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# About the Course

- Scott Weiss
  - Author, *Handheld Usability* (John Wiley & Sons)
  - Principal, Usable Products Company
- Course History: You are in good company!
  - Sprint PCS Study in late 2000
  - UPA 2001, 2002
  - BayCHI 2002
  - Designing Information Systems (DIS) 2002
  - Human Factors & Ergonomics Society (HFES) 2002
  - American Medical Informatics Association (AMIA) 2002
  - New York New Media Association (NYNMA)



# Tutorial Outline

- **Handheld History**
- **Handheld vs. Desktop**
- **Handheld Devices**
- **Hardware UI elements**
- **Information Architecture Process**
- **Information Architecture Practice**
- **Prototyping**
- **Usability Testing**



# Continuum of Devices

The lines between categories blur.

**Where do tablet PCs fit in?**



**The Personal Computing Continuum**



# Handheld Definition

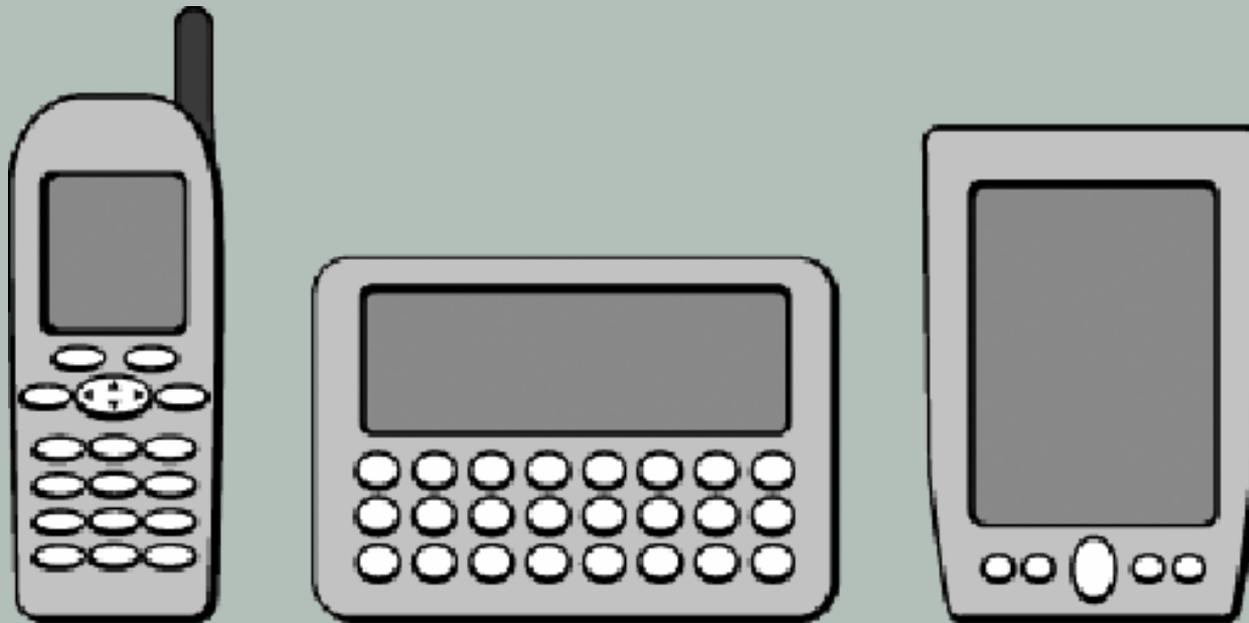


Handheld devices are extremely portable, self-contained information management and communication devices.

