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Achieving A Designed Customer Experience Across Multiple Delivery Platforms: A Telco Perspective

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Abstract: "Customer experience" is a term that covers a wide range of activities that take place between suppliers and users of products and services. LaSalle and Britton define it as "a holistic experience which involves a person – as opposed to a customer – as a whole at different levels and in every interaction between such person and a company" (LaSalle and Britton, 2003). This research considers a key aspect of such an holistic experience: that which is embodied in the product or service under consideration. In the context of increasing mobile technology convergence, the paper considers new approaches that focus on developing the necessary underlying enablers and common interaction flows that are required to deliver a designed experience, taking into account the increasing number of mobile operating systems and service delivery platforms. Ultimately these models move towards allowing users to "co-create their own unique experiences" (Pralahad and Ramaswamy, 2004). The convergence between IT and telecommunications domains presents a unique challenge to product and service designers. Services are increasingly accessible via multiple devices and delivery networks. This trend has been seen most recently in the advent of Internet based services being delivered via mobile phones where "mobile service delivery and technologies have become the glue between previously secluded "telecom" and "IT" domains" (Karrberg and Liebenau, 2006). At the same time network operators are trying to tighten their relationship with their customers by offering "sticky" services aimed at raising the barriers to customer mobility. These two trends lead to a new challenge; how to design a recognisably consistent and compelling product customer experience that applies across all delivery devices, operating systems and networks. Solutions to this problem have to date been either technology led, focussing on integrated delivery platforms, or reliant on rule-based design. Crucial to this analysis is the "role of consumers, beyond the act of purchase, in product usage as well as brand choice" (Addis and Holbrook, 2001). At each point of interaction the user has a required functionality that must be delivered; at each point of interaction there is the potential to provide the user with pleasure and satisfaction above that derived from delivering the required functionality. The research draws on examples of progress made in this area by O2, Nokia and 3 Mobile in the UK as industry-academic collaborations with the Royal College of Art, London.

1 INTRODUCTION

A rapid diversification of media delivery platforms is challenging Telcos - the suppliers and operators of mobile and land-based telecommunications services. This is particularly the case in terms of the designed customer experience. This research considers a key aspect of the "customer experience" across multiple platforms: that which is embodied in the product or service under consideration, and defined within the user interface, interactivity and information aesthetics.

The trends of "sticky services" and "convergence" lead to a new challenge; how to design a recognisably consistent and compelling product customer experience that applies across all delivery devices, operating systems and networks. Solutions to this problem have to date been either technology led, focussing on integrated delivery platforms, or reliant on rule-based design.

Established corporations are scrambling to understand how their value can be eclipsed by a few people in a back room with a server and a great Web 2.0 idea. The dual action of globalization and the dicing and slicing of consumer markets into ever more niches, means that products are made in huge volumes even when targeting super-specific users. People are living, meeting and trading as avatars in parallel digital worlds such as Second Life (http://secondlife.com). Many in the developed world will spend more than half their waking lifetime looking at a screen: on a phone, in a car, at home, or at a cinema. Our relationship with media is increasingly becoming a human extension (McLuhan, 1994).

The revenue models based on phone calls are long gone for the Telcos. A mobile phone device can now be used to run an online social network, facilitate interactive public media spaces (Barker, 2009), (Barker, 2010), or used as a payment system for developing countries (Barker, 2009). This has drawn the issues of achieving a consistent customer interface towards to the challenges of designing a user envelope of experience, as opposed to an infinitely expanding functional suite.

Today, we are nearly always wired, nearly always connected (Ling, 2005). Recent developments make the science fiction writer William Gibson, inventor of the term "cyberspace" (coined in 1982, and *before* the web became pervasive), look almost prescient. His book "Neuromancer" (Gibson, 1984) features a Cyber-Freelancer who can Jack himself into computer systems and experience Cyberspace in three dimensional reality. As man and machine grow increasingly close (Dyson, 1998), how far is today's software from this fantasy?

This paper considers new approaches focussed on developing the necessary underlying enablers and common interaction flows that are required to deliver a consistently designed customer-orientated experience, taking into account the increasing number of mobile operating systems and service delivery platforms, and whether such models allow users to "co-create their own unique experiences" (Pralahad and Ramaswamy, 2004).

