

inspiring IT

GFT

TechReport

Issue October 2010

We make technology sound

Published 2 November 2010

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The TechReport is published on a monthly basis and wants to inform a broad audience about the latest trends and developments of the IT industry. The intention of the TechReport is to make trends transparent and understandable within their context and give the readers impulses for their business. The content has been created with the utmost diligence. Therefore, we are not liable for any possible mistakes.

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1 User experience – an example based on the a-touch

A rewarding user experience stems from many disciplines, centring on the science of design.

Straightforward interactions, thanks to simple navigation, a clear position within processes, and intuitively laid out tasks.

Quick use of the interface, by recognising and selecting controls according to the type of data.

These days, perfect human-computer interaction is not just about good screen layouts.

The term user experience (UX) stands for the overall experience (emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviour and accomplishments) as perceived by a person interacting with a product, system or service. Thereby, the experience includes all usage moments, before, during and after buying the product. As a rule, a rewarding user experience depends strongly on the quality of several key design issues, each complementing the other – such as how interactions are designed (interaction design), the user interface, how a user interacts with the computer (human-computer interaction), human factors engineering, usability and information architecture.

An efficient application of user experience can help to make abstract matters clearer by visualising complex contents, making them available for the user in a more interactive way and - what's more important - by including the user himself into the processes.

At banks for example, advisors would be well-served to take advantage of the many benefits of intelligent IT during complex counselling sessions, especially as recent legislation and court decisions have started to have a major impact on the overall context in which financial service recommendations are made. Thus, banks now need to find new ways to maintain uniform high quality during every advisory session.

Therefore, GFT has developed a-touch, an intuitive piece of software for larger interactive multi-touch tables (for advisory sessions inside the bank) and for multi-touch enabled mobile devices like iPad or Windows Slate PCs (for personal use or advisory sessions outside the bank).

To avoid mistakes, to apply to legal requirements and to improve the counselling sessions in terms of understanding, visualisation and traceability to a high extent can the combination between user experience and innovative devices be rewarding for both the client and the bank.

Interaction design refers to the way two different parties interact with each other. The aim is to keep interaction flowing as smoothly as possible, to keep the information being exchanged between both parties clear, and to ensure, wherever possible, that one of the parties is not forced to climb a steep learning curve. With a-touch, the two parties involved are a human being, i.e. the user, and the touch device. During the a-touch design process, care was taken to ensure that the user can immediately start working with the device and understands the information straight away. In a similar fashion, inputs made by the user had to be totally clear to the device, at all times, without compromising flexibility. Navigation icons at the bottom of the screen show users exactly where they are in the process. Users can navigate between outstanding tasks with gestures, by going back and forth with the arrows, or even by going straight to the right place. This all happens without users losing their bearings or losing track of the information on offer.

The design of the **user interface** plays an important role in this context. The navigation was designed to make the fullest use of known standards, allowing users to recognise controls and, wherever possible, avoid having to learn new things. Simultaneously, the design is supposed to be more appealing, intuitive and friendly than the more traditional Windows controls. Each individual control feature was engineered to ensure that only absolutely necessary information is displayed and the most important information is firmly centre stage. All controls were selected on the basis of the target data that users want to go through. For instance, if users want to work out the magnitude of something – such as the amount needed for a particular investment vehicle – they are shown a slider which can be moved to the right position with the finger. With an investment portfolio, if users want to select which currencies would be preferred or should definitely be avoided, two boxes

appear; currencies can be dragged into the boxes with the finger. The user is then given immediate visual confirmation next to the currency labels, with the preferred currencies in green and the others in red. Vivid selections and colour confirmations significantly enhance the intuitive nature of the user experience.

More direct interaction with the a-touch device also makes it easier for the customer and consultant to interact.

For a rewarding user experience, it is, however, not enough just to come up with a clear user interface. In this day and age, the effectiveness of a computer can be significantly enhanced by shifting use of the controls away from the mouse and keyboard to more direct inputs. Human beings are now quite used to dealing with virtual objects in the way they handle physical objects: they take hold of them, editing objects directly, making them bigger or smaller, moving them around or changing their properties. "Touching" objects directly renders them tangible, so each part of the consultation process becomes less virtual and barriers begin to drop. Also, because there is no need to use a mouse or keyboard, the consultant and customer can work together in front of the a-touch screen. In conventional situations the consultant sits at the computer, sometimes putting the customer into a passive role. Alternatively, the customer sits at the computer, which can take the consultant out of the driving seat. With touch controls, this dilemma is solved: interacting more naturally with the device also improves interaction between the customer and the advisor (**human-computer-interaction**).