They must be able to:

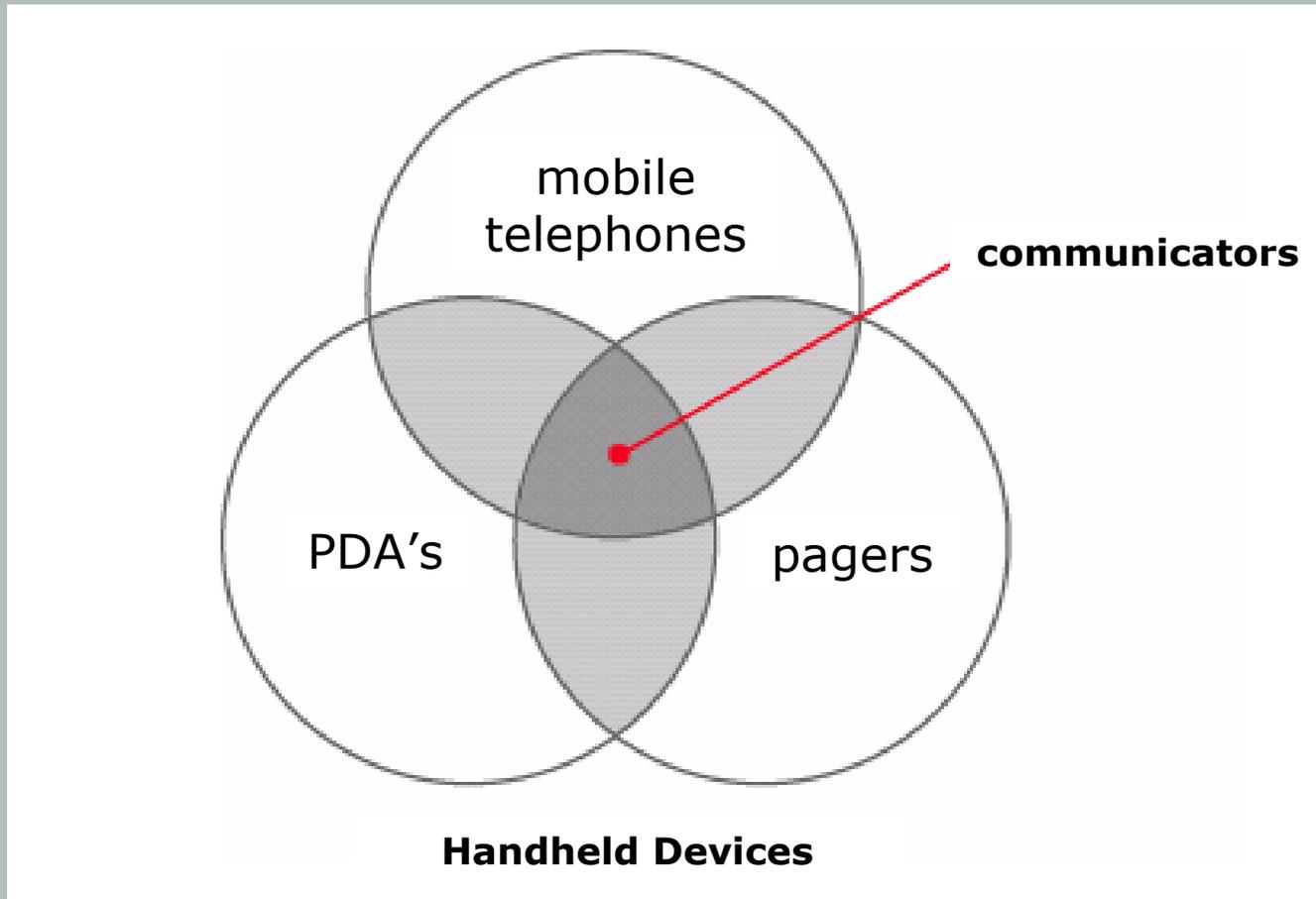
1. Operate without cables, except temporarily (recharging, synchronizing with a desktop).
2. Be easily used while in one's hands (no furniture necessary!).
3. Support additional applications *or* support Internet connectivity (WAP, i-mode, or email).

