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TC World Conference 2012
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RTFM
Real & Touchable Front-end Matter
Or:
Users decide on What/How/When

80%
Facts

100%
Play
«We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don't let yourself be lulled into inaction.»

Bill Gates
The Future of Technical Communication

2015 Knowledge transfer and communication are mobile

2020 Information is granular

2025 Operating systems are remodeled

2012
2015

The world communicates mobile.
Homo mobilis

- « We're all connected, all the time. »
  mindbullets.net

- « An increasingly number of aspects of our everyday life compose of continuous nomadism. »
  Matthias Horx

- « Life-as-we-know-it, or Life 1.0, was just the curtain raiser. Are you ready for Life 2.0? »
  futureworld.org
What Users use
Use of the Internet

1 PB (petabyte) = 1 million GB

Dat: W3C, Cambridge MA USA / U.S. Census Bureau, Washington DC USA
What is needed

\[ E_k = \sum_{m=0}^{7} \sum_{n=0}^{7} (T_k(m,n) - T_{k-1}(m,n))^2 \]

\( E_k \): Required energy of a touchpanel tracker to recognize the subsequent movement.

Lit: Crowley, Coutaz (1995)
The use of high-grade granular information.
Knowledge Transfer
How to give back Life?

1) Without beating about the bush.
2) In small portions.
3) And with emotion.
The Human Brain

Bottleneck #1

- comfortable?
- positive?
- pastel?
- Image?
- warm?
- soft?
- Friend?
- associative?

Lit: Decision Science Laboratory @ Harvard University, Cambridge, CA (2010) / Stanford University, Stanford, CA (2010)
The human Brain Bottleneck #1

"Art without emotion is like chocolate cake without sugar. It makes you gag."
- Laurie Halse Anderson

Denial of reception due to...
- Forlornness
- Thirst
- Lack of emotion
The human Brain Bottleneck #2

The receptiveness:

→ **3 words** to gain attention
→ **15 words** for the core message
→ **2-4 seconds** until frustration limit

Lit: Colorado State University, Fort Collins CO (1993) / Concordia University, Montreal QC
The human Brain Bottleneck #3

1) Perception
2) Comprehension
3) Structuring
4) Archiving
5) Reactivation
6) Utilization

Hence:

80% + Speed

- Volume

+ Emotion
Remodeled graphical user interfaces
«Pimp my operating system»
Operating systems «reloaded»
Communication Technologies

The exponential acceleration of communication.

Microprocessor Manufacturing

1 nm (nanometer) = 1 millionth of a millimeter

Layer thickness [nm]

Hair thickness: 70,000 nm (0.07 mm)

Dat: futuritimeline.net
Operating Systems 1979-2012

1) Machine
2) Application
3) User
Operating Systems 2025

1) User behavior
2) User expectation
3) User wishes
## A simple Task - unsolvable on the Screen

<table>
<thead>
<tr>
<th>Command</th>
<th>Mouse</th>
<th>Shortcut</th>
<th>Digitizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copy</td>
<td>Click right / Click «Kopieren»</td>
<td>Ctrl+C</td>
<td></td>
</tr>
<tr>
<td>Paste</td>
<td>Click right / Click «Paste»</td>
<td>Ctrl+P</td>
<td></td>
</tr>
<tr>
<td>Undo</td>
<td>Click left «Undo»</td>
<td>Ctrl+Z</td>
<td></td>
</tr>
<tr>
<td>Repeat</td>
<td>Click left «Repeat»</td>
<td>Ctrl+Y</td>
<td></td>
</tr>
</tbody>
</table>
How Users want to use...

1 Frame Back  Play Fwd.  1 Frame Fwd.  Stop/Pause  Mark In  Mark Out  Set start of play range  Set end of play range

Go to start of play range  Go to end of play range  Go to start of clip  Go to end of clip  Go to start of project  Go to end of project  Show/Hide Timing pane  Show/Hide Project pane

Select tool  Zoom tool  Pan tool  Show/Hide Library  Show/Hide Inspector  Show/Hide File Browser  Ungroup  Group

Zoom In  Zoom Out  Home View  Fit in Window  Undo  Redo  Delete  Show/Hide Dashboard

Bring Forward  Send Backward  Set Project Marker  Set Object Marker  Copy  Paste
Multi-Touch gestures
You can do a lot of things on your MacBook Pro using simple gestures on the trackpad. Here are some of the most popular ones.

