

2017

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Eoghan Considine  
*National University of Ireland*

Kathryn Cormican  
*National University of Ireland*

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### Recommended Citation

Considine, Eoghan and Cormican, Kathryn (2017) "The rise of the prosumer: an analysis of self-service technology adoption in a corporate context," *International Journal of Information Systems and Project Management*: Vol. 5 : No. 2 , Article 3.

Available at: <https://aisel.aisnet.org/ijispm/vol5/iss2/3>

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## The rise of the prosumer: an analysis of self-service technology adoption in a corporate context

### Eoghan Considine

College of Engineering & Informatics  
National University of Ireland, Galway  
Ireland  
[www.shortbio.org/eoghanconsid@gmail.com](http://www.shortbio.org/eoghanconsid@gmail.com)

### Kathryn Cormican

College of Engineering & Informatics  
National University of Ireland, Galway  
Ireland  
[www.shortbio.org/kathryn.cormican@nuigalway.ie](http://www.shortbio.org/kathryn.cormican@nuigalway.ie)

### Abstract:

The adoption of self-service technology (SST) has been well researched in consumer contexts but, despite the existing body of work, few studies have investigated in detail the specific determinants for user satisfaction in a corporate context. This study attempts to address this deficit. The goal of our work is to examine employees' perception of SST. To do this, four dimensions of the SSTQUAL quality scale (namely (a) functionality; (b) security; (c) design and (d) customization) were adapted to collect data from 182 knowledge workers in a financial services multi-national organization. The findings lead to the following insights. First respondents believe that SSTs can perform the task required in a timely and straightforward manner. They also feel that transactions are safe and secure. However, we learned that, although essential to user satisfaction, respondents have concerns regarding the design and customization of the technology. They believe that the technology employed is not user centric. Furthermore, respondents are not pleased with the layouts or aesthetics of the technology and they feel that the features are not personalized for their specific requirements. The study is important for many reasons. First, it expands the discussion on SST adoption by focusing on the corporate context thus contributing to the body of knowledge in the domain. Second, it captures and analyses real world empirical data and helps bridge the gap between theory and practice. Finally, the findings can help service providers to create effective user driven solutions.

### Keywords:

self-service technologies; technology adoption; satisfaction; SSTQUAL quality scale.

**DOI:** 10.12821/ijispm050202

**Manuscript received:** 28 February 2017

**Manuscript accepted:** 29 May 2017

## 1. Introduction: The rise of the prosumer

It is widely accepted that recent technological advancements have led to enhanced business practices. This impact is especially profound in the service based industry where providers are continuously introducing innovative methods to deliver service options to their clients. Increasingly service providers are employing technology based solutions to encourage, and oftentimes to compel, consumers to use their services autonomously.

Consumers are now taking more control of their service consumption. This is evident in many industries such banking (e.g. on-line payments and account management); retail (e.g. self-scanning tills) and airline (e.g. on-line booking and check in). Toffler [1], a founding scholar on the self-service concept, coined the term “*prosumer*” which means “*production by consumers*” to express the blurring of boundaries between the producer and the consumer. According to Prahalad and Ramaswamy [2], prosumers are “*co-creators of value*” as they not only engage with but also control the service delivery process to meet their specific needs. To this end, we notice that interpersonal or face to face interactions between providers and consumers are being replaced with self-service technologies (SSTs). Self-service technologies, or automated service delivery systems, enables customers to interact with technology to produce their own outcome independent of human involvement (e.g. service representative) [3], [4].

Dabholkar and Richard [5] contend that self-service technologies can be categorized into two cohorts. The first cohort refers to “on-site” options which may include technologies such as self-scanning in retail stores and libraries; touch screens in airports and information kiosks in tourist information outlets. The second cohort refers to “off-site” options which may include technologies such as online banking and shopping on the Internet.

Previous research has shown that the adoption of self-service technology has been studied from many perspectives in many different contexts. For example, recent research has been conducted in contexts such as banking [6], [7], television [8], air travel [9] and hospitality [10]. We observe that all these studies have focused on SST adoption in consumer markets. However, knowledge workers in general and technology based knowledge workers increasingly use self-service technology (SST) within their organizations to obtain services. Surprisingly, to the best of our knowledge, little attention has been paid to understanding SST adoption in the business or corporate context. There is a dearth of empirical studies in this domain that clearly should be addressed. Thus, to close this gap our research aims to ascertain whether the move towards service capabilities, based on a self-service technology approach caters for technology knowledge workers’ evolving demands. Specifically, we aim to assess the level of satisfaction with an organizations SST in a business context. To do this our study adapted the SSTQUAL measurement scale developed by Lin and Hsieh [11] which is acknowledged as the de-facto SST quality measurement scale [6], [12]. We adapt four constructs namely (a) functionality, (b) security, (c) design and (d) customization as these were most relevant to our requirements and context. The target group for this study included approximately 400 knowledge workers comprising software engineers, software quality assurance engineers, system administrators, software architects and technical managers. The group was geographically distributed across multisite boundaries. Data was collected from 182 people in January and February 2015 and key findings of our analysis are presented in this paper.