# Handheld Devices



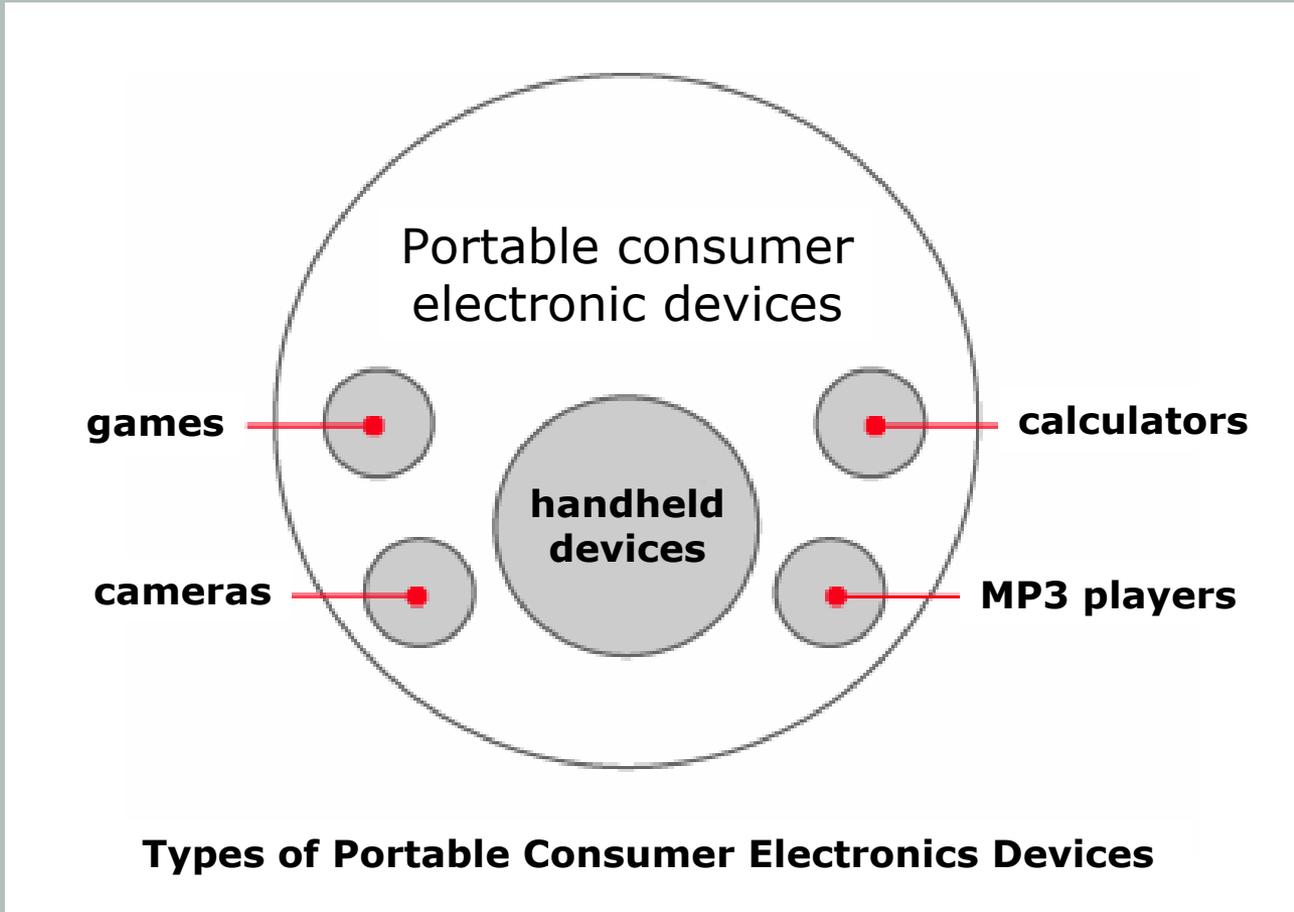


# Types of Devices





# What Is *Not* A Handheld





# Openwave Browser

- Latest version supports color and graphical UI widgets.
- It's still WAP, though....