Initially, the paper introduces the influencing factors for the issue under consideration. Several case studies are then discussed, in which three Telcos deliberately adopted a disruptive methodologies in their design process to achieve a customer-focussed breakthrough in terms of understanding, context and product and service opportunities. In each case, the design methodologies were undertaken within the context of an industry-academic collaboration. Finally, the paper discusses the results and offers conclusions to the investigation.

2 INFLUENCING FACTORS

The contemporary influencing factors that impact on the notion of consistency across platforms are outlined below.

2.1 Customer experience

"Customer experience" is a term that covers a wide range of activities that take place between suppliers and users of products and services. LaSalle and Britton define it as "a holistic experience which involves a person – as opposed to a customer – as a whole at different levels and in every interaction between such person and a company" (LaSalle and Britton, 2003).

2.2 Convergence

The convergence between IT and telecommunications domains presents a unique challenge to product and service designers. Services are increasingly accessible via multiple devices and delivery networks. This trend has been seen most recently in the advent of Internet based services being delivered via mobile phones where "mobile service delivery and technologies have become the glue between previously secluded "telecom" and "IT" domains" (Karrberg and Liebenau, 2006).

2.3. Sticky services

Network operators are trying to tighten their relationship with their customers by offering "sticky" services aimed at raising the barriers to customer mobility. This is unsurprisingly very unwelcome among consumers and can result in a loyalty backlash. Operators often have conflicting strategic issues when trying to offer choice while minimising customer 'churn', i.e.: loss of customers.

2.4. Interaction

Interaction is a contemporary term for feedback between the user and the mobile device, which is more specifically a cybernetic loop (Weiner, 1948), that may also incorporate machine learning (Valenti, 2008). At each point of interaction the user has a

required functionality that must be delivered; at each point of interaction there is the potential to provide the user with pleasure and satisfaction above that derived from delivering the required functionality. Interaction is the lifeblood of interface design, but it is rarely enjoyed by customers – interface design is typically invisible to them except when it is difficult to use.

2.5. Information aesthetics

The aesthetics of information is increasingly important as a means of adding value to a user's needs given the overwhelming availability of random-access data. The richness of pattern, semiotics and value can work together to achieve a pleasing information aesthetic. Information aesthetics can extend into all the senses including, for example, sound (Beilharz, 2009). The myriad options of information aesthetics can provide a user with their own environment and interpretive data visualisation system, and at one extreme can offer synaesthetic experiences.

3 CASE STUDIES

The case studies described below all major on lateral thinking. Within just a few years, lateral design thinking has gone from a luxury to a necessity in the communications industry. The Telco industry has also shifted from a modular design approach towards design from first principles for game changing products (Barker, 2010). Design thinking from first principles is valuable in the context of technological change (Barker, 2010). To break out of "corporate-think", it was appropriate that the Telcos asked the Royal College of Art (RCA) in London, a postgraduate college of art and design, to help come up with new approaches to mobile communications. Each project was exciting and challenging and a great chance to influence the future of mobile phone design.

The projects were undertaken in 2007 and 2008 at the RCA in an atelier studio format (Barker, 2010) under the direction of Barker, one of this paper's authors. The projects each took a bold look at the mobile phone world through the efforts of a number of vibrant multidisciplinary design teams.

3.1. Hutchison Whampoa / 3 Mobile

In 2008, the brief for this project from 3 Mobile, Hutchson Whampoa's mobile phone division, was to design the best phone ever, now. Using today's technology, it needed to be super desirable. It should outperform, outsmart, and outmanoeuvre everything that is on the market.

The project revolved around the design of a phone "handset" production model. It was a short and intense 3 week project and students needed to think of ways of making a big impact fast.

The design needed to be "iconic" and appeal to millions of people across the globe. The handset could be the basis for the next 3 Mobile model. 3 Mobile asked the students to think of their design as being "the equivalent of a new BMW 3 series production model, or an iPhone, or a Nokia N95. All of which are iconic in their own sense, and very appealing around the globe".

The designers were asked to think in terms of the human interaction with the device, and ergonomics. For example, is it purely touch- screen which has its limitations, exposed by iPhone? Is a keyboard necessary etc...

In addition, the designers needed to consider the impact and further potential of social networking paradigms and the convergence of mobile phone, computer, and internet technologies. These things obviously change the framework of mobile phone communications, but how can they best benefit an end user?

