



Richness + Simplicity

(the Holy Grail of Mobile UI)



Context

- The purpose of this white paper is to present the concept of “Richness + Simplicity” in the context of
 1. Re-definable/hybrid¹ user interfaces² for next generation mobile and converged devices
 2. Advanced data services and apps for these devices

1. For an explanation of the terminology of re-definable and hybrid user interfaces, please see our white paper “Dynamic Keypads: Terminology”.
2. This white paper focuses on user interfaces, as opposed to graphical user interfaces, which are a subset of the overall category of user interfaces.



The Goal

- Richness + Simplicity = A deeper, more compelling user experience that is also fast and easy, with essentially no learning curve



Definitions

- Richness = A more compelling and immersive user experience across all features, apps and services
- Simplicity = Devices that are fast and easy to use across all features, apps and services



Richness



The Importance of Richness to People

- Mobile devices are above all about interaction
- Richness increases the desire to interact for longer periods and at a deeper level
 - social interaction,
 - web interaction,
 - game, feature and application interaction,
 - etc.
- Richness improves the interest level and depth of commitment to the interaction the device and its applications and features offer
- Interaction is why people have adopted mobile devices so broadly. Rich interaction is what people are expecting from their next generation devices.



The Importance of Richness to Device Manufacturers, Carriers and Developers

- Mobile devices sales increase with new and exciting physical features that increase people's ability to interact through their devices
- The huge investments in next generation wireless network infrastructure will only pay off if wireless service providers convince users to go far beyond voice calls and short text messages into a full range of communications, computing and entertainment services
- Richer, more compelling applications lead to increased time spent, use and loyalty



Simplicity: the enemy of Richness?

- Historically, and even now, simple has meant reducing the scope and functionality of devices and applications
 - even the iPhone, the simplest and richest mobile device currently available, sacrifices a significant degree of richness in applications for the sake of simplicity
- The hardest design challenge is to combine both simplicity and richness
 - by achieving both, the entire value chain wins and a disruptive innovation occurs
 - the challenge now is to achieve Richness+ Simplicity in multi-application and multi-function mobile devices



Principles behind Richness

(on mobile and converged devices)

1. The UI must be off the main display, and must handle a full set of commands, text and numeric entry dynamically based on the individual app/mode selected by the user
2. The main display must be reserved exclusively for high value "eyeball" content
3. Give app developers control over the UI to the maximum extent, subject to a small set of rules that enforce a consistent, predictable pattern of use across all contexts
4. Tightly integrate the UI hardware and software
5. Map to user's lifestyles



Commands, Text, Numbers

- “Command” entry drives more applications than text or number entry
 - Any interface that does not address command entry for each separate application fails to deliver an immersive and fully interactive experience
 - Interfaces should enriches every application – the keypad should no longer be a static, pre-labeled artifact addressing a single application such as text entry, but becomes instead a customized, dynamic and integral part of each application
- “Text” in full, in any language
 - Asian characters, accented letters, punctuation, symbols, emoticons and other aspects of full text communication are now possible – better even than on a full PC keyboard



Upper Screen

- The upper screen of mobile devices is rapidly becoming one of the most viewed screens in people's lifestyles
- Use it properly
 - Because the main screen is small, it is critical not to encumber it with unnecessary and low-value content, such as pull-down menus and screen-based command/text/emoticon/symbol entry
 - The solution is to move the user interface system to a dynamic or mode-switching keypad, reserving the main screen for high value "eyeball" media/content



Maximize App Developer Control

- Media/Content/App Developers
 - App developers should be given maximum control over the UI to achieve a rich environment for the user
 - App developers know best what will create the optimal user experience
 - Too little control, leaves app developers with a highly circumscribed environment, and their apps will have limited scope and interest
 - This control should be subject only to a small set of overarching rules that maintain a consistent pattern of use for all features, apps, modes and services
 - If every app works entirely differently from every other app, the user is presented with too great a hurdle for using multiple apps
 - It actually eases and promotes app development when there is a consistent set of core rules