>> Color Support



>> Pop-up Softkeys



>> Enhanced Form Support



>> Buttons





# Mobile HTML

- Web clipping is the act of shrinking and/or stripping or shrinking bitmaps and other unsupported technology, usually through a proxy server.
- WAP is a protocol; HDML (Handheld Device Markup Language), WML (Wireless Markup Language), etc. are languages.
- WAP does *not* support HTML.
- WAP 2.0 *does* support XML, however.
- HTML clipping browsers do *not* support Javascript.



# WAP

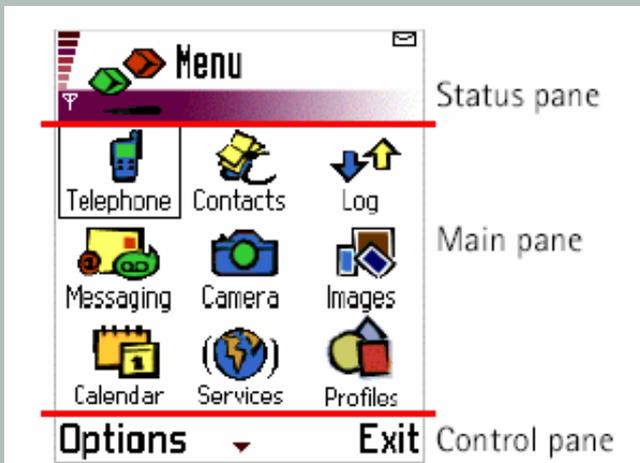
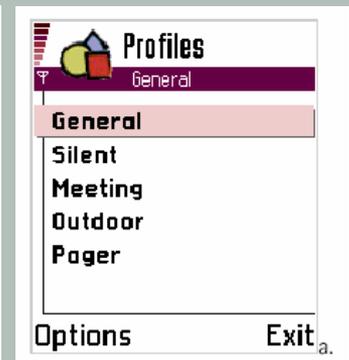
- Multiple implementations
  - HDML, WML...
- No standard button arrangements
  - Most phones have two softkeys, except Nokia.
  - Most phones have a “Back” key, but not all.
- “Walled garden” concept
  - Only carrier-supported sites are available
  - Accessing outside URLs, when possible, is awkward.
- SMS is *not* WAP
  - Short Message Service.
  - *As contrasted with* Multimedia Message Service.
- M-Services: the promise to come



symbian

# OS (Nokia series 60)

- Display: 176x208 with 4096+ colors
- Multitasking
- Folders & groups
- Help available





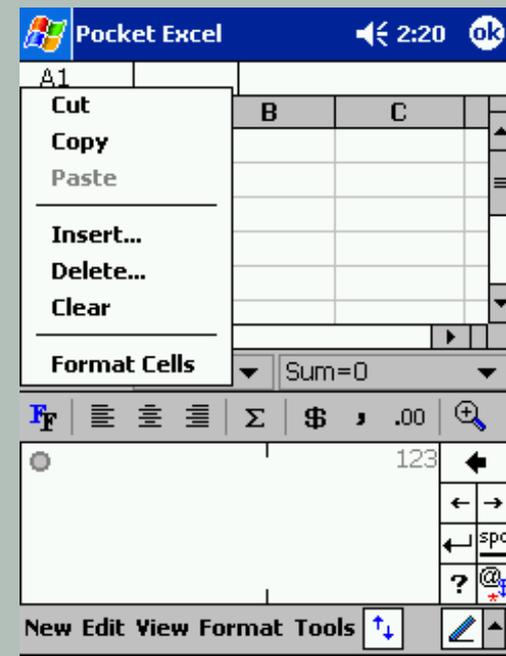
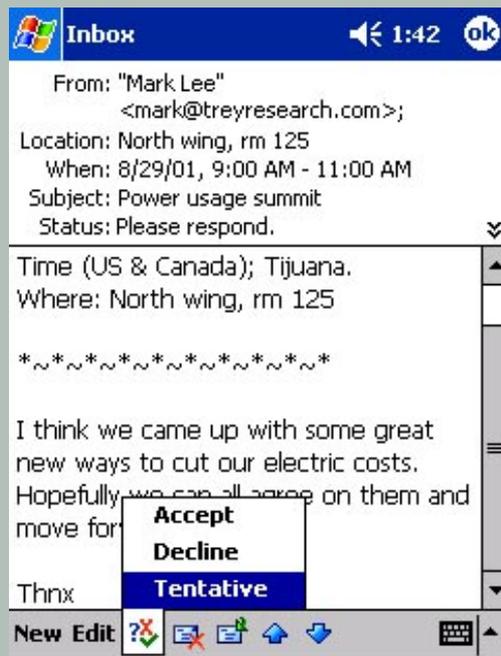
# Java for phones