Click
Press down anywhere on the trackpad to click. Or, with Tap to Click enabled, simply tap the surface.

DoubleClick
Press down two times anywhere on the trackpad. Or, with Tap to Click enabled, double-tap the surface.

Pinch to zoom
Zoom in and out of photos and web pages more precisely by pinching your thumb and finger.

Rotate
Turn your thumb and finger clockwise or counterclockwise to rotate an image.

Secondary click (right click)
Click with two fingers to open shortcut menus. Or, with Tap to Click enabled, tap two fingers anywhere.

Two-finger scroll
Brusn two fingers along the trackpad to scroll in any direction—up, down, or sideways.

Switch between full-screen apps
Swipe with three fingers to move from one full-screen app to another.

View Mission Control
Swipe up with three fingers to see every open window on your Mac.

Swipe to navigate
Swipe with two fingers to flip through web pages, documents, and more.

Smart zoom
Double-tap the trackpad with two fingers to quickly magnify a web page.

View Launchpad
Pinch with four fingers to view all your apps in Launchpad.

Learn more
Choose System Preferences from the Apple menu and click Trackpad to learn more about gestures.
«Pimp my Operating System»
Personalization
# «Pimp my Operating System»

**Personalization**

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Effect</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time of day</td>
<td>• Ticker, headline • Detailed report</td>
<td>• «Quick-and-Dirty» • Background, context</td>
</tr>
<tr>
<td>Age / gender / limitations</td>
<td>• Inhibition, suppression • Dynamic look</td>
<td>• Age-compatible content • Alignment of colors, shapes, controls</td>
</tr>
<tr>
<td>Depth of information</td>
<td>• Dynamic scaling • Relation to history</td>
<td>1) Essentials 2) Need-to-knows 3) Former content</td>
</tr>
<tr>
<td>Repetition</td>
<td>• Resume where last visited</td>
<td>1) Summary… 2) …and on we go</td>
</tr>
</tbody>
</table>
Operating Systems «reloaded»

- Eye Tracking as a substitute for mouse control
- Gestures
- Motion and spatial control
- «Mood Control»
- Adaptive voice control
Operating Concepts: Gestures and Voice
Operating Concepts: Merged Functions
The original HD video has been removed. Follow this [Link](#) to see it in Web quality on YouTube.
Coming soon…

- Novel interfaces and ports
- Auto-adaptive user interfaces
- **Highly dynamic interaction** between user and operating system
- **Full integration** of user behavior
- **Dynamic scaling** of depth of information
- **Merger** of structure and content
- **Fragmentation** of information in homeopathic doses

Dat: microsoft.com / apple.com / uspto.gov
On the highway.
What we focus on

1) Technical Communication...
   → **MUST NOT** be at the end of a development, thus being forced to “post describe” a given final result.
   → **MUST** be part of the formation, part of the development, part of the product, assigned to contribute as the user’s advocate from the first moment.

2) The user must be immediately on board; without any obstacles/without practicing/without frustration.
How we do it

1) From the start:
   User and user benefit come first.

2) Very close cooperation as one team:
   Research & Development, Hardware Design,

3) Before / after:
   From hard and stony trail to highway.
What we achieve

- First attempt hit rate of 80+% with launch of new devices, functions, extensions.
- Barely rectification needed.
- Extremely fast iteration.
- Little to none training effort.
- High customer satisfaction, excellent feedbacks.
A practical Example:
Regulation Tuning

Actuator 1

Tracking Error [mm]
-2.072
-1.391

Forces [mN]
10263.663
-6785.981

gain [rad/s]:
0 120
100 300

zeta [%]:
0 100
0 200

Kd:
0 100
5 100

observer:
3 10

force rate [N/s]:
1 100
10000

Actuator 2
iOS: «iStudio»

Controller Tuning
- Velocity Controller
- Position Controller

Operating Modes
- Homing Mode
- Profile Velocity Mode
- Profile Position Mode

Profile Velocity Mode
- Profile Acceleration: 1000
- Profile Deceleration: 1000
- Target Velocity: 536
The Future of Technical Communication

2015 Knowledge transfer mobile

2020 Information granular

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2012 20:80