This study is important to both academics and to practitioners. Our findings advance theory in an important way. To this end, we answer calls for research by extending the discussion on SST and analyzing empirical data in a real world corporate context. Additionally, our findings have interesting implications for service practitioners. We expect that the results of our analysis will help practitioners with their decision on whether to invest in SST as an alternative to service representative services. These findings can also provide valuable insights to designers of such technologies.

## 2. Understanding self-service technologies

### 2.1 Cognate studies

The literature on SST is rather varied. A review of the extant literature reveals that many empirical studies have focused on consumers' attitude towards SST. Most notably Dabholkar and Richard's [5] seminal study examined the moderating effects of consumer traits and situational factors on the relationships within an attitudinal model for SSTs. Collier et al.'s [13] work explored the situational influences on customers' self-service technology decisions. Other studies have examined customer preferences between the use of service representatives and SSTs [14], [15], [16], [17]. A considerable part of the literature on SSTs examines determinants of SST adoption and use. Previous research has shown that consumer adoption and continuance behavior is influenced by different factors [18]. In particular, Curran et al. [19] examined the factors that influence consumer attitudes toward, and adoption of, self-service technologies (SSTs). Curran and Meuter [20] also examined self-service technology adoption. Meuter et al. [21] explored the influence of technology anxiety on consumer use and experiences with self-service technologies. Elliott et al. [22] investigated consumers' intentions to use self-scanning technology while Eriksson and Nilsson [23] studied the determinants of the continued use of self-service technology. Lee and Alloway's [4] work focused on the effects of personal control on adoption of self-service technologies. This study investigates whether the provision of increased consumer control can reduce their perceived risk, enhance the perceived value of the SST, and induce greater adoption intention associated with a technology. In addition, there have been some empirical studies that examined customer satisfaction with SSTs. For example, Meurer et al. [3] investigated the sources of satisfaction and dissatisfaction with SSTs. Whilst Yen [24] examined the attributes important for consumer satisfaction with Internet-based self-service technology.

### 2.2 Drivers and benefits

Research has shown that advancements in technology coupled with increased labour costs and are key drivers for service organizations to offer SST to consumers [5], [20], [25]. Arguably the biggest motivation for the creation of SST is the elimination of the service representative which enables a cost-effective mechanism for organizations to deliver services to consumers anytime anywhere [4], [26]. An analysis of the extant literature shows that although fixed costs are high in the development process there are many benefits to using SST from the perspective of the service provider and also the consumer. These benefits are summarised in table 1. As you can see previous research studies have found that SST adoption has been proven to improve operations, decrease costs and increase efficiencies for the service provider. Much of the benefits attributed to the consumer centre around the customer experience. Indeed, prior research has found that some consumers may prefer to use SST rather than engaging with a service representative because they find the system easy to use, or because it allows them to avoid interaction with people [3].

However, it must be acknowledged that the shift towards SST undoubtedly requires increased effort on the part of the customer. For example, Lee and Alloway [4] ascertain that the replacement of human service representatives by a technology usually requires more customer participation and responsibility in the production of the service. Arguably some customers will consider the costs of learning the new technology and the behavioural changes required to be too great to be worthwhile [27]. Many research studies have found that consumers still prefer the consumer-to-representative interaction over SSTs. For example, Beatson et al. [17] empirically examined the impact of SST on customer satisfaction by assessing both SST attributes and personal service attributes in a hotel context. The results of the study show that consumers prefer the consumer-to-representative interaction over self-service technology. Indeed, Kokkinou and Cranage [28] demonstrated that under certain conditions, the introduction of SST does not provide satisfaction for consumers. Having more choice for interaction can lead to increased anxiety and complexity for both the consumer and producer over traditional systems [29]. Research into passenger behaviour at Spanish airports examined the factors that influence a passenger's decision to use an SST option [29]. These findings show that demographics have an impact on consumer behaviour and that younger consumers preferred SST options over a traditional service representative interaction at airports [29]. Researchers have also studied the behavioural intentions of

consumers where they were forced to use SST. Results indicate that technology anxiety and technology trust directly affect consumer behaviour and therefore consumer satisfaction [30]. These findings show that, although at times conflicting, consumers feel less anxious and trust organizations more when choice of service options are offered.

Table 1. Benefits to self-service technologies

Stakeholder	Benefit	Empirical study
Service provider	Greater control over the service delivery	Meuter et al. [3]
	Enables standardized service delivery	Curran and Meuter [20]; Hsieh et al. [31]
	Smooths demand fluctuations	Curran et al. [19]
	Expands the options for delivery	Curran and Meuter [20]
	Reduces labor costs	Meuter et al. [3]; Curran and Meuter [20]; Guthridge [25]
	Removes service personnel from routine tasks	Lee and Alloway [4]
Consumer	Improved customer experience	Guthridge, [25]
	Ease of use	Meuter et al. [3]; Dabholkar [32]
	Improves convenience	Meuter et al. [3]; Kauffman and Lally [33] ; Bitner et al.[34]
	Increased customization	Meuter et al. [3]
	Reduced waiting time	Meuter et al. [3]; Bitner et al.[34]
	Avoids interaction with employees	Bitner et al. [34]; Meuter et al. [3]; Dabholkar[32]
	Reduced anxiety	Bitner et al. [34]
	Improved enjoyment	Dabholkar [32]