3 Mobile had recently launched their game changing Skype phone. This was a phone for which, extraordinarily, they didn't have a revenue model based on calls (since these were free). This is what 3 Mobile had to say about the recent launch of their Skype phone, and other aspirations:-

(1) We want to take our first social networking device to a truly radical level in 2008/2009

(2) With our new Skype phone, we've beaten the rest of the mobile market (including Apple) with a phone that makes it really easy and intuitive to make internet calls/chat on mobile

(3) Never again do you need to wait at your PC for a Skype call from your friends

(4) Never again do you need to pay for data access to make a Skype call or chat

(5) Now we want to offer customers a revolutionary community experience on mobile, with a handset design that conveys the new, and the simplicity of the experience

(6) Handsets are too complicated. iPhone has set the standard for what can be done in the high end, but we want a phone that can be rolled out <u>everywhere</u> - mobile social networking for the people

The company hoped to take elements, if not whole designs, from the final results into their next product. Hence the design teams had the opportunity to influence a major consumer product breakthrough.

The required outputs from the brief were to design a concept that:

(1) Shows the actual design, look and feel of the phone

(2) Shows how the user will interact with key social networking sites on mobile, linked into core mobile functionality and enablers such as contacts, messaging, media player etc...such as Hutchison Whampoa have achieved with the Skype Phone

(3) Has at least one prototyped/working element. This may be some software, a physical test rig showing interactivity, use of materials, or mechanical/moving elements

(4) Can be exhibited for public feedback. The physical models, prototypes, flatwork and/or digital content will be exhibited in the RCA galleries

Some of the proposed designs are shown in Figures 1 to 4. These concepts range from an information aesthetics basis to the interface (Figure 1), a narrowly targeted user demographic (Figure 2), a visual metaphor in which a mirror image represents virtual space (Figure 3), and a phone that is exchanged between friends (Figure 4). These are all examples of game changing design proposals

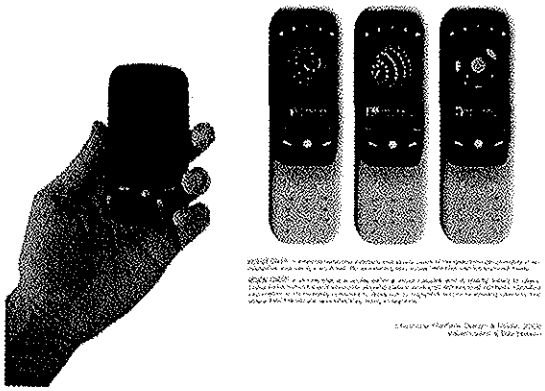

Figure 1: A three dimensional mobile phone interface that eliminates lists and allow users to navigate through their social networks. Design for 3 Mobile 2008.

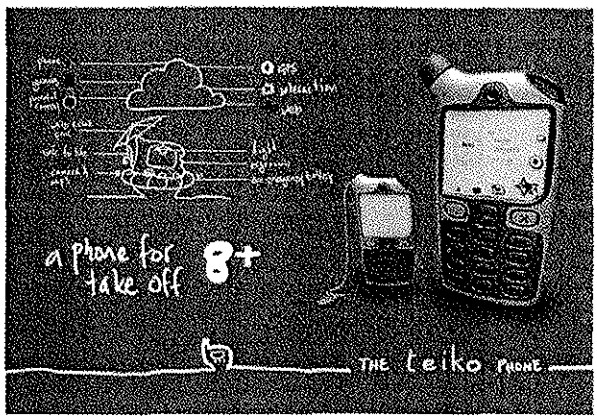

Figure 2: A phone to suit the lifestyles of young children from the age of 8. Design for 3 Mobile 2008.

Figure 3: Face phone: the mirror is highly connected to human desire for beauty. Design for 3 Mobile 2008.

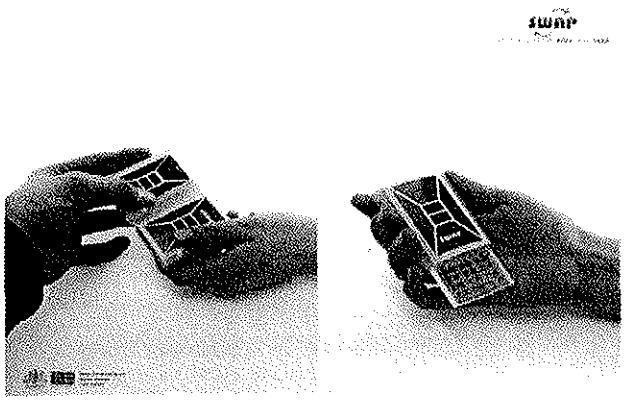

Figure 4: Mobile phones that are designed to be swapped between users. Design for 3 Mobile 2008.

