Creating a Multi-user Experience with Multi-Touch Technology

A best practice guide from some of the leading innovators in Europe
Some of Europe’s biggest brands and most innovative companies are pioneering a new way to create and engaging multi-user experience: Multi-Touch screens and displays.

This technology is breaking new ground in how to present a greater array of information and for people to communicate or collaborate, in an exciting and interactive format.

With this technology, companies and their creative agencies can create an immersive “physical” experience to relay all kinds of engaging content at the same time. For example, different “windows” can be simultaneously opened to create a multi-faceted in-store experience that encourages greater sales, or to train employees in a more compelling way, or to create entertainment tools that blend games, competitions, video trailers and product sales all in one.

What is multi-user Multi-Touch?

We’re all familiar with single or dual touch technology, via our smartphones, tablets, the check-in screen at the local doctor’s surgery and increasingly, laptops and desktop computers too.

Touch technology has become a very intuitive and familiar way to communicate or access information. Multi-Touch technology takes that a step further, creating an interactive multi-user experience that can be applied to all kinds of environments. The technology itself has improved considerably over the past few years: resistive and infra-red touch technologies are being more and more challenged by the newly introduced Projected Capacitive Touch technology, which provides leading edge performances in terms of number of simultaneous touches, response time, and including Flat Front Surface Design capability.

With the latest PCT products, to 80 touch points can be supported on a single screen, meaning that several people can interact with it at the same time. Screen diameters range from just a foot or so up to 55 inches and are typically incorporated into either wall-mounted or table-top designs even in low light conditions locations.

Early adopters include: retailers, car showrooms, estate agents, museums, galleries, exhibitions centres, cinemas, sports venues, video games, casinos, corporate offices for demonstrations, sales and training purposes. And Multi-Touch is here to stay: according to research firm BCC, this is a market predicted to be worth $7.3 billion by 2018.

Of course, any new technology is only as good as the experts deploying it and the quality of content or applications being supported, plus other factors such as usability and durability. In this guide, some of the companies who are leading the way in developing Multi-Touch solutions in Europe provide their insight into what makes a great Multi-Touch experience.
A summary of some of the advice from 3M and its Multi-Touch partners:

1. **Display location**
   Wall-mounted may be easier where space is very constricted, but table-top designs are better at drawing attention and make it easy for several people to collaborate. Also look for touch technology that is easily viewable, even in bright light, and unaffected by lighting conditions.

2. **Consistent touch**
   An unresponsive screen is very frustrating for users, so make sure it is fast to respond and consistent. Look for zero-lag, despite how much information is being displayed. Bezel-free design ensures that the screen is touch-sensitive right to the very edges.

3. **Robust and self-service**
   If high levels of user traffic are expected, look for a robust system that is “fit and forget”. This applies to both the hardware and the software. You don’t want a system that constantly needs a member of staff to keep checking it is working properly or needs re-booting.

4. **Simple and intuitive software**
   Touch is all about being interactive and intuitive, so it is essential that the software design reflects this by being very easy to use, without requiring any training or explanation. Look for specialists in natural user interface design and think in terms of what software will support a collaborative, multi-user environment.

5. **Keep it simple**
   Don’t try to do everything at once: aim for an engaging but not overly complex user experience. The system should also be so simple that your employees can use it without training and will become such fans that they will encourage customers to use the system.

6. **Think multi-platform**
   Consider that other systems or technologies may have to be integrated, whether now or in the future. Rather than Multi-Touch systems being standalone, consider integrating them as part of your overall customer contact strategy, for instance having the same apps available on tablets and smartphones, as well as on the Multi-Touch system.

7. **An integrated approach**
   By linking Multi-Touch units to back-office systems such as CRM and databases, Multi-Touch can be used to gather all kinds of useful customer data.

8. **Make it easy to update and upgrade**
   It should be simple to update the content without needing specialist expertise. Also, ask what further support is on offer: depending on the system provider, this can include round-the-clock support or remote diagnostics and software upgrades.

9. **Smart branding**
   The furniture housing Multi-Touch screens lend themselves well to colourful, impactful branding. Examples in the market so far include screens built into coffee tables and mobile vending machines.

10. **The right support and expertise**
    Work with a system designer and hardware provider that has a track-record in Multi-Touch and so knows what pitfalls to avoid. Also, make sure that once installed, there is strong on-going support.
In this section, some of Europe’s leading pioneers of Multi-Touch solutions share their experience and expertise.