It is clear that SSTs must be accepted by consumers in order to succeed. To this end the strategies used to encourage consumers to embrace these technologies must address the real needs of the user and must consider the perceived benefits in the minds of the consumer [20]. Therefore, it is imperative that we understand how to best design, develop and deploy new SSTs in order to increase the probability of user acceptance. Prior research indicates that SST users were satisfied when a specific need was met (i.e. a need for cash was satisfied by an ATM machine), the SST was better than an alternative service option (i.e. the SST was easy to use, the consumer wanted to avoid service personnel, the SST saved them time, the SST was available when they wanted it, the SST provided what they wanted, the SST saved them money) and the SST did its job. Technology failure, process failure, poor design or customer driven failures were all classified as dissatisfying incidents for consumers [3].

### 3. Measurement scales for consumer-to-technology interactions

Considering the previous discussion, a cogent development plan should incorporate key determinants of satisfaction and ensure they are designed in an effective way. However, the design and implementation of SST is not straightforward since users often present conflicting demands on a system. Thus, in this section, we present an overview of the measurement scales pertaining to the salient determinants of SST design which will be used to elucidate our research question.

A number of measurement scales exist which can be used to measure specific service dimensions. Most notably SERVQUAL measures consumer-to-service-representative quality [35]. The technology assessment model (TAM) measures the potential drivers and inhibitors of technology acceptance [36]. Work has been conducted in the area of technology readiness (TR) to assess consumer readiness to adopt new technology [37]. Lin and Hsieh's SSTQUAL scale measures the service quality of a SST [11]. Many researchers have adopted SSTQUAL and it is acknowledged to be the foremost scale for measuring the quality of consumer-to-technology interactions [7], [12].

A synthesis of the extant literature reveals similar or cognate studies that have been conducted in this space. For example, Oh et al. [10] studied tourist adoption and intention to use SST in a resort hotel context citing extrinsic motivations as a key motivator to adoption. This study developed a conceptual framework using dimensions of perceived ease-of-use, privacy, autonomy and efficiency coupled with the human desire for interaction. The scale used, based on TAM, found that these dimensions most positively affected customer adoption of SST in a hotel context. Choi and Park's [9] study investigated the adoption of a smart entry service SST in an airport context. An alternative model for testing SST service quality was developed to assess the intention to use i.e. functionality, security, perceived enjoyment, perceived ease-of-us and perceived usefulness. Jang and Noh's [8] work examined SST service quality in the internet protocol television (IPTV) sector. These researchers created a model extending the TAM scale. This study examined intention to use of SST by examining the correlation between functionality (including ease-of-use), design, enjoyment and security. The study concluded that service quality had an influence on perceived usefulness, ease of use and enjoyment. All three of these studies used a version or an extended version of TAM with some including or excluding dimensions of the SSTQUAL. Table 2 attempts to compare and contrast the various constructs used in each of these studies relative to the SSTQUAL scale [11] and to each other. We can see that Oh et al. [10] excluded constructs such as enjoyment, security, assurance, design, convenience and customization. Choi and Park [9] excluded assurance, design, convenience and customization while Jang and Noh [8] excluded assurance, convenience and customization. We note that Radomir and Nistor [6] used all the SSTQUAL constructs in their study.

Table 2. Comparative analysis of constructs used to measure service quality in cognate studies

Dimension	Description	Lin and Hsieh [11]	Oh et al. [10]	Choi and Park [9]	Jang and Noh [8]	Radomir and Nistor [6]
Functionality	Represents functional aspects of SST including reliability, perceived ease of use and responsiveness.	✓	✓	✓	✓	✓
Enjoyment	Tests perceptions of perceived enjoyment during SST delivery and the outcomes of use.	✓	-	✓	✓	✓
Security/Privacy	Examines perceived security including fraud and general safety and loss of personal data.	✓	-	✓	✓	✓
Assurance	Portrays the confidence of the consumer in the competence of the SST provider.	✓	-	-	-	✓
Design	Tests the overall design of the SST service system.	✓	-	-	✓	✓
Convenience	How accessible and convenient to use is the SST service.	✓	-	-	-	✓
Customization	Tests how customizable the SST is and if it can be adapted to meet the individual customers' needs and historic transactions.	✓	-	-	-	✓

#### 4. Research methodology

A quantitative data collection method following the positivist approach was chosen for this study as it was deemed the most suitable mechanism to collect the required data. In this instance, the research problem is well-defined, and the dependent and independent variables are clearly articulated therefore empirical analysis is warranted. This approach allows for large amounts of data to be collected within a short period of time. According to Johnson and Harris [38] this method has a high level of reliability and consistency and it is easily replicated, provided the researcher uses a systematic research approach. Hildreth [39] contends that the users of a system are the best evaluators of that system.

Therefore, only technology based employees were targeted for this study. 400 Knowledge workers employed in a large multi-national financial services organization were included in the data collection process. The sample comprised software engineers, software quality assurance engineers, system administrators, software architects and technical managers. Overhead functions such as finance, human resources and administration staff were deemed out of scope and consequently excluded. The sample was geographically distributed across multisite boundaries.