Design teams needed to think through how the keys on the handset are used (if there are keys), how the User Interface will look at a high macro level, and how the design will challenge the

rather staid current designs from mainstream manufacturers. They had to think about the intention of the phone itself...how does it intend for someone to use it? Through the phone's concept/design users are forced to communicate in a specific way, a way that the designer must think is somehow more effective than existing phones even if this is something as small as changing a keypad layout or integrating new software.

The handset needed to first and foremost appeal to the designer. It should be something the designer would want to spend money themselves to purchase the product. It had to be useful and functional.

3 Mobile noted that simplicity is the key to a superb product. But also that design is not everything. 100 million Motorola Razr's were sold around the world. Motorola thought they could then sell a huge number of their follow up Razr2 to this user base. However the user interface was so bad on the original Razr that no-one wanted another Motorola.

3.2. O2 Mobile

The O2 Mobile phone company collaborated with the RCA in 2007. At the time, O2 had the sole network licence to the iPhone in the UK. The project was called 'Mutations' and the collaboration theme was convergence.

The brief was to create design concepts for a converged home environment. It was a 3 week design module with 40 postgraduate students. For O2, the work was a continuation from Streative Molezine's 'DIY guide to convergence' (http://www.streativebranding.com), which was a commissioned study in which the researchers looked at what was meant by taking the user perspective – which is notably different from technology or short term sales perspectives, and covered a range of lifestyles and users. Streative's report argued that the notion of the 'user' has changed dramatically and what was once a passive role is now a powerful position which allows people to take an active role in both content production and distribution.

The work was an exploration of future concepts specifically for O2 by bright young designers from a multitude of backgrounds and nationalities

Project objectives from O2 are summarised below as to:

(1) Drive forward the debate on what convergence means for O2

(2) Be inspired by a range of concept ideas from a user perspective

(3) Enhance profile for O2 branded team within the business through exhibition, chance for spotting of interesting technologies ahead of roadmap designs

(4) Support leading university and foster exchange between academics and business

Teams began by examining a specific group of people to uncover their specific quirks, needs, types of communication, and interactions. From the research, designers then developed highly specific services/products/media/devices which aimed to address the needs of the chosen group.

In the final stage, teams examined broader implications for a customer group's specific needs and developed a proposal for how their mutation could affect a broader group of users. Each team produced a "proof of concept" which explained both their mutation/device through physical prototypes and scenario-driven illustrations/films.

Figure 5 shows one of the design concepts that emerged from this project. It was a proposal to put mobile phones into boxes in public spaces to allow the public to engage in discussions with activists. The work came from a study of how protests are organised and their effectiveness with public engagement.

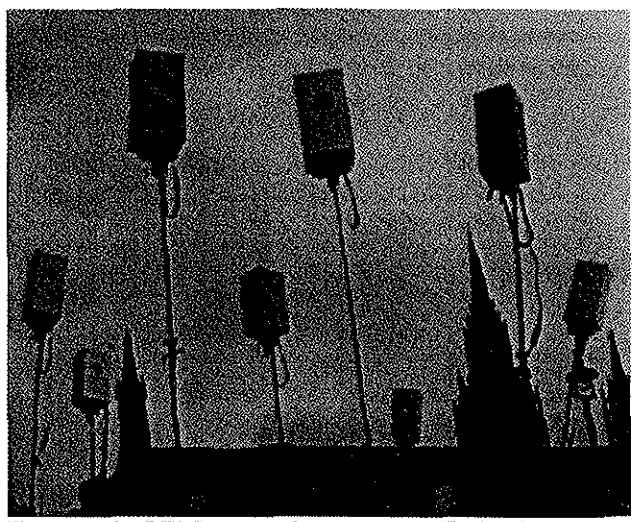

Figure 5: The DIY Protestor phone proposal. Design for O2 Mobile 2007.

Interestingly for a technology project, O2 requested the final work in the format of a printed book. This was then distributed to their marketing and design teams. Figure 6 shows one of the books, open on a Polyamory concept in which the phone is customised for polygamous minority groups.