Between them, they’ve already installed thousands of Multi-Touch units for a wide variety of companies, including some of the region’s biggest brand names, but also much smaller organisations who’ve embraced the potential of this new way of communicating with audiences.

“We’re definitely seeing an uptake in interest around Multi-Touch systems. The retail market is particularly strong: Multi-Touch is the perfect way to blend the online and physical store experiences together. But retail’s just the start: touch technology is going to be everywhere.”

It’s a future technology that’s happening now

“Regardless of the user audience, it’s essential to make multi-touch as simple as possible for people to use, with very intuitive interfaces and easy navigation. While engaging content is essential, the hardware has to be both useable and user-proof: some of these units are being used in “high traffic” environments and must be self-sufficient. The introduction of PCT technology means that these screens have high response times and can operate in low-light conditions. We also need to remove barriers to adoption: for instance, we’ve created vertical market software that has automatic updates and a general all-purpose presentation software with drag-and-drop folder function. This means our customers can update the content displayed on the Multi-Touch screen very quickly, without needing any technical know-how. Also, simplify pricing: our business model gives users an end-to-end solution, across hardware, software and 24/7 support. Creativity in external design matters too. Multi-Touch screens are typically wall-mounted or embedded in table-designs. We favour the latter where possible, because it makes for a more interactive experience, as it’s easy for people to gather around a table. These units can also be dressed in corporate colours or other branding. While there’s huge potential for Multi-Touch, there’s a definite need to open people’s eyes to the opportunities and so market education is important. We all need to work together to grow the market.”

“Multi-Touch adds a real “wow factor” to any environment, so although it is an early-stage market, we’re seeing a lot of interest around this area, particularly the larger format screens, because they are ideal for multi-user interactive experiences.”

It’s important to think about how easy is the system to upgrade or monitor

It’s also important to start small - not to try to do too much at once - but at the same time, create a foundation on which you can build. For instance, it may matter to think about multi-language support, whether now or in the future, and how easy is the system to upgrade or for our clients to monitor. This is why we’ve introduced a web portal that remotely updates the software and content for them, as well as providing report statistics around performance and usage, all accessible via atracCloud. Also, as there is a shortage of specialists and skills in the marketplace (no-one is teaching Multi-Touch as a training course) then potential customers need to work with companies that have a proven track record of experience and expertise in this area. Customers do not want to be kept waiting either: once they’ve decided to commit to a Multi-Touch project, our Core Framework allows us to realise complex, high quality Multi-Touch applications rapidly.”
“In terms of design, keep it simple, avoid unnecessary complexity and make it easy for users to find the information. Also, be aware that company personnel may be wary of Multi-Touch: make sure that they are given training and realise that it’s not only simple to use but that it can actually enhance their jobs and open up new opportunities to create conversations with customers. Another important thing is that Multi-Touch technologies must be “self-serve”.

When people stand around a Multi-Touch table, they can see each other’s reactions and it creates a great multi-user experience

The content needs to be right: people come for the content, not the touch screens, though of course the screens must work well, but they should improve and not hinder the interactive experience. So it’s important to choose hardware that provides a consistently high performance.

Also, tailor solutions to the needs of the customer, not around the technology. This is why we’ve introduced our component-based solution set, so that customers can choose what works for them and we can create affordable solutions that fit their budgets.”

“Touch technology has been become state of the art in many industries. Driven by the consumer market this technology is used more and more often – especially in the retail sector. What matters is customer benefits. Customers have reported better engagement, a new way to get their attention, cross and upselling potential in-store, all of which contributes to revenue growth. Those added values attract more customers and consequently lead to new sales opportunities, either with existing customers or brand new markets. In competitive markets, it’s a great way to diversity and generate strengthen a brand. The strongest interest is currently coming from the US and other English-speaking countries, but also confidently expect in other markets soon too.

As far as design is concerned, important to integrate all channels, to provide a valued added experience to the customer and to support faster processing: for instance, the Multi-Touch system could be integrated with stock information, CRM systems, home delivery booking, loyalty cards, payment systems, bar codes and QR codes. Also think about integrating with peripherals such as printers, scanners and cameras.

We also need to take away any of the fear that purchasers of Multi-Touch systems may have: they don’t have to involve huge software development projects and in fact, it’s possible to use out-of-the-box software in many cases. Need to take the fear factor out of installation – the unknown – out of the box software is available, creating Multi-Touch solutions does not have to be a huge project or leap into the unknown. We also encourage our customers to be more experimental around the hardware housing Multi-Touch screens: think about how the furniture can be adapted with brand visuals, or to fit in with a campaign theme.”