Tightly Integrate the UI Hardware and Software

- The highest value on many fronts, including for the end-user, is achieved when hardware and software are closely and integrally aligned – designed in from the start
 - Eg, the clickwheel/iPod/itunes alignment
- This can be done with a dynamic, mode-switching keypad interface on an unprecedented basis
 - The beauty of physical keys combined with software-driven displays embedded in the keypad
 - 100% of the surface area (displays and keys) should be optimizable by app developers for their context, subject to the underlying small set of UI rules



Map to Lifestyles

- The full user interface system should be forward-looking in its design and capability to not only take into account but actually create the optimal environment for mobile lifestyles
 - enable sophisticated mobile app interaction
 - give mobile app designers new interaction possibilities
 - accommodate a wide range of mobile apps
 - enable user experiences that cross device boundaries



Simplicity



The Importance of Simplicity to People

- People hate hard-to-use devices and applications
 - It hurts their pride and productivity. They stop doing anything except what is easy to learn and use
 - Corollary: People want mobile devices, services and applications that are easy to use

- Small, feature-rich devices present an ever-increasing usability issue
 - Even the iPhone predominantly has “2-5 minute” apps, in part because ALL of every app’s control menus are displayed as overlays on the small main screen



The Importance of Simplicity to Device Manufacturers, Carriers and Developers

- Increased market share
- Increased revenue
- Increased loyalty and reputation
- Lower costs of support



Principles Behind Simplicity

1. Commands, Text, Numbers (Extensibility)
2. What you see is what you need (WYSIWYN)
3. A single, predictable pattern of use - always
4. Ergonomics
5. Systematically separate of "eyeball" display and the command/text/numeric entry system
6. Map to lifestyles



Commands, Text and Numbers

(The 3 keys to the next generation physical user interface)

- **Enable “Command” entry on the Keypad**
 - Critical because most features and applications require the user to enter commands (as opposed to text or numbers)
 - No more upper screen menu/select interface limitations
- **Enable a new level of “Text” communication**
 - In full (letters - lower case, caps, accented -, characters, punctuation, caps, symbols, numbers, emoticons) – one per key, directly on the keypad, faster entry with fewer errors with no learning curve
 - In any language (most people don’t speak or write English, their written languages should be respected and completely available) – Asian characters, accented letters, directly on keypad
 - Switch languages, in full, on the fly
 - Language parsing in base 12 or less
- **Enable numeric entry of any kind**
 - Telephone and calculator format – at choice of user



WYSIWYN

- Visual cues driven by what the user has selected to do
- Show only what the user needs – starting with a default most-needed subset
- Visual cues on the keypad, not on the upper screen
- Get rid of keys pre-labeled with alphanumeric
- Instant sophisticated use by everyone, with no need for manuals or help desks
- In sum: Put the user in charge



A Single Pattern of Use - Always

- The dynamic keypad's "mode switching" should be the same for every feature, application, service
 - Use it in once, and know how it works for everything, now or in the future
- Unlimited number of "keyset groups"
 - Predictable, separate roles for 3 groups of keys
 - High level feature/app/mode select keys
 - Keys dedicated to selecting levels within the high level feature
 - Keys dedicated to command/text/number entry
- Distinct sets of keys have dedicated, consistent and predictable roles



Ergonomics

- **Physical keys**
 - Provide optimal touch use – touch-typing with eyes on the upper screen
- **Integral displays**
 - Provide a flexible and dynamic context-driven interface
- **Layout**
 - Easy reach of all keys by thumb or one-handed, all finger use
 - Small number of large keys
- **Senses**
 - Different shapes enable touch orientation
 - Optional: Different colors reinforce roles of keys
 - Optional: Sounds reinforce key pattern usage and touch-typing
- **Avoid touchscreen and flat keypads**
 - These force the user to stop and look to hit correct keys
- **Avoid multiplicity of tiny keys** allocated to one function



Systematically Separate “Eyeball” Content and UI

- “Eyeball” content is King
 - don’t overlay it with user interface
 - this is one of the biggest failures of touchscreen devices – the “eyeball” content experience is disrupted every time the user needs to access the user interface to do something
 - even more critical on small screens, but minimizing the impact of the “chrome” of browsers and apps on PC/laptop screens is important too