The human factors engineering that went into the a-touch fosters positive emotional reinforcement and engenders trust.

The science of "**human factors engineering**" looks at the characteristics of people. These have to be taken into account because you cannot have a positive user experience if human factors keep getting in the way. The tangibility of objects described above, which people have with touch controls, corresponds closely with natural human behaviour, underscoring human factors in a way that feels quite normal. Non-visual factors also play an important part in this context.

Although the display still looks totally professional, fun elements and the controls serve to relax the overall situation. Also, ever-so-important affective aspects are emphasised not only by the type of controls but also by the way they are presented. It becomes intriguing just to use the device and explore different investment options. Through interplay – no longer do the customer and the consultant just sit there writing notes – mutual trust evolves. Every decision, every individual selection, is logged implicitly. Values are based on the latest inputs. Errors are not caused by misunderstanding information provided by the other person. The system logic also looks out for contextual inconsistencies and hidden risks. The effects of any changes made in a portfolio can be viewed clearly, in an instant. The customer sees it, and trust deepens.

Usability can be further increased by ensuring accessibility. So if users want to access their portfolio, they can do this in a uniform way, wherever they are.

How can designers maintain a positive atmosphere – and build on it? It must always be easy for users to use the device, i.e. it must also offer excellent **usability**. In essence, it is safe to say that good usability has been achieved if, in any given situation in which users want to do something, they intuitively know how to do it, and that they immediately understand the information they are seeing, can relate to it, and the response provided by the system is logical to them and comprehensible. Further, using the device must be quick and simple. A long series of mouse clicks or many layers of navigation are fatal for usability. All of these aspects were taken into account during user interface design and interaction design, to safeguard high levels of usability. But can anything more be done to enhance usability? Software design is merely one aspect. Hardware also plays a pivotal role. In an age of ubiquitous computing, usability can be improved through enhanced accessibility.

So the customer can interact intuitively with their investment portfolio at home, not just in the bank. Whatever was discussed at the bank, the customer can take home with them in a familiar format. The a-touch device is therefore also available in mobile forms for devices

such as the iPad. This means that this new approach to consulting can also be applied outside the bank, without the customers at home feeling uncomfortable as if there is a big computer somewhere near them. Mobility also supports the tangibility of the interaction.

Intuitive operation, the right atmosphere, a sense of togetherness by interacting with somebody else via a touchscreen device, plus all the other design elements mentioned above are little help if the information provided is not what the customer needs – or if the users (the bank and the customer) cannot provide input in the way they need to. To prevent such shortcomings, the **information architecture** ensures that the system caters for sufficient scope of information, the right structure, and that it is complete. Domain experts have ensured (also by working with customers) that the advisory process covers the right issues and that the information going into and coming out of the process are not only what the customer expects from the investment process, but also what the bank needs. People need the right information at any given point in the advisory process. Also, blocks of information, such as profile data, need to be processed in the right, structured order. This is ultimately what makes intuitive use possible. Another important aspect regarding information architecture is to have a direct link to banking systems, this is the only way to guarantee customers the all-round service they deserve. This is all needed to provide comprehensive consulting in a way that fulfils other requirements, such as sustainability.

We have now broken down the process of perfecting user experience into sub-disciplines, so at this point we would like to turn to the actual technology used. At the moment, there is no technology platform that spans the full range of requirements – from providing information via mobile devices to meetings in conference rooms, sitting around a table.

One of the challenges of implementing new solutions is how mature a technology is. Touchscreen technology is still coming away from the starting blocks. Many platforms are still unable to support requirements in the way they should do. Currently, only the iPad enables execution on the Apple iOS platform, albeit only with a 10-inch screen – which is unsuitable for ‘conference room consultation’. This contrasts to Windows-based solutions which are suitable for conference room consultation, but lightweight mobile devices based on this operating system were not yet market-ready when this project was launched. Our project team was also examining the possibility of using HTML5, i.e. a browser-based a-touch solution, or one based on an embedded browser window. There are already some frameworks which support touch movements, such as Sencha, but for now we were avoiding HTML5 for the simple reason that it is not yet stable or powerful enough. The W3C is also still advising against productive use of HTML5.

In the meantime, initial ‘presentable’ prototypes are available: a mobile iOS-based prototype and a ‘conference room consultation’ prototype based on Windows.

Technically speaking, the main differences are in the style of presentation. Where does the consulting take place, and how? For consulting sessions at the bank, around a conference table, it is best to use a large display. The people in the meeting can then use the touchscreen together, without things becoming crowded.