“Multi-Touch opens up new ways for people to communicate with each other or to access information. It puts the human factor back into technology: when people stand around a Multi-Touch table, they can see each other’s reactions and it creates a great multi-user experience.

The technology needs to work – it’s about creating something interesting, opening up new opportunities, puzzle pieces –.”

“In competitive markets, it’s a great way to diversity and generate strengthen a brand.”

Marketing Director
Pyramid Gmbh

Alexander Aelberts
CEO, PresTop and Omnivision Studios

Christian Jeske
Marketing Director
Pyramid Gmbh
About Atracsys

Established in 2004, Atracsys was originally a spin-off from the Swiss Federal Institute of Technology in Lausanne (EPFL). In 2007, it developed its first Multi-Touch table solution, setting a new bar in reliability and accuracy in the marketplace. Today, Atracsys is still at the forefront of Multi-Touch innovation, combined with its experience in natural user interfaces (NUIs). Since 2007, it has developed and deployed over 300 interactive projects in over 18 countries worldwide, using its innovative technology tools and products, combined with a high calibre of in-house expertise.

To see an example of an Atracsys Multi-Touch solution in action, click here to view.

www.atracsys.com

About Astec Technology

UK-based Astec Technology is an innovations company that has specialises in delivering turn-key technology solutions to vertical markets for the past 25 years. Companies turn to Astec for its help because they value its extensive industry experience, knowledge and exceptional customer service, whether a small local company or a globally recognized brand. Astec delivers hardware, software and bespoke solutions, all backed by a dedicated support team.

The company has developed SenseTable, a Multi-Touch table design that uses 3M Multi-Touch display technology. While potential customers are wide-ranging, SenseTable is seeing strong adoption in the UK property and estate agency market.

To see an example of SenseTable in action, click here to view.

www.astectechnology.co.uk
About PresTop Products, Omnivision Studios and Omnitapps

Since 1993 PresTop Products has specialised in design, assembly and production of electric lifts, kiosks and touch tables. PresTop Products is part of the PresTop Group in which Omnivision Studios is also part of. Omnivision Studios focus exclusively on the development of Multi-Touch applications and has worked with some of the world’s biggest brands and sells its products through a reseller channel. In addition to custom development, the company has also created Omnitapps, modular touch-screen software that companies can use to easily configure and manage their own cost-effective Multi-Touch solutions. To see an example of a Multi-Touch solution in action, click here to view.

www.omnivision.nl/en

About Pyramid

German company Pyramid has specialised in developing and manufacturing of custom IT solutions for 25 years. A total of 100 people are employed at the headquarters in Freiburg and the production and logistics facility in Amt Wachsenburg, with additional offices in the USA, UK, Italy and France. Pyramid has develop polytouch®, a Multi-Touch system that features lag-free, fast information processing, superior image quality, and a frameless design with no image shift. Polytouch® units have been installed worldwide, with customers including some of Europe’s best known retail brands. To see an example of polytouch® in action, click here to view.

www.polytouch.de/en
## 3M™ Multi-Touch Display M2167PW
- **Diagonal Size**: 21.5”
- **Aspect Ratio**: 16:9
- **Display Form Factor**: Desktop
- **Number of Simultaneous Touch Points**: 20
- **Touch Response Time**: 6 ms
- **Display Resolution**: 1920 x 1080 (Full HD)
- **Display Colors**: 16.7 Million
- **Pixel Pitch**: 0.248mm x 0.248mm
- **Backlight**: LED
- **Viewing Angle**: 178° (Vertical/Horizontal)
- **Brightness**: 250 Nit
- **Brightness with Touch Sensor**: 217 Nit
- **Multimedia**: Audio Input, 3 Watt Audio Speaker
- **Surface Treatment**: 3M Anti-stiction Surface Coating
- **Touch Communication**: USB
- **Video Connections**: HDMI, VGA, DisplayPort
- **Power Supply**: External, 110/220 VAC
- **Cables Included**: Power Supply, USB, HDMI, DVI
- **VESA Pattern**: 100x100
- **Operating Systems Compatibility**: Windows 8/7/Vista/XP, Linux, Mac OS
- **Warranty**: 1 year
- **Part Number**: 98-0003-3729-9