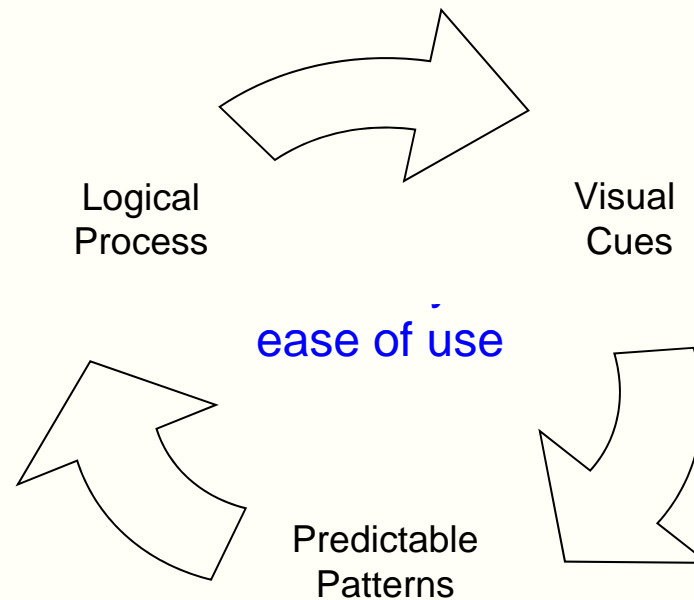


Map to Lifestyles

- The full user interface system should map directly to the way people use their technology - personalized interaction by the user
 - of communications with other people
 - of entertainment
 - of features, apps and services
- And it should provide one interface for all the devices that people use for the same suite of activities (Phone, TV, PC/Laptop) to create a unified user experience across these devices



Simplicity Principles, Restated



- 85% of learning is done visually. Visuals = easy
- Consistent and predictable patterns of usage = easy
- Logical connection between task and means to perform task = easy



What else?



Will people switch to a new UI?

(or ... can you change behavior?)

- Yes, many examples, iPod clickwheel, TV remotes, Game controls, mouse
- The key is to align better with people's lifestyle use of their technology, and ... there are pitfalls
 - Voice commands/dictation won't be acceptable in subways, conference rooms, private communications – school hallways and family rooms, even possibly cubicles
 - Gesture controls likely have similar cultural contexts where they are likely to be used and where they are unlikely to be used
 - Some new ui systems will be complementary, but are NOT likely to be replacements for other ui systems that work across all cultural and lifestyle mobile contexts



Innovation

- Richness and simplicity require innovation in mobile devices
- Innovation costs more initially and does not come with built-in market data
 - That makes it hard to implement from an engineering and a marketing department standpoint
- Consequently, innovation requires senior management leadership, vision and sustained commitment throughout the process to drive it into products and services



Get over the past!

- Upper screen menu and icon systems do not work on small-screen devices
- Touchscreens offer immense flexibility, but are inhibitors of rich and immersive mobile applications
 - The user has to stop, stare at the interface (which is shown overlaid on top of the applications' important graphic/media/eyeball content), and press precisely for every use ... that's the opposite of mobile freedom
 - To everyone who is trying to clone Steve Jobs' iPhone design – STOP - at best, it is a defensive market strategy, but usually it just makes you and your devices look bad – instead: innovate
- Pre-labeled keys for a specific function are inherently misleading, frustrating and hard-to-use



Implement Richness + Simplicity

- Implement a solution that delivers both
 - Richness, and
 - Simplicity
 - on mobile devices, converged devices and any other multi-application, multi-function environment for a unified user experience that maximizes what people want from their technology for their lifestyles



Richness + Simplicity

Solution: Call us.



Related white papers

- Related “White Paper” Slide Decks
 - Monetizing the Keypad Real Estate on Mobile Devices
 - The Changing Face of User Input on Mobile Devices
 - Compound versus Elemental Devices – New Mobile Device Market Strategies
 - The Incredible Shrinking Search Results Page
 - Dynamic Keypads: Terminology

- Download these from
 - Links from www.yuvee.com
 - www.slideshare.net
 - Tim Higginson’s profile on www.linkedin.com



About Yuvee

■ Yuvee

- develops and licenses advanced user interfaces and related device designs that make the mobile Internet and advanced mobile apps/data services effortless and immersive
- provides advisory services in multiple areas relating to mobile and converged devices including
 - differentiated, physical and graphical user interface design
 - mobile and converged device design
 - innovation management processes (“IMP”) optimization

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