Of course, for mobile consulting outside the bank, another device has to be used. Despite the smaller touchscreen, it should still be intuitive to use.

For the large-screen device, Windows 7 is a good platform. As it belongs to the family of Windows operating systems, which are dominant in business environments, it should be easy to install in banks. Assuming the right hardware is in place, Windows 7 is also one of the first operating systems that can be fully controlled with the fingers and hands (multi-touch). With .NET and the many programming languages that Windows 7 supports, as well as the excellent development environments, Windows 7 has everything one needs to

The principles of information architecture ensure that the right information is used in the right form. These principles are fundamental to an intuitive system.

HTML5 is simply not yet mature enough.

The .NET extension Windows Presentation Foundation enables complex, appealing user interfaces.

develop touchscreen applications on a large display. The Windows client is programmed in C# – a modern and popular programming language – using version 4 of the .NET Framework. Here, greater use is made of Windows Presentation Foundation (WPF) in the GUI programming.

WPF has been an integral part of .NET Framework since version 3.0. It is a convenient model for programming interactive user interfaces. The aim is to make a clear distinction between the business logic and the GUIs, with most GUIs making use of an XML dialect (XAML). A great deal of thought was put into selecting the right display for the conference room solution. Touch displays measuring 27" and more are not yet widely available; the ones that are available vary greatly in terms of price and quality. Another issue with large monitors is that they are not yet available as capacitive displays that 'feel' movement. Instead, they track finger and hand movements purely on an optical basis, using cameras in each corner of the screen.

High quality capacitive displays are not yet available on large monitors, most of which are still optical.

The Apple iPad is ideal for the mobile version of a-touch. Not only is it very popular, it is also sufficiently mature in technical terms. Similar devices for Windows were announced at the start of 2010 but they will not be commercially available until early 2011. Apple also provides a highly user-friendly development tool in the form of Xcode, which is free. As a framework for application development, Apple Cocoa and Cocoa Touch can be used. Cocoa applications are normally written in Objective-C, a less known programming language. Objective-C is a superset of C in the same way that C++ is an object-oriented addition to C. By providing Cocoa, Apple offers an extremely smart framework that is oriented on universal MVC software architecture. The documentation is excellent and there is plenty of sample code to make programming easier and help newcomers become acquainted with Objective-C. The thorough and detailed descriptions of the Cocoa framework GUI controls deserve particular mention.

A variety of documents emphasise in detail the importance of user experience, recommending ideal ways to use GUI controls. But these are more than just recommendations – they provide well-founded arguments, outlining which control to use for which purpose.

User experience plays a pivotal role in Apple's Cocoa framework.

The two versions discussed above will not differ in terms of technical content. The Windows version is intended for consulting sessions at the bank; the iPad version is for advising customers outside the bank, or for private end-customer use. Some excellent development tools and technologies exist for both platforms. One thing remains clear, however: overall, Apple's more closed system is just right in terms of software and hardware. The iPad is an impressive piece of hardware. It works perfectly with the software to be created. The detailed descriptions of Apple's GUI controls play an essential role in guaranteeing the sophistication and user-friendliness everyone has now come to expect. But the market is not standing still. Take all these new possibilities, add systematically thought through design, plus the right levels of technical expertise, and IT really does have a tremendous contribution to make. Even if the subject matter is sometimes dry, consulting clients really can be fun!



CTO Comment Box

PC, notebook, netbook... the world of IT is becoming more and more mobile. Until now, the mobile versions of devices have cannibalised sales of their stationary or fixed cousins. So people were understandably tempted to see mobility as the value-added. Yet mobility in itself is no longer what provides competitive edge, or market potential. It has to be the right kind of mobility.

We can safely assume that netbook sales will also soon be cannibalised – this time by tablets, slate PCs and pads. Most of these weigh little less than a netbook, but they're used differently! The driver here is not actually mobility, it's something more fundamental – the user experience, i.e. the overall way we experience a device as we use it and how satisfied we are with this.

Of course the direct way we use devices is important. Mice and keyboards are dead! Long live fingers! Direct interaction with virtual objects on the screen feels more realistic, and tangible. It corresponds more closely to natural human behaviour – 'IT goes human'. A bigger screen of the same weight helps users take in information, which for most users is still the main reason they use a mobile device.

But sensory issues are not the only factors with a major bearing on user experience. I can almost get a whole day's work done on an iPad without having to recharge the battery. So good usability is also about a device helping do the job at hand, and not taking up time or adding complexity to everyday routines. For example, I can quickly jot something down or look something up, and I don't have to wait for something to boot up. I can synchronise my data directly using clouds or a desktop computer. So it's not just about the weight. Key aspects of usability are what empowers a new generation of devices to, once again, pave its way in what is already a cluttered computer market.

