



# Creating Flow

## Designing seamless interactions through the integration of software and hardware

It was not so long ago that a device like the Motorola Razer could stand out from the competition based on its form factor alone. But now that feels like ancient history. Today it is no longer enough to deliver compelling industrial design or, for that matter, functional on-screen interfaces. People expect that products will adapt to their needs over time. The popularity of the Apple App Store suggests that devices designed to evolve and grow with their owners are here to stay.

With each passing year, people are connecting with information and with others in increasingly rich and

complex ways. Unfortunately, most devices delivering this unprecedented level of connectivity are limited by the complexities of their underlying operating systems.

As people demand more layered and flowing interactions, design teams are learning to look carefully at the touchpoints that make up a holistic user experience. Evidence of this can be seen in every domain, ranging from gaming consoles to life-critical healthcare equipment. Whoever seeks to stand out in today's connected information economy will have to achieve a compelling integration of hardware and software.

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### TAKE ACTION – *designing for Life's Changes*

1.

#### *Design for behaviors*

Design for the experience, such as enjoying a music collection anywhere rather than interacting with a specific device.

2.

#### *Design for physical interaction*

Reduce mental load by reserving buttons, switches, and sliders for key interaction points. Plotting features according to frequency of use and immediacy of access can determine which of them warrant a physical touch point.

3.

#### *Design for layers*

The world's biggest Swiss Army knife may prepare you for any situation, but it is so complicated that you are unlikely to have it close at hand. Use the principle of layering, or hiding what is not important at any given time.

4.

#### *Design for delight*

What we desire drives what we do. Integrate hardware and software to make the things we do delightful in and of themselves. Align this delight with your brand.

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## Work and play in tandem

Julie is a 29-year-old banker in Central London who works and socializes with equal intensity. She is eager to prove her worth to her colleagues and is therefore careful not to use her BlackBerry for personal calls. But remembering the evening she left it at home and missed an important client email, Julie took to carrying around two phones to manage these two important parts of her life.

When Samsung introduced a phone that let her switch between her work and personal lines, Julie was thrilled. In addition to the physical mode-switching feature, the interface offers a distinctly different appearance for each line, so she can see at a glance which mode she's in.

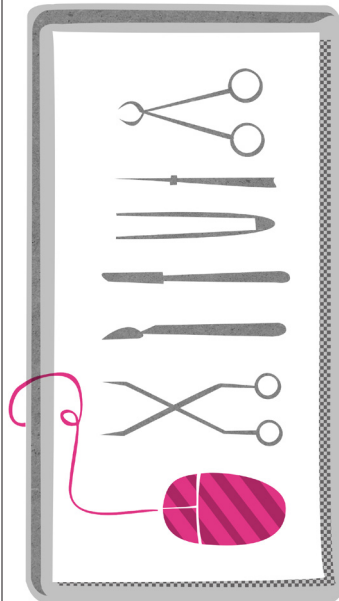
*How might we combine physical form and digital interface to reflect the flow between work and personal life?*

## The surgeon's steady hand

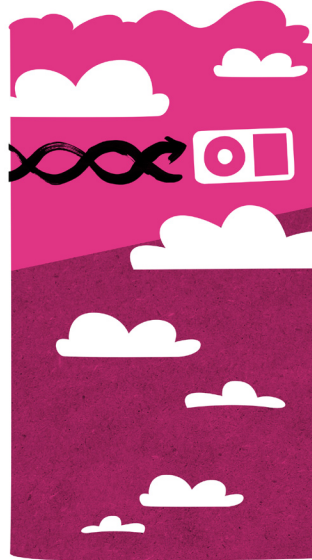
The surgical suite is rife with workarounds. Many of the systems use touch-screen interfaces and Kate, a neurosurgeon who specializes in spinal surgery, is constantly frustrated by her inability to interact with LCD screens that are not sterilized. Instead, she has to explain to a nurse which buttons to press in order to see the necessary images of a patient's spine.

In response, Medtronic is thoughtfully integrating hardware and software for a more intuitive experience in these demanding environments. Their recently redesigned 3D spine surgery suite lets surgeons use a sterilized mouse to manipulate visualizations themselves. The physical design is complemented by a layered interface that gives precedence to the most important information.

*How might we enable surgeons to see more and perhaps cut less?*



**Be a pattern spotter:** Now that you've been exposed to a few different examples, don't be surprised if you start seeing *Life's Changes* patterns all around. Keep your eyes open and let us know what you find, especially if it's the next new pattern.



## A jet-set lifestyle

When Gary first saw the Eclipse 500 in a magazine article, it made him think back to all the stories he had read as a kid of car-planes that would make flight accessible to all. A successful LA dentist, he was already certified to fly light planes. He now began to wonder if he could graduate to a small jet.

On his first test flight, he was astonished by the simplicity of the cockpit design. Three large multifunctional displays show information about flight telemetry, systems status, and navigation. A harmonized instrument panel reduces complexity by grouping controls according to flow, reach, and handedness. "This is the iPod of light jets," he joked.

Because of its thoughtfully integrated hardware and software design, Gary was able to completely focus on the heavenly experience of flying.

*How might integrated interactive design bring people's dreams a step or two closer to reality?*

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## The rise and fall of Razzr

By focusing on physical form, Motorola gave people a stylish phone that fit into their pockets. Increasingly, however, phones that try to stand out through form factor alone no longer cut it. Motorola failed to see that the future lay in providing holistic experiences while on the go, not just continuing to make phones smaller and slimmer. They now face a long climb to enter the smartphone market, where hardware and software adapt continuously to varying lifestyles.

## Getting people moving

The Wii has broken every barrier in video gaming. Rather than giving us another round of enhanced processing power and immersive graphics, Wii eliminates the dependence upon clusters of buttons and allows players to rely upon their natural motions. This welcoming approach "meets people where they are" and has unlocked a market so large that even Nintendo was taken by surprise. Who would have predicted that physical therapy for seniors would involve golfing or bowling nights in front of their Wiis?

## Breaking down barriers

There is a good reason why innovative products seem to flow out of Apple like water from a faucet. Although they may begin with Steve Jobs's vision, they are due to the way the company is organized. Whereas many companies have siloed divisions that separate user interface designers and hardware designers, at Apple they work together to create holistic products. Many CEOs have powerful visions for their companies, but without first innovating their corporate cultures they are doomed to failure.



## GUI and mouse

In the early days of computing, the IBM PC ran on MS-DOS. Type a command and it spit out a result (unless you forgot a slash, colon, or some other arcane command). The mouse and the GUI were invented at SRI, developed by Xerox, and brought to market by Apple, allowing people to interact with the computer by pointing and clicking. Suddenly, people could focus on the use of their computer without worrying about navigating the computer itself. The landscape was changed forever.

PATTERNS are a collection of shared thoughts, insights, and observations gathered through our work and the world around us. We invite you to join the conversation, so we can raise the bar and develop richer design thinking experiences collectively.

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