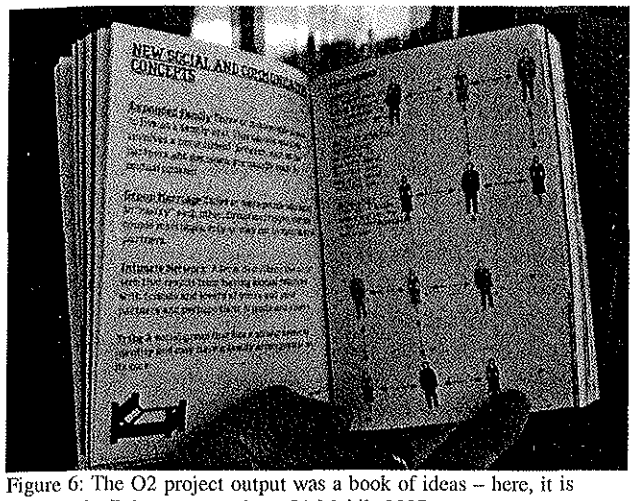

Figure 6: The O2 project output was a book of ideas – here, it is open on the Polyamory section. O2 Mobile 2007.

With the O2 projects, design teams were rethought the relationship between users, content, devices, and service providers. The designers investigated how these overlapping services, technologies, and objects do not just generate multiple possibilities: they interact with each other and ourselves to create mutated ones. Working in groups of 3 the designers effectively researched and developed new mutations of communication/media/technology of the "near future" from the perspective of specific users.

3.3. Nokia

The Nokia project was the furthest from market in terms of a brief. Nokia wanted a research investigation into "presence". A single design team of three people looked at presence over a 15 week period. A sense of presence is important when a user calls another person: they want to feel that they are not too far away.

Figure 7 shows an experiment in which the design team reduced the resolution of a video link to the minimum of pixels. When animated, this still had a very positive impact on sense of presence compared with voice only. Increasing the resolution had surprisingly little benefit to this sense.

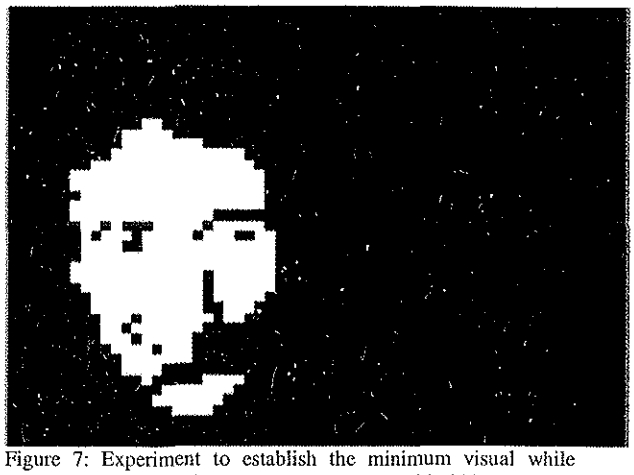
Figure 7: Experiment to establish the minimum visual while maintaining a sense of presence. Design for Nokia 2007.

The research also included a study of whether pure gesture could be enough for good communication. The team coded a gesture recognition system using Max/MSP. Users were able to "draw" in free space onto the video image. The system captured a sense of emotion between users very effectively, although specific communication of information was not possible.

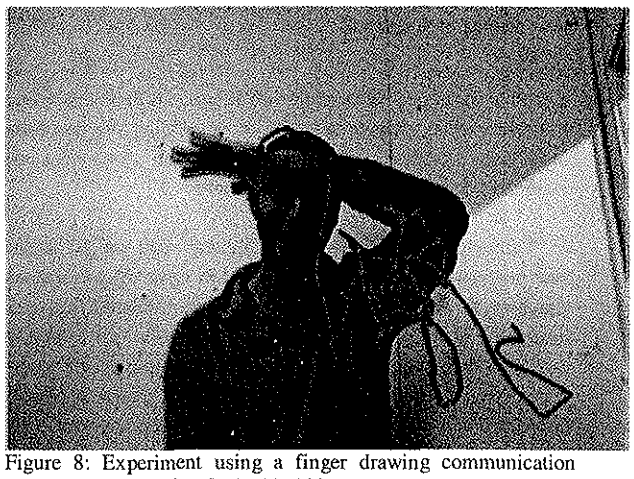
Figure 8: Experiment using a finger drawing communication overlay mode. Design for Nokia 2007.