These new device categories make it possible to change and improve the way we do things – as the article in this edition shows by looking at the example of private wealth management using the a-touch. As long as the user experience can be enhanced, there is still plenty of room for software and hardware innovations even in seemingly cluttered markets. Indeed, user experience will clearly always be one of the most fundamental drivers of the IT market!

3 NewsWatch

The GFT NewsWatch will henceforth follow the professional article on a monthly basis, covering major events, vendor announcements, service and products launches, important mergers and acquisitions, etc. related to the IT industry. Thereby, the NewsWatch is based on international releases of the past month.

Nokia touchscreen creates texture illusion

Source: <http://www.newscientist.com/article/dn19510-nokia-touchscreen-creates-texture-illusion.html>

Nokia has developed a prototype of its N900 smartphone that lets you feel the texture of icons on the screen – a technology that would add a whole new dimension to touchscreen apps.

ASB Bank launches a virtual branch 1.0 on Facebook

Source: <http://www.visible-banking.com/2010/09/asb-banks-social-media-strategy-after-blogging-twitter-a-virtual-branch-on-facebook.html>

ASB Bank officially launched the very first virtual branch on Facebook. The bank genuinely aims to provide a second-to-none level of service on the 500 million member strong social network.

Banking trojan ZeuS homes in on SMS-TAN process

Source: <http://www.h-online.com/security/news/item/Banking-trojan-ZeuS-homes-in-on-SMS-TAN-process-1097104.html>

According to a report on the S21sec blog, new versions of the ZeuS banking trojan are now homing in on the SMS-TAN procedure (also known as mobile TAN or mTAN). In the SMS-TAN procedure, transaction numbers (TANs) for online transactions are sent to the customer's cell phone to authenticate that person for an online bank transfer, initiated for instance from a web browser.

Millions of bank card customers caught in data scandal

Source: <http://www.thelocal.de/money/20101014-30487.html>

The bank data and shopping behaviour of up to 14 million customers in Germany has been systematically gathered and used to promote loyalty programmes, a media report said on Wednesday night.

RIM reports increased BlackBerry sales, revenues

Source: <http://news.techworld.com/sme/3239967/rim-reports-increased-blackberry-sales-revenues/?olo=rss>

Research In Motion reported revenue gains of 9 percent in its latest financial quarter, driven by Blackberry subscriber gains and record device sales. RIM's revenue was \$4.62 billion for its second quarter of 2011, which ended August 28, compared to revenue of \$4.24 million for the second quarter of 2010.

Oct. 11: Windows Phone 7 launch event confirmed

Source: http://www.appleinsider.com/articles/10/10/03/oct_11_windows_phone_7_launch_event_confirmed.html

Microsoft has sent out invitations to a worldwide launch event for Windows Phone 7 on October 11 in New York City. The launch will feature an exclusive lineup of T-Mobile devices.

Léo Apotheker named CEO and President of HP

Source: <http://www.hp.com/hpinfo/newsroom/press/2010/100930c.html>

The Board of Directors of HP announced the election of Léo Apotheker as Chief Executive Officer and President. Apotheker, who previously served as CEO of SAP, will also join HP's Board of Directors.

Apple now the world's second largest company by market value

Source: <http://www.macboard.ch/2010/09/23/apple-now-the-worlds-second-largest-company-by-market-value/>

Apple overtook PetroChina Co. in terms of market value, making it the second-largest company in the world.

Average smartphone owner has 27 apps

Source: <http://www.tgdaily.com/mobility-brief/51460-average-smartphone-owner-has-27-apps>

Mobile users are getting more app-hungry every day, and a new report from Nielsen shows just how important apps are to the mobile landscape. Nielsen surveyed more than 4,000 smartphone owners and found that the average user has downloaded 27 apps.

Google buys Quiksee to add Virtual Reality to maps

Source: <http://tech.fortune.cnn.com/2010/09/12/google-buys-quicksee-to-add-virtual-reality-to-maps/>

The Israeli company's acquisition by Google is rumored to be valued at around \$10 million, though neither company would comment on the move. Quiksee lets users build "Virtual Reality" areas inside buildings or where Google's streetview camera-toting cars cannot go.

Microsoft to launch Zune in Europe this autumn

Source: <http://eu.techcrunch.com/2010/09/21/microsoft-to-launch-zune-in-europe-this-autumn/>

Microsoft is finally launching the Zune media player brand outside North America, with an autumn launch in the U.K., France, Italy and Spain initially. Zune software and related services, like the Zune Marketplace online store and Zune Pass music subscription service, via channel partners not direct from Microsoft.