As replication logic was deemed important to the data collection process, a purposive, non-probability strategy was used to select the sample elements. This ensured that rich and meaningful data was collected. Tansey [40] contends that a non-probability sample is effective when, as in this study, the research is exploring what is occurring while Patton [41] suggests that a purposive sample “has a logic and power - and provides rich information”. Through the process of snowballing or “response cascading” [42], we encouraged first contact respondents to invite their relevant colleagues to participate in the study.

The survey which adapted the original SSTQUAL scale was developed following best practice [43] to examine participant’s perception of SST. The SSTQUAL scale comprises 20 quality items categorized into 7 dimensions including functionality, security, design, enjoyment, assurance and customization. This study focused on 4 dimensions of the scale (e.g. functionality, security, design and customization), as they are most appropriate to measure SST service quality in a business context. The remaining 3 dimensions, enjoyment, assurance and convenience are considered out of scope for this study because SST use in a corporate context is mandatory and so these dimensions are irrelevant. A seven point Likert scale, codified from 0 through 6, containing bipolar ranges from strongly disagree to strongly agree was used to measure negative or positive responses to statements (see table 3). Every attempt was made to ensure internal validity (i.e. that the research is done right and is free from bias). The instrument was pre-tested (n=3) and piloted (n=8) in order to establish its face validity, accuracy and acceptability. The instrument was revised and amended following feedback from this activity. The final questionnaire was distributed using email and included a blog post to educate participants on the nature of the research. Anonymity and confidentiality was assured. The survey was open for one month straddling January and February 2015. A reminder email was sent to direct contacts on day ten. The overall response rate was 45.5% (n = 182).

Table 3. Likert Scale and Kruskal-Wallis

Likert Code	Likert Scale	Kruskal-Wallis*
0	Strongly Disagree	Disagree
1	Disagree	Disagree
2	Somewhat Disagree	Disagree
3	Neutral	Neither Agree or Disagree
4	Somewhat Agree	Agree
5	Agree	Agree
6	Strongly Agree	Agree

\*The distribution of higher and lower responses using the Kruskal-Wallis non-parametric technique

## 5. Results

### 5.1 Sample and rater consistency

In total 182 responses to the questionnaire was received of which 69% came from male respondent and 31% came from female. The age profile of respondents is illustrated in table 4.

Table 4. Age profile of sample

Age	Count	Percent
18-29	31	17%
30-39	68	37%
40-49	53	29%
50-59	25	14%
60 and over	5	3%
	182	100%

Cronbach's  $\alpha$  (alpha) was used to assess the internal reliability, consistency and therefore trustworthiness of the data for each construct namely functionality, security, design and customization (see table 5). Overall the results indicate very good reliability according to best practice [44], [45].

Table 5. Rater consistency

	Functionality	Security	Design	Customization
Cronbach's $\alpha^*$	0.91782	0.684036	0.8264138	0.83194

\*Good Reliability is measured  $> 0.8$

\*Acceptable Reliability is measured  $> 0.6$

## 5.2 Functionality

Four items from the extended SSTQUAL scale were adapted and used to examine the functionality of the SST in the case organization. These were:

- I can get my service done with the organization's SST in a short time;
- SSTs already in place at the organization are simple and easy to use;
- Using the organization's SST requires little effort;
- I can get my service done smoothly with the organization's SST.

A Likert scale ranging from 0 to 6 where 0 is "strongly disagree" and 6 is "strongly agree" was used to assess these items. The responses, illustrated in table 6 indicate a mean within the central tendency while more interestingly a median and mode above the central tendency. The standard deviation is 1.7 which indicates a good variation in responses.

Table 6. Descriptive statistics for functionality

Mean	Median	Mode	Standard Deviation
3.359341	4	4	1.704681

Table 7 summarizes the aggregated responses for all the items relating to functionality. The data indicates that 461 or 50.66% of responses agreed with the items to measure the level of functionality of the organizations SSTs. We found that in our sample respondents believe that SSTs in the organizations can help them get their services completed in a short time they are easy to use and little effort is required to operate the technology. We also learned that while the sample group is positive in general to the functionality of SSTs in the organization, they do not agree that the experience is error-free.



Table 7. Aggregated responses for all the items relating to functionality

Response	Count	Percent
Disagree	285	31.21%
Neither Agree or Disagree	155	0.13%
Agree	461	50.66%
Total	910	100%

### 5.3 Security

Two items from the extended SSTQUAL scale were adapted and used to address the level of security of the organization's SSTs. The questions posed on the survey to capture this data are as follows:

- I feel that my transactions with the organization SST are safe;
- A clear privacy policy is stated when I use the organization SST.

A Likert scale ranging from 0 to 6 where 0 is "strongly disagree" and 6 is "strongly agree" was used to assess these items. The responses indicate a mean above the central tendency while the median and mode are also above the central tendency (see table 8). The standard deviation is 1.6 which indicates a good variation in responses.