- Available on a variety of phones.
- Support form-based input:
  - Textbox
  - List
  - Alert
  - Form: Choice, Date, Gauge, StringItem, TextField
- Support a “canvas” mode:
  - Primarily for gaming
  - Full control of the display



# Pocket PC

- Miniature version of desktop Windows.
- Supports a file system.
- Has a multitasking operating system.
- Increasing market share in the PDA arena.





# Flash for Pocket PC

- Flash 5 Player supported/available.
- Macromedia's model is for hardware manufacturers to license the technology.
- Potentially a richer application development environment:
  - Uniform implementation (no worries about availability).
  - Internet interaction supported—perhaps better than Internet Explorer.
  - Richer interaction than with built-in controls.
  - More responsibility on the designer for consistency...



# OS

- Currently the most popular PDA operating system.
- Available also on Kyocera 6035, Samsung i300, Handspring VisorPhone and Treo.





# OS

- Found on RIM Wireless Handheld™ pagers, such as the RIM 857 and RIM 850.
- Simple graphical design, mostly text and icons.
- Input restricted to keyboard and roller wheel.
- User interface is vertically-oriented forms.



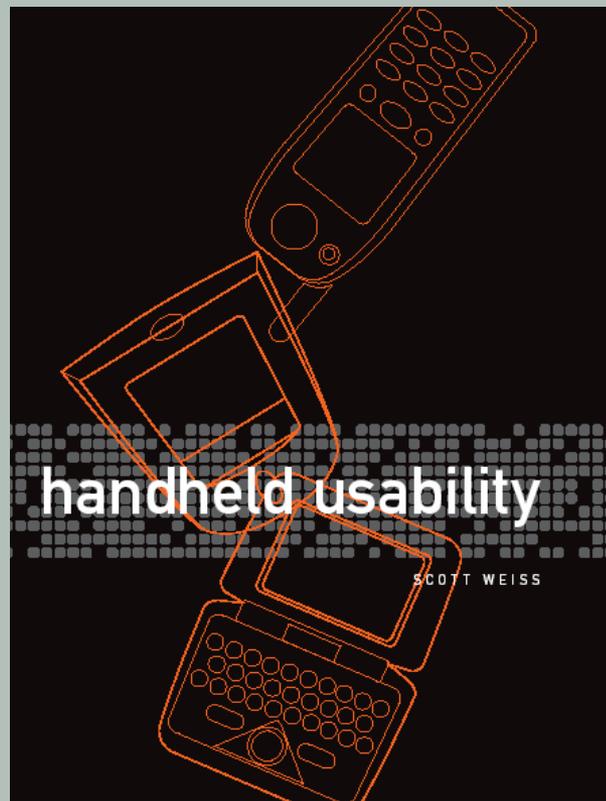


**MOTOROLA**  
intelligence everywhere™

# Wisdom™ OS

- Found on the Accompli™ 009 communicator and Timeport™ P935 pager.
- Rich, graphical user interface that requires a keyboard.





[www.handheldusability.info](http://www.handheldusability.info)



[www.usableproducts.com](http://www.usableproducts.com)