Apple buys Polar Rose for a rumoured \$29 million

Source: <http://eu.techcrunch.com/2010/09/20/apple-buys-polar-rose-for-a-romoured-22-million/>

Polar Rose, a Malmö, Sweden startup which built a very interesting facial recognition programme which hooked into Facebook photos, has been bought by Apple, according to Swedish media.

Daimler moves from IBM – to Microsoft software

Source: <http://rapid61941.wordpress.com/2010/10/03/daimler-moves-from-ibm-to-microsoft-software-update/>

The car manufacturing group Daimler sets to more than 180,000 jobs on Office and communications software from Microsoft.

Billion people in India to be given biometric ID cards

Source: <http://www.projectcensored.org/top-stories/articles/22-1-2-billion-people-in-india-to-be-given-biometric-id-cards/>

India's 1.2 billion citizens are to be issued biometric identification cards. The cards will hold the person's name, age, and birth date, as well as fingerprints or iris scans, though no caste or religious identification.

Facebook working with INQ Mobile to develop phone

Source: <http://www.telegraph.co.uk/technology/facebook/8019834/Facebook-working-with-INQ-Mobile-to-develop-phone.html>

Facebook is understood to be working with the mobile phone manufacturer, INQ Mobile, to create a branded smartphone to be carried on the US network, AT&T, according to reports.

RIM announces BlackBerry 'PlayBook' tablet

Source: <http://www.msnbc.msn.com/id/39387014>

RIM thinks its business customers will have room in their briefcases for at least one more device: the PlayBook. Research in Motion Ltd. showed off the tablet for the first time and is set to launch it early 2011, with an international rollout later in the year.

Google plans to take a swing at Apple with new music service

Source: <http://technorati.com/technology/article/google-plans-to-take-a-swing/>

Google is rumored to venture in the world of music by offering a new cloud-based online service aimed at stealing the hearts of artists and music lovers worldwide from Apples and its iTunes music service.

Samsung follows Sony Ericsson by waving goodbye to Symbian, but hopes persist

Source: <http://www.fiercewireless.com/europe/story/samsung-follows-sony-ericsson-waving-goodbye-symbian-hopes-persist/2010-10-01>

The last few days have not been kind to Symbian with both Sony Ericsson and Samsung stating their intentions not to support the OS on any future handsets. While both handset vendors have been strong supporters of the OS for some years, they are now deserting the UK-based developer to concentrate on Android and Windows Phone platforms.

Google releases Gesture Search for Android

Source: <http://mashable.com/2010/03/03/google-gesture-search/>

Google has just released Gesture Search, a new and experimental feature for phones running the Google Android 2.0 software or above

Google TV signs up content partners

Source: <http://www.aminutenews.com/business/summary-box-google-tv-signs-up-content-partners-ap.html>

TBS, TNT, CNN and HBO are among the major media outlets providing special features for a Google technology that weds Web surfing with television viewing. Amazon.com Inc. and Netflix Inc. also are providing some of their most popular services.

T-Mobile US to sell the iPhone, price of G2 leaked

Source: <http://www.htlounge.net/art/13337/t-mobile-us-to-sell-the-iphone-price-of-g2-leaked.html>

Older rumors of an iPhone at T-Mobile USA seem to receive a slight confirmation these days. Unnamed sources reveal that in spite of some problems with the carrier, it is sure that there will be a version for Apple's smartphone available to the second-largest US GSM carrier.

Bing powered 24 percent of the searches in the US in September

Source: <http://news.softpedia.com/news/Bing-Powered-24-Percent-of-the-Searches-in-the-US-in-September-160368.shtml>

Google continues to dominate the search landscape in September, but Yahoo and Bing still hold a sizeable chunk. However, it looks like the two search engines put together have actually lost a little market share last month.

Germany's Thalia bookstore to launch dedicated E-Reader in October

Source: <http://publishingperspectives.com/2010/08/germanys-thalia-bookstore-to-launch-dedicated-e-reader-in-october/>

Following in the footsteps of Barnes & Noble in the US, Germany's largest book chain Thalia is set to release its own e-reader in October. Thalia announced that further details about the device (including partners secured) would be revealed on September 4th at the IFA conference in Berlin.

Ping users top one million in first 48 hours

Source: <http://www.apple.com/pr/library/2010/09/03ping.html>

Apple announced that in less than 48 hours since its launch, more than one million users have joined Ping, its new social network for music.