Table 8. Descriptive statistics for security

Mean	Median	Mode	Standard Deviation
4.0164835	4	5	1.6056899

The aggregated data of responses for security related items indicate that 229 or 62.91% of responses were positive showing overall agreement with questions dealing with the security (see table 9). In particular, we found that our sample strongly believes that the level of safety when executing transactions with SST within the organization is high (74%). However, only 52% of respondents agree that the organisation has clear policies in place for using SSTs.

Table 9. Aggregated data of responses for security

Response	Count	Percent
Disagree	55	15.11%
Neither Agree or Disagree	80	21.98%
Agree	229	62.91%
Total	364	100%

### 5.4 Design

Two questions from the original SSTQUAL scale were adapted and used to assess the nature of design for the organization's SSTs. There are:

- The layout of the organization SSTs are aesthetically appealing;
- The organization's SSTs appears to use up-to-date technology.

A Likert scale ranging from 0 to 6 where 0 is "strongly disagree" and 6 is "strongly agree" was used to assess these items. The responses, illustrated in table 10 indicate a mean below the central tendency while the median and mode are also neutral indicating neither a positive or negative response. The standard deviation was 1.44 which indicates a good variation in responses.

Table 10. Descriptive statistics for design

Mean	Median	Mode	Standard Deviation
3.359341	4	4	1.704681

Table 11 summarizes the aggregated responses for all the items relating to design. This illustrates that only 176 or 48.35% of respondents agreed with the questions relating to the design construct. This is somewhat lower than the scores for the functionality (50.66%) and security (62.91%) constructs. The aggregation of negative (22.53%) and neutral distributions (29.12%) also exceeds the positive distribution (48.35%). This indicates that the sample group has concerns with the design of SSTs within the organization. We found that only 42% of respondents are happy with the layouts and the aesthetics of the organization's SST and 55% of respondents believe that the organization's SSTs employ up to date technology.

Table 11. Aggregated responses for all the items relating to design

Response	Count	Percent
Disagree	82	22.53%
Neither Agree or Disagree	106	29.12%
Agree	176	48.35%
Total	364	100%

### 5.5 Customization

Three questions were adapted from the SSTQUAL scale and used to assess customization. They are:

- The organization's SST understands my specific needs;
- The organization's unit SST has my best interests at heart;
- The organization's SST has features that are personalized for me.

These questions aimed to assess respondents' attitudes towards user centered design, and personalization. The responses, illustrated in table 12, indicate a mean below the central tendency with the median and mode also below the central tendency. The standard deviation was 1.56, which indicates a good variation in responses.

Table 12. Descriptive statistics for customization

Mean	Median	Mode	Standard Deviation
3.245421	3	3	1.565168

The aggregated data of responses (see table 13) indicates that 239 or 43.77% of responses were in agreement with the questions relating to customization. This result is lower than the functionality (50.66%), security (62.91) and design (48.35%) scores. The aggregation of negative (28.39%) and neutral distributions (27.84%) also exceeds the positive distribution (43.77%). This suggests that the sample does not agree that the nature of customization provided by SSTs is adequate within the case organization.

Table 13. Aggregated responses for all the items relating to customization

Response	Count	Percent
Disagree	155	28.39%
Neither Agree or Disagree	152	27.84%
Agree	239	43.77%
Total	364	100%

### 5.6 Correlation analysis

A correlation analysis among functionality, security, design, customization of organization's SSTs, and user satisfaction was conducted in this research. Accordingly, we calculated the mean values of functionality, security, design, and customization for each respondent and then summed these averages to get the value for user satisfaction. Then, we employed a one-tailed test as it helps to predict whether a relationship exists and if so it can help us to determine the direction of that relationship [46]. The results of our correlation analysis are presented below (see table 14).

Table 14. Results of correlation analysis

Constructs	Functionality	Security	Design	Customization	Uses' satisfaction
Functionality	N/A				
Security	0.57**	N/A			
Design	0.66**	0.48**	N/A		
Customization	0.63**	0.62**	0.72**	N/A	
User satisfaction	0.86**	0.79**	0.85**	0.88**	N/A

Note:

Control variable: gender and age.

\*\* $p < .01$

Here we find that these variables (functionality, security, design, and customization) have positive associations with user satisfaction. The strongest correlation exists between customization of the organization's SSTs and users' satisfaction ( $r = .88$ ,  $p < .01$ ), while the weakest correlation lies in security ( $r = .79$ ,  $p < .01$ ). It means that for respondents in our survey, customization, functionality and design of SSTs are very important.

## 6. Discussion

Lin and Hsieh [11] contend that the delivery of high quality services is a primary source of competitive advantage for contemporary organizations. In recent years, we have witnessed a shift from the use of personal service representatives towards self-service technology adoption in many contexts. To date there have been many empirical investigations of SST adoption in the consumer market but there is a dearth of studies in the corporate or business environment. Given that the extant literature has focused almost exclusively on consumers, there is much to be learned about how employees engage with technology-based self-service delivery options in a corporate context. As self-service technology (SST) adoption is lauded to help organizations to control costs and improve efficiencies it makes sense to advance our understanding of how the service quality is perceived by the end users. SST service quality can be measured by examining many dimensions including functionality, enjoyment, security, assurance, design, customization and convenience [19], [34]. However, four key dimensions namely (a) functionality; (b) security; (c) design and (d) customization are the most relevant to the business environment. Consequently, the focus of our research is to empirically assess how employees in a corporate context perceive SSTs in terms of these service quality dimensions.

