The Application of Predicting Customer Behaviour to Current and Future Telecommunications Networks and Services Design

Tony Houghton†

† University College London and BT exaCT Technologies

Abstract: A key objective of telecommunications networks and services design is to deliver an optimal customer experience. An approach is described which culminated in the application to BT's 21C Networks Next Generation Services project, to validate and enhance the technical architecture capabilities.

1 Expectation shock: Perception versus Expectation

What will it take to get customers to adopt next generation services? What different level of customer experience will be required? Will it have to be 'all singing, all dancing'… or will it 'just have to work'?

Strauss and Neuhaus [1] produce convincing evidence that customer satisfaction is a necessary but not sufficient condition for customer retention, loyalty and turnover revenue. Satisfaction is not enough: Intensity is needed. Customers need to be completely satisfied or delighted – suggesting perhaps an 'all singing, all dancing' requirement.

On the other hand, Kano [2] argues that blindly fulfilling customer stated requirements has risk associated with it:

- *Providing superfluous quality*
- *Wowing the customer in one area, and driving them to competitors in another*
- *Focusing only on what customers say, and not what they think*

Parasuraman [3] takes up the last point: Focussing on what customers think. He makes the distinction between perception and expectation. There are no absolutes: It is what the customer perceives that matters…and how far this is above or indeed below the customer expectation. This perception versus expectation distinction will be used in the following to develop a conceptual framework based on the customer lifecycle, an associated customer behaviour questionnaire and a summary template. This will be used to benchmark next generation services against current products and services, and to validate and enhance future network design.

2 Conceptual Framework Customer Lifecycle

The following diagram presents a customer lifecycle.

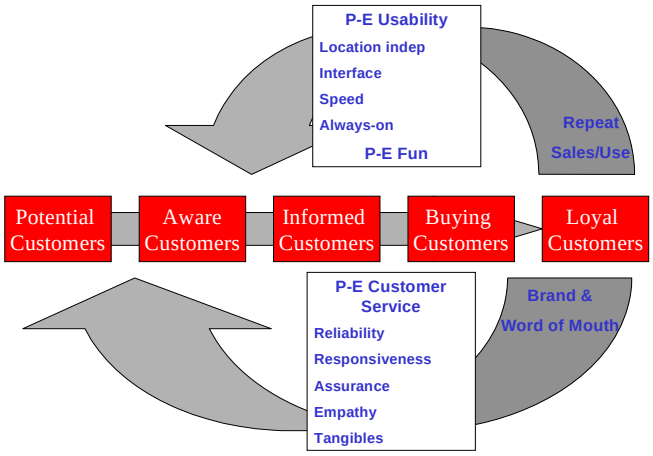


Figure 1: Customer Lifecycle

In summary, there are ten key customer communication channel variables relating to customer service, usability and fun that drive or inhibit the flow through the customer lifecycle from Potential to Aware to Informed to Buying and Loyal customer. However, there are no absolute values: Perception versus Expectation is key for these variables. This follows the classic 'SERVQUAL' customer service theory proposed by Parasuraman [Parasuraman et al] which focuses on the difference between Perception and Expectation, or P - E: To foster the Loyal customer who will buy or use again, and tell others, there has to be an *Expectation Shock!!* where the perception in at least one of these variables greatly exceeds expectation. (This term was inspired by a verbatim comment from a customer who was "pleasantly surprised and shocked" on receiving an unexpectedly high level of service i.e. where the perception of the service exceeded the expectation.)

3 Customer Behaviour Questionnaire & Summary Template

These variables and the perception versus expectation (P-E) gap are used in a customer behaviour questionnaire. For each of the ten variables, the questionnaire asks three questions, on a scale of 1- low 5 – high:

1. How important is it? (Importance)
2. What did you expect? (Expectation)
3. What did you find? (Perception)

Each question also has a comments field.

Answers are collated in a summary template containing both quantitative and qualitative data. This has been done for a variety of test cases ranging from MMS to 3G to eContactCentre. For example, in an eContactCentre case, it was found that the Perception versus Expectation gaps are highest for Reliability (+0.9) and Speed (+1.4). These are accompanied by the remarkable verbatim comments illustrating the expectation shock:

Reliability: Very Impressed…expected usual Telco service…superb service

Speed: Expecting delay…very quick…extremely surprised

4 Next Generation Services User Scenario Visualisation

The approach can be used to examine future services in a very similar way to current products and services, and to benchmark current against future. The approach is to start by writing textual 'day in the life' scenarios. These are then 'brought to life' by creating visual simulations, for example, using PowerPoint or Flash. This technique has been used on a variety of projects including Eurescom [4,5,6,7]. It has resulted in a number of well-founded feasible scenarios, built up by experience on these projects.

In the simulation extract of the service overleaf, Pete is a customer care expert. He provides an all-inclusive, totally outsourced, solution to his customers.