## 3M™ Multi-Touch Display M2467PW
- **Diagonal Size**: 24”
- **Aspect Ratio**: 16:9
- **Display Form Factor**: Desktop
- **Number of Simultaneous Touch Points**: 20
- **Touch Response Time**: 6 ms
- **Display Resolution**: 1920 x 1080 (Full HD)
- **Display Colors**: 16.7 Million
- **Pixel Pitch**: 0.277mm x 0.277mm
- **Backlight**: LED
- **Viewing Angle**: 178° (Vertical/Horizontal)
- **Brightness**: 250 Nit
- **Brightness with Touch Sensor**: 217 Nit
- **Multimedia**: Audio Input, 3 Watt Audio Speaker
- **Surface Treatment**: 3M Anti-stiction Surface Coating
- **Touch Communication**: USB
- **Video Connections**: HDMI, VGA, DisplayPort
- **Power Supply**: External, 110/220 VAC
- **Cables Included**: Power Supply, USB, HDMI, DVI
- **VESA Pattern**: 100x100; 100x200
- **Operating Systems Compatibility**: Windows 8/7/Vista/XP, Linux, Mac OS
- **Warranty**: 1 year
- **Part Number**: 98-0003-3786-9

## 3M™ Multi-Touch Display M2767PW
- **Diagonal Size**: 27”
- **Aspect Ratio**: 16:9
- **Display Form Factor**: Desktop
- **Number of Simultaneous Touch Points**: 40
- **Touch Response Time**: 10 ms*
- **Display Resolution**: 1920 x 1080 (Full HD)
- **Display Colors**: 16.7 Million
- **Pixel Pitch**: 0.311mm x 0.311mm
- **Backlight**: LED
- **Viewing Angle**: 178° (Vertical/Horizontal)
- **Brightness**: 250 Nit
- **Brightness with Touch Sensor**: 217 Nit
- **Multimedia**: Audio Input, 3 Watt Audio Speaker
- **Surface Treatment**: 3M Anti-stiction Surface Coating
- **Touch Communication**: USB
- **Video Connections**: HDMI, VGA, DisplayPort
- **Power Supply**: External, 110/220 VAC
- **Cables Included**: Power Supply, USB, HDMI, DVI
- **VESA Pattern**: 100x100; 100x200
- **Operating Systems Compatibility**: Windows 8/7/Vista/XP, Linux, Mac OS
- **Warranty**: 1 year
- **Part Number**: 98-0003-3787-7

*up to 40 touches

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**Flat Front Surface (Virtual Bezel)**

**M18 | M21 | M24 | M27: Connections**

90-degrees of Adjustment
### Commercial-Grade Chassis Multi-Touch Displays

<table>
<thead>
<tr>
<th></th>
<th>3M™ Multi-Touch Display C2167PW</th>
<th>3M™ Multi-Touch Display C3266PW</th>
<th>3M™ Multi-Touch Display C4267PW</th>
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* up to 20 touches

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**C2167PW Flat Front Surface**

**C4267PW and C4667PW Flat Front Surface**

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**C2167PW Connections**

- VGA
- DVI
- Remote OSD
- USB Touch
- Power

**C3266PW, C4267PW and C4667PW Connections**

- VGA
- DVI
- HDMI Display Port
- Serial (in/out)
- Serial Touch
- USB Touch
- AC Input
- DVI/Off
About 3M and Multi-Touch

3M™ Multi-Touch displays and systems are being used across retail, digital signage, gaming kiosks, leisure, education, automotive and corporate environments.

The range features screen diameters ranging from 18.5 inches through to a new 55 inch display, with up to 80 touch points supported.

3M works closely with partners across Europe and in 2014, launched its Multi-Touch Developer Network. The network is a web-based resource that gives carefully selected designers and developers an opportunity to showcase an inspiring range of applications to a global audience of potential customers.

3M Multi-Touch Developer Network website

To see examples of 3M Multi-Touch, click here to view

“The PCT touch technology, how the screens are built and the fact these screens are really Multi-Touch makes the 3M screens ideal for our Multi-Touch pack software and for touch tables.”

Alexander Aelberts, CEO, PresTop and Omnivision Studios

“We are very happy with the support we get from 3M; it is very reactive and we trust its products. Our customers also have a very good opinion of 3M products: proof of reliability, innovation and quality.”

Raphaël Menard, Key Account Manager, Natural User Interfaces, Atracsys