We found that in our sample, respondents believe that SSTs in their specific organization can help them get their services completed in a short time; they are easy to use and little effort is required to operate the technology. However, respondents do not believe that the experience is error-free. We learned that the respondents in our sample strongly believe that the level of security when executing transactions with SST within the organization is high. In other words, they are confident that their transactions are safe and secure. However, only half of respondents agree that the organization has clear policies in place for using SSTs which suggests that this issue needs to be addressed. The introduction of SSTs changes the way services are introduced and consequently this has an impact on user behaviour. In light of this, it seems prudent that organizations should support this change with clear operating procedures.

The study highlighted an issue with the design and customization of the SSTs in the organization. We found that customization, functionality and design of SSTs are critical to user satisfaction. This finding supports the work conducted by Hillegersberg and Koenen [47] who examined the reasons for the relatively slow adoption of group based decision support systems and concluded that user interface design was essential for user acceptance and should be prioritized. Wolfenbarger and Gilly [48] also report that design is the most important facet of SST quality albeit in the consumer context. They found that design has the strongest influence on customers' overall quality perceptions and behavioural intentions. However, we find that user centered design and customization is an issue for the respondents of our study. We found that the level of agreement with items that measured user centred design, and personalization of the organizations SST was not high. In fact, this construct received the lowest scores of all. This suggests that service providers must place extra emphasis on these dimensions in order to ensure that SSTs are user centric.

Although our findings broadly support those of cognate studies [11], [6] there is still a great deal unknown about self-service technology in general and user satisfaction in particular. While this research was successful at increasing our understanding of the relationship between SST and user satisfaction in a corporate context, it is also imperative to acknowledge that there are many external factors that can influence a user's perception of a system [49]. Generic SST quality measurement, such as SSTQUAL, simply does not transcend industries and contexts. What is critical to SST adoption in finance is not critical to adoption in retail, finance or technology. Contextual factors must be carefully assessed before implementing SST; there can be savings for both organizations and consumers of the SST but careful analysis of the desirability and feasibility of the SST should be assessed before implementation.

## 7. Conclusion

This study has shown that the replacement of service capabilities with SST is broadly acceptable to technology based knowledge workers. We found that functionality, design and customization are strongly associated with user satisfaction. Our sample seemed happy with the levels of functionality and security in the case organization's SSTs. However, the study highlighted an issue with the design and customization of the SSTs in the organization. These results accentuate the need for service providers to place extra emphasis on these dimensions. In other words, future technologies must be more user-centric.

It is clear from the results of this study, when compared to previous studies, that contextual or environmental factors influence SST adoption. Generic SST quality measurement, such as SSTQUAL, simply does not transcend all industries and contexts. What is critical to SST adoption in finance is not critical to adoption in retail, finance or technology. While there are some service dimensions that should be considered baseline factors to adoption, it is clear that some service dimensions are more important than others depending on the specific culture and environment.

In light of this, future research might expand beyond the single context of the current research to multiple contexts. An extension of the sample is required to further improve the quality of results. Future research should consider broadening the scope to include more organizations within the knowledge worker or technology sector. Data from different settings, and indeed national contexts, may also be used to ensure external validity of the measures and the generalizability of the findings in this study. This study, like previous studies, employed deductive reasoning methods assuming no cultural differences existed between environments. Future studies might consider inductive methods in an attempt to isolate some of these issues. Finally, it is important to highlight that SST quality measurement is not the only factor relevant to adoption of SST within the business context. Orchestration of SST, or the streamlining and integration of applications, is also important to consider.

## References

- [1] A. Toffler, *The third wave*, New York, USA: Bantam books, 1980.
- [2] C. K. Prahalad, and V. Ramaswamy, "Co-opting customer competence," *Harvard business review*, vol. 78, no. 1, pp. 79-90, Jan, 2000.