- *Leaving home in the morning, his personal profile transfers from PC to mobile benefiting from a DUS (Device Unifying Service).*
- *Pete chooses to read his email, which has been automatically prioritised by his VPA (Virtual Private Assistant).*
- *His first visit is to Ipswich Traders Association, which offers finance, marketing and customer care to the city centre shops. Their whereabouts are shown (Location Based Service).*
- *Pete checks the live customer stats for Ipswich Traders: sales / conversion rates and customer experience (WEB based service).*

Three extracts from the scenario are shown in the left column. In the right column, the 21C capabilities are mapped onto the scenario elements. The aim is to validate (or otherwise) the existing components and also to suggest enhancements (not listed for confidentiality reasons).

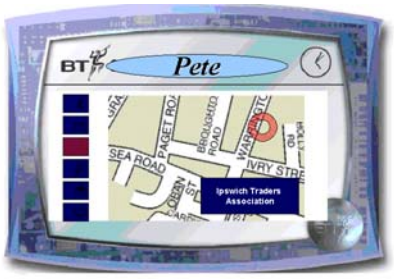
Potential customers of the service were invited to view the simulation of the service and then asked questions relating to their view of the importance and expectation of the customer service, usability and fun variables.

Note we do not ask about perception, because in this case they have not used it – it is after all only a simulation of a potential future product.

However, using the same technique we note that the key customers' concerns are for Reliability and Speed:

Leaving home, his DUS (Device Unifying Service) transfers his business/personal profiles from PC to mobile

…his email, automatically prioritised by his VPA (Virtual Private Assistant)… with a finance offer alert…



First visit is Ipswich Traders Association

21C Capability	Used?
Individualised Customer Care Applications	Y
Customer Portal	Y
Application Environment	Y
Authentication	Y
Directory & Profile	Y
Presence & Location	Y
Liquid Bandwidth Application-Driven QoS/	N
Content Processing	Y
Home and Office Hubs	Y
Digital Rights Management	X
Secure Connections	Y
Storage	Y
Enhancements (confidential)	

Table 1: Capability Mapping to Service Simulation

The customers attached the highest importance to the reliability (mean 4.9) and speed (mean 4.5) of future services. Yet they had relatively low expectations of the future service relating to these variables (means 4.3 and 4.1 respectively). The associated verbatim comments reflect their importance to, and low expectations of, the customer:

Reliability…I would use them and depend on them… for day-to-day tasks non financial services should succeed at least 80-90% of time: financial services 100%… if not, customer will have less confidence to try it or not even intend to give it a try

Speed: Chinese say Time is Gold'…time is equal to money …sometimes want something that instant…delay it too much and I will just forget about it

These reservations may appear to be bad news for future services.

However it is in fact an opportunity. Why?

Benchmarking the future service against the current eContactCentre test case provides valuable insight: Same as for the Futures service, it was found that eContactCentre reliability and speed were also rated the most important (4.9 and 4.4) and corresponding expectations were even lower (3.1 and 3.0). The remarkable verbatim comments however suggest that it is the perception – expectation gap that is key, even though the perceptions were lower than importance:

Reliability: Very Impressed…expected usual Telco service…superb service

Speed: Expecting delay…very quick…extremely surprised

By analogy, in this case, we appear to have an opportunity with future services to exceed customer expectation. If we can deliver high reliability and speed, we can deliver a perception that exceeds the customer expectation, and so drive the take up of future services and unleash the revenue streams.

6 Linking the Reliability Opportunity to the 21C Architecture Capabilities

The scenarios give validity to the various 21C architecture capabilities. They also suggested further potential capabilities or aspects of the current 21C capabilities (not available for confidentiality reasons) which contributed to the enhancement of the architecture.

As an example, taking the Reliability opportunity where there is an opportunity to exceed the low expectation, customers were further asked to identify issues and expectations.

The responses were grouped according to the corresponding 21C capabilities – firstly by the author, then confirmed by two BT experts. This suggested key requirements which are being addressed by the following 21CN capabilities: Authentication, Directory & Profile, Presence & Location and Secure Connections.

7 Conclusion: Just make it simple and complete!

The eContactCentre and 21C activities both suggest that customers have low expectations for reliability. However, this can be an opportunity. If we can develop Next Generation Services capabilities to deliver a customer experience perception which exceeds expectation then we might unleash the revenues associated with use and take-up of these services.

That importance of reliability is reflected in the major current BT strap line: Simple and Complete!

Or in the words of a major business customer:

'Make it simple and ensure it works!

This paper has described a way to identify customer expectations and to enhance Next Generation Services.

8 References:

[1] Stauss B and Neuhaus P. The Qualitative Satisfaction Model. International Journal of Service Industry Management Vol 8, No 3, 1997

[2] Chen E. Understanding Customer Requirements: Development of Metrics 1992 http://www.servqual.com/kano.html

[3] Parasuraman A, Zeithaml V and Berry L: Understanding Customer Expectations of Service Sloan Management Review Spring 1991

[4] Eurescom P1101. Always-On "Heterogeneous Services" Device Unifying Service (DUS) 2002

[5] Eurescom P1241. Cooltown 2002

[6] Eurescom P1341. Next Generation Service Concepts. Technical Information, May 2003

[7] T Houghton 3G: Where's the Money ISSLS 2001