, etc.). Here, they expressed they would like to compare multiple categories simultaneously. They also appreciated the setting up of an online budget, and herein expressed the need for this function to be synchronized to a mobile device of their choice, for them to conveniently access it when they are away from a laptop or desktop computer.

- *Reassuring* (Acceptance rating 5: Strongly agree with proposed functionality): Users appreciated the ability to chat directly with a bank representative. For this particular functionality, they expressed the need of having an upload function, where they would be able to attach documentation while the online chat with the bank representative was taking place. They supported the idea of being able to leave their details for the bank to contact them, as well as sending and receiving secure messages from the bank.

- *Additional functionality guidelines* communicated by users during the interview phase of the study (Acceptance rating 5: Strongly agree with proposed functionality): Users supported the introduction of more than just transactional content on the platform. They all agreed with the idea of being able to select their own login details, as they communicated this would be a more efficient option of entry. They were satisfied with the introduction of a rewards section on the prototype, where they would be able to use their loyalty points on discounted products not necessarily related to banking. They were accepting of the notification of technologies like Near Field Communication, or Geo-payments as it is commonly known, as they believe the Internet banking platform should be a central hub, giving them visibility of all other possible ways of banking; a function that is currently not available on the platform.

6   Discussion

Having considered traits supporting Generation-Y inclinations to certain online experiences (Section 3.1), an initial, literature-based list of thirty innovative functionality guidelines was formulated [24] (Section 4.2). The research process was designed so that the output from each phase informed the next. Therefore, the initial functionality guidelines [24] were refined and validated by the various phases (interviews, heuristic evaluation and prototype evaluation) to provide a well-developed and thoroughly scrutinized list of functionality guidelines for the Internet banking platform [37]. As the journey of functionality validation unfolded, key feedback patterns were observed, leading to a set of ten, high level functionality implementation guidelines supportive of the detailed functionality guidelines. When designing Internet banking functionality targeted at the Generation-Y user base, the designer should ideally:

1. *Provide a one-stop-shop of financial guidance:* Generation-Y users are looking for more than a transaction platform; they expect a financial partner that will assist in taking care of the holistic needs of their financial lives. The platform therefore needs to take the lead and provide them with a comprehensive view of their financial standing, while guiding and equipping them on how to better their financial situation.
2. *Target with a purpose:* The techno-savvy nature of this user base makes them conscious of marketing messages that are planted without adding specific value. Whatever is targeted or cross-sold to them should therefore demonstrate value, and a contribution towards a better financial standing.
3. *Pull in resources to educate:* Where relevant, provide external, third party educational resources not necessarily compiled by the bank. Participants explained that the bank doing this demonstrates the value the bank places on their customers' overall financial well-being.
4. *Provide cross-channel experiences:* Users are expecting to action a transaction on the Internet banking platform, and have this readily available on a mobile device of their choice. To them the experience should be seamless and continue from one

channel to another. They should therefore never feel like there's something one channel provides, that they cannot access and execute on another.

5. *Design with immediacy in mind:* These users are looking for quick, easy and convenient ways of consuming content and executing tasks on this platform. The use of video as an alternative to heavy text, or any other more convenient forms of consuming content should be utilised. The placement of "the next best action" should be well thought of, as these users want to action immediately, or as soon as a product or content type catches their eye.

6. *Automate wherever possible:* Reduce, as far as possible the need to access a physical bank branch. These users are expecting this platform to offer capabilities that simplify and make their banking lives convenient.

7. *Personalise and customise within limits:* These users want to be in full control of the journey on the site, also controlling the rendering of the transactional interface. When addressing the latter, allow them to modify certain aspects that will not hamper the overall brand identity (e.g. colours and logo) of the bank, as according to them, this preserves the sites credibility.

8. *Offer rewards for being loyal:* Show users the benefit of staying with the bank, by rewarding them for being part of the establishment. Award them the opportunity to be able to redeem these loyalty rewards on their Internet banking platform. Create partnerships that are not necessarily related to banking (e.g. for smartphone, holidays, restaurants, etc.), and offer these deals to users.

9. *Not slack on security and privacy:* As functionality recommendations were made on this platform, users became more and more concerned about the security, hence the requesting of an additional authentication layer for some of the proposed functions (e.g. incorporation of electronic signatures to complete a transaction). Therefore, a tighter implementation of security measures like the One Time Password (OTP) should be prioritised.

10. *Speak casually, yet authoritatively:* Adopt a tone that is friendly, yet formal when addressing this user base. They require a platform that is free of financial jargon, while being able to provide them with the financial guidance they expect from their bank.

7   Conclusion

This paper reported on an investigation into the functionality the Generation-Y customer segment require from South-African Internet banking websites. Previous research on Internet banking functionality investigated how the different banks measure against an already established set of Internet banking functionality guidelines [5, 6].

A South African study identified the lack of advanced functionality on Internet banking websites as a problem [7] but none of these addressed the problem of providing Internet banking functionality for the Generation-Y customer segment. Therefore the validated guidelines for understanding Generation-Y users' functionality as presented in this study, contribute to the holistic understanding of this user groups' needs, behaviours and expectations.

Furthermore, it provides practical, user-centred functionality guidelines that can result in the immediate alignment of Internet banking functionality to Generation-Y users' needs; a novel approach to Internet banking research, not yet ventured into by any of the banks investigated. Deeper insight into the unique characteristics of this segment also means that they can be utilised to gather an understanding of these users for any other web interface effort not necessarily related to banking. The literature found on Generation-Y needs did not differentiate based on biographical characteristics such as socio-economic status and education within the age group. That is a limitation that needs to be addressed in future research on Generation-Y characteristics.

Although particularly focused on the South African market, functionality trends and innovation initially gathered in the literature are from both local and global best practice (as outlined in Section 4.1), and can therefore be utilised as a benchmark for online banking platforms outside the South African context. Furthermore, although South African Generation-Y users were interviewed, and were requested to validate the proposed functionality, members of this generation have been equally impacted by globalisation and international influences, and therefore the same set of attributes can be used to describe them worldwide [38].

This research has revealed a dire need for broader, structured research into Internet banking functionality needs, and this is reflected in the paucity of research papers on this topic. Further research is required to validate the guidelines with a larger sample of the Generation-Y segment, and to investigate additional innovative functionality not covered by this study.

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