- [3] M. L. Meuter, A. L. Ostrom, R. I. Roundtree, and M. J. Bitner, "Self-service technologies: understanding customer satisfaction with technology-based service encounters," *Journal of marketing*, vol. 64, no. 3, pp. 50-64, Jul, 2000.
- [4] J. Lee, and A. Allaway, "Effects of personal control on adoption of self-service technology innovations," *Journal of Services Marketing*, vol. 16, no. 6, pp. 553-572, Nov, 2002.
- [5] P. A. Dabholkar, and P. B. Richard, "An attitudinal model of technology-based self-service: moderating effects of consumer traits and situational factors," *Journal of the academy of marketing science*, vol. 30, no. 3, pp. 184-201, Jul, 2002.
- [6] L. Radomir, and C. V. Nistor, "High-educated consumer perceptions of service quality: An assessment of the SSTQUAL scale in the Romanian banking industry," *Procedia Economics and Finance*, vol. 3, pp. 858-864, Jan, 2012.
- [7] L. Radomir, and C. V. Nistor, "Comparing the original and the revised SSTQUAL scale among high-educated consumers in Romania," *Procedia Economics and Finance*, vol. 15, pp. 926-934, Jan, 2014.
- [8] H. Y. Jang, and M. J. Noh, "Customer acceptance of IPTV service quality," *International Journal of Information Management*, vol. 31, no. 6, pp. 582-592, Dec, 2011.
- [9] J. H. Choi, and J. W. Park, "Investigating the factors influencing the usage of smart entry service: Incheon International Airport case study," *International Business Research*, vol. 7, no. 1, pp. 74, Jan, 2014.
- [10] H. Oh, M. Jeong, and S. Baloglu, "Tourists adoption of self-service technologies at resort hotels," *Journal of Business Research*, vol. 66, no. 6, pp. 692-699, Jan, 2013.
- [11] J. S. Lin, and P. L. Hsieh, "Assessing the self-service technology encounters: Development and validation of SSTQUAL scale," *Journal of Retailing*, vol. 87, no. 2, pp.194-206, Jun. 2011.
- [12] F. D. Orel, and A. Kara, "Supermarket self-checkout service quality, customer satisfaction, and loyalty: Empirical evidence from an emerging market," *Journal of Retailing and Consumer Services*, vol. 21, no. 2, pp. 118-129, Mar, 2014.
- [13] J. E. Collier, R. S. Moore, A. Horvay, and M. L. Moore, "Why the little things matter: Exploring situational influences on customers' self-service technology decisions," *Journal of Business Research*, vol. 68, no. 3, pp. 703-710, Mar, 2015.
- [14] C. H. Ko, "Exploring how hotel guests choose self-service technologies over service staff," *International Journal of Organizational Innovation*, vol. 9, no.2, pp. 16B, Jan, 2017.
- [15] F. Simon and J. C. Usunier, "Cognitive, demographic, and situational determinants of service customer preference for personnel-in-contact over self-service technology," *International Journal of Research in Marketing*, vol. 24, no. 2, pp. 163-173, June 2007.
- [16] J. Ganesh, M. J. Arnold, and K. E. Reynolds, "Understanding the customer base of service providers: an examination of the differences between switchers and stayers," *Journal of marketing*, vol. 64, no. 6, pp. 65-87, Jul, 2000.
- [17] A. Beatson, L. V. Coote, and J. M. Rudd, "Determining consumer satisfaction and commitment through self-service technology and personal service usage," *Journal of Marketing Management*, vol. 22, no. 7-8, pp. 835-882, Aug, 2006.
- [18] C. Wang, J. Harris, and P. G. Patterson, "Customer choice of self-service technology: the roles of situational influences and past experience," *Journal of Service Management*, vol. 23, no. 1, pp. 54-78, Mar, 2012.
- [19] J.M. Curran, M.L. Meuter, and C. F. Surprenant, "Intentions to use self-service technologies: a confluence of multiple attitudes," *Journal of Service Research*, vol. 5, no. 3, pp. 209-24, Feb, 2003.

- [20] J.M. Curran, and M.L. Meuter, "Self-service technology adoption: comparing three technologies," *Journal of Services Marketing*, vol. 19, no. 2, pp. 103-113, Mar 2005.
- [21] M. L. Meuter, A. L. Ostrom, M. J. Bitner, and R. Roundtree, "The influence of technology anxiety on consumer use and experiences with self-service technologies," *Journal of Business Research*, vol. 56, no. 11, pp. 899-906, Nov, 2003.
- [22] K. M. Elliott, M. C. Hall, and J. G. Meng, "Consumers' intention to use self-scanning technology: the role of technology readiness and perceptions toward self-service technology," *Academy of Marketing Studies Journal*, vol. 17, no. 1, pp. 129, Jan 2013.
- [23] K. Eriksson, and D. Nilsson, "Determinants of the continued use of self-service technology: The case of Internet banking," *Technovation*, vol. 27, no. 4, pp. 159-67, Apr, 2007.
- [24] H. R. Yen, "An attribute-based model of quality satisfaction for internet self-service technology," *The Service Industries Journal*, vol. 25, no. 5, pp. 641-59, Jul, 2005.
- [25] G. Guthridge, 2014, *Driving self-service adoption* [Online]. Available at: <http://www.accenture.com/us-en/blogs/accenture-u-blog-utilities-forum/archive/2014/02/28/driving-self-service-adoption.aspx>
- [26] L. F. Cunningham, C. E. Young, and J. Gerlach, (2009), "A comparison of consumer view of traditional services and self-service technologies," *Journal of Services Marketing*, vol. 31, no. 1, pp. 11-23, 2009
- [27] H. Gatignon, and T. S. Robertson, "Innovative decision processes," *Handbook of consumer behaviour*, vol. 316, no. 8, 1991.
- [28] A. Kokkinou, and D. A. Cranage, "Using self-service technology to reduce customer waiting times," *International Journal of Hospitality Management*, vol. 33, pp. 435-445, Jun, 2013.
- [29] J. I. Castillo-Manzano, and L. López-Valpuesta, "Check-in services and passenger behaviour: Self service technologies in airport systems," *Computers in Human Behavior*, vol. 29, no. 6, pp. 2431-2437, Nov, 2013.
- [30] S. Liu, "The impact of forced use on customer adoption of self-service technologies," *Computers in Human Behavior*, vol. 28, no. 4, pp. 1194-1201, Jul, 2012.
- [31] A. T. Hsieh, C. H. Yen, and K. C. Chin, "Participative customers as partial employees and service provider workload," *International journal of service industry management*, vol. 15, no. 2, pp. 187-199, Apr, 2004.
- [32] P. A. Dabholkar, "Consumer evaluations of new technology-based self-service options: an investigation of alternative models of service quality," *International Journal of research in Marketing*, vol. 13, no. 1, pp. 29-51, Feb, 1996.
- [33] R. J. Kauffman, and L. Lally, "A value platform analysis perspective on customer access information technology," *Decision Sciences*, vol. 25, no. 5-6, pp. 767-794, Feb, 1994.
- [34] M. J. Bitner, A. L. Ostrom, and M. L. Meuter, "Implementing successful self-service technologies," *The Academy of Management Executive*, vol. 16, no. 4, pp. 96-108, Nov, 2002.
- [35] A. Parasuraman, V. A. Zeithaml, and L. L. Berry, "A conceptual model of service quality and its implications for future research," *The Journal of Marketing*, pp. 41-50, Oct, 1985.
- [36] F. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS quarterly*, pp. 319-340, Sep, 1989.
- [37] A. Parasuraman, "Technology Readiness Index (TRI) a multiple-item scale to measure readiness to embrace new technologies," *Journal of service research*, vol. 2, no. 4, pp. 307-320, May, 2000.
- [38] P. Johnson, and D. Harris, *Essential skills for management research*, California, USA: Sage Publications, 2002.