A final experiment, shown in Figure 9, studied the use of peripheral vision as a sense of presence. The human eye is designed to detect small movements in our peripheral vision so that intruders or dangerous events can be noticed. In this experiment, live video of a phone user was mapped into a visual pattern. The user's image vanished when looked at directly by their co-communicator. When viewed obliquely, the image re-appeared. Users were aware of the presence of another but could never quite see that person.

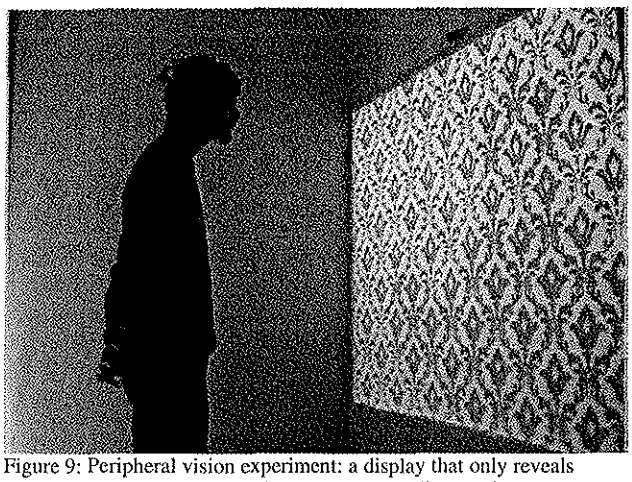

Figure 9: Peripheral vision experiment: a display that only reveals one user when the other user is looking away. Design for Nokia 2007.

These experiments informed Nokia's understanding of presence and the operating parameters. The research was able to provide a foundation for the more applied design in Nokia's products.

4 DISCUSSION

In each of the projects described with Telcos, a different approach was taken in an attempt to focus on developing the necessary underlying enablers and common interaction flows that are required to deliver the consistent experience.

Technology is pervasive in the industry, and yet the Telcos have perhaps never been more unsettled in terms of convergence strategies for their products and services. Underlying this uncertainty is the issue of a fundamental question that is hard to answer, namely: has mankind, the greatest communicator on the planet, really captured the essence of communication? Communication may be about bandwidth, screen size and other technical issues. But what makes a great communicator? Interestingly, American Business Week magazine categorizes the best business communicators in emotional terms such as: real-life dramatist, feedback welcomer, percolating passion, eye-contact king – as opposed to rational functionality (http://images.businessweek.com/ss/06/01/best_communicators/index_01.htm).

Essentially, effective communication is not about data bandwidth or resolution, but it is based the multiple characteristics of visual and emotional cues (Duchenne, 1862) (Essa, 1995), human psychology and cognition (Adolphs, 2003).

The joy and challenge of communicating with others is that we all see the world differently. Psychologists cite barriers to communications as: physical barriers, perceptual barriers, emotional barriers, cultural barriers, language barriers, gender barriers, and interpersonal barriers. Of course, the functionality of mobile phones now extends at the high end up to that of a fully-fledged PC. This means that communicating with an application such as a game, diary, or music site is as likely as communicating with another person. But barriers to communication still exist even when the "other person" is just code on a chip. Furthermore, the transparency of national boundaries and ultra low cost travel mean that ever more people from ever more contrasting backgrounds will get to meet and greet.

It may be argued that these issues of communication need to be resolved in terms of service design in advance of the physical tier of consistency in convergence that design can contribute, namely physical form: flexible, rigid, woven, folding, hard, soft, wearable, distributed, digital, interactive.

5 CONCLUSIONS

The examples described indicate that the models explored by each of the three Telcos all move towards allowing users to "co-create their own unique experiences".

Media and communication have been on a collision course for several years and the fallout has had far-reaching results. Phone companies, Internet providers, and Media conglomerates are converging as the content they deliver and the devices that deliver it are becoming interwoven into each other and our technology-driven lives. From a user standpoint though, this has resulted mostly in a culture of the 'Multi' as technologies are simply added on to one another to deliver new types of content to as broad a consumer base as possible. Telcos are now making efforts to reverse the multi trend.

It would seem crucial to the Telco's new thinking that they consider the "role of consumers, beyond the act of purchase, in product usage as well as brand choice" (Addis and Holbrook, 2001).

Modes of communications, users and the corporations providing the services are undergoing almost unbelievable morphing, crossover and change. Telcos are in the eye of a storm which may settle or it may be here to stay. The challenge of achieving a consistent customer experience in the age of convergence is driving the Telco's into ever more adventurous design thinking and industry-academic collaborations are a part of this.

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