- [39] C. R. Hildreth, "Accounting for users' inflated assessments of on-line catalogue search performance and usefulness: an experimental study," *Information research*, vol. 6, no. 2, Jan, 2001.
- [40] O. Tansey, "Process tracing and elite interviewing: a case for non-probability sampling," *Political Science & Politics*, vol. 40, no. 4, pp. 765-772, 2007.
- [41] M. Q. Patton, *Qualitative evaluation and research methods*, California, USA: Sage Publications, 1990.
- [42] A. Fink, *How to conduct surveys: a step-by-step guide*, 5th ed. Thousand Oaks, Calif: Sage Publications, 2013.
- [43] J. E. Sale, L. H. Lohfeld, and K. Brazil, "Revisiting the quantitative-qualitative debate: Implications for mixed-methods research," *Quality and quantity*, vol. 36, no. 1, pp. 43-53, Feb, 2002.
- [44] R. F. DeVellis, *Scale development: Theory and applications*. Los Angeles, US: Sage, 2012.
- [45] P. Kline, *The handbook of psychological testing*, London, UK: Routledge, 2000.
- [46] J. Neter, M. H. Kutner, C. J. Nachtsheim, and W. Wasserman, *Applied linear statistical models*. Chicago, UAS: Irwin, 1996.
- [47] J. Hillegersberg, and S. Koenen, "Adoption of web-based group decision support systems: experiences from the field and future developments," *International journal of information systems and project management*, vol. 4, no. 1, pp. 49-64, 2006.
- [48] M. Wolfenbarger, and M. C. Gilly, "eTailQ: dimensionalizing, measuring and predicting etail quality," *Journal of retailing*, vol. 79, no. 3, pp. 183-198, Dec, 2003.
- [49] S. S. Zabukovsek, and S. Bobek, "TAM-based external factors related to ERP solutions acceptance in organizations," *International Journal of Information Systems and Project Management*, vol. 1, no. 4, pp. 25-38, 201.

**Biographical notes****Eoghan Considine**

Eoghan Considine serves as a Senior Manager of Fidelity Labs Europe, a unit of Fidelity Investments, the largest mutual fund company in the United States, the No. 1 provider of workplace retirement savings plans and a leading online brokerage firm. Before joining Fidelity in 2007, Eoghan worked in technology startups serving customers throughout Europe. Considine has a passion for new and emerging technology, innovation and software development to incubating ideas into business products. Considine has an MSc Technology Management from NUI Galway, Ireland (2015), a HDip in Innovation Management from NUI Galway, Ireland (2013) and an undergraduate in Computer Systems (1998) from University of Limerick, Ireland.

*[www.shortbio.net/eoghanconsid@gmail.com](http://www.shortbio.net/eoghanconsid@gmail.com)*

**Kathryn Cormican**

Kathryn Cormican (Ph.D.) is a program director in the College of Engineering & Informatics at the National University of Ireland Galway. Her research interests lie in the areas of technology innovation and enterprise systems. Kathryn leads several applied research projects in this area. She has published widely at international conferences and peer reviewed journals. Kathryn works closely with many leading organizations and SMEs helping them to design, develop and deploy new processes and systems.

*[www.shortbio.net/kathryn.cormican@nuigalway.ie](http://www.shortbio.net/kathryn.cormican@nuigalway.ie)*