Keys to a Successful Kiosk Application

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Successful Kiosk Applications

Simply using touchscreens in kiosks does not guarantee success.

- **Examine the business model**
- **Software is key**
  - Understand the user
  - User interface and application design
- **Understand the technology options**
  - Input device
  - CRT or LCD?
- **Kiosk cabinet design**
- **Focus group testing**
- **Rollout**

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A Good Idea is Not Enough

Kiosks are a high-risk business.

Consider the following:

- Try to create a win-win-win situation for the location owner, content provider, and user.
- Will the kiosk make (or save) money in the test phase to insure the project is continued?
- Has this application been tried before? Study similar successes and failures.
- How many people will *really* use it? How many will use it more than once?
- Get a commitment that the kiosks will be placed in prominent locations.
- Excellent software is key.
- Choose reliable technology and hardware.
- Use an experienced partner.

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Understand the Public User

- **Completely untrained**
  - Application must be simple and guide the user
  - Best kiosks have a single, specific application or transaction
- **Kiosk use is optional**
  - Must attract their attention
  - Must keep their attention
  - Must never frustrate the user
  - Must deliver wanted information quickly
- **Will walk away for the slightest reason**
- **Must be satisfied or will never return**

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Software Tips

Excellent software is a requirement for success

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Make the Application Intuitive

- **Always make touchable areas obvious**
- **Limit choices**
- **Guide the user as much as possible**
- **Also have simple navigation buttons like Back, Forward, Start**
- **All this prevents frustration which leads to walk-aways or vandalism**

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Avoid Windows Look

- **No title bar, etc.**
- **There should be no indication of the operating system underneath**
- **Users should not think it is a computer**

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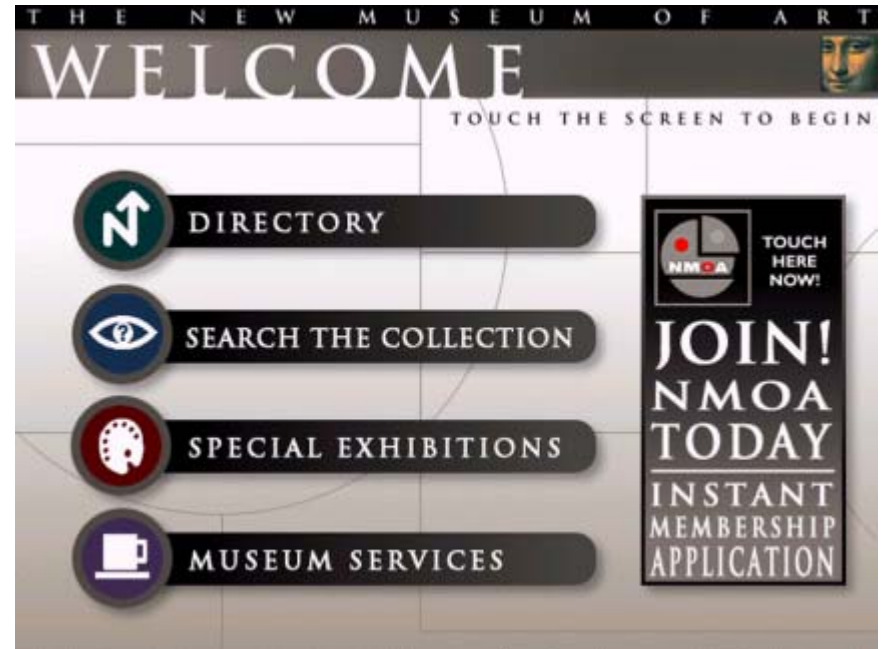
Use a Simple Point-and-Click Interface

- **Large buttons**
  "Rule of Thumb"-sized buttons
- **No double-clicking**
- **No pull-down menus**
- **No scrolling or scroll bars**
- **No dragging**

Do not use your Web site as a kiosk!

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Use Bright, Textured Backgrounds

- **Bright background colors**
  - Avoid black which shows reflections
- **Avoid solid colors**
  - Use a textured background fill or halftones to hide reflections and fingerprints
  - They keep the eye focused in the plane of the image, not on the reflections

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Turn the Cursor Off

- **User should focus on entire screen instead of the arrow**

- **Direct vs. indirect - user should not relate to a mouse**

- **Cursor not needed if touchscreen does not drift**

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Give Immediate Feedback

- **Always give your users feedback as soon as they touch the screen**
  - Touchscreens have no tactile feedback - users must know it "took" or they will touch again
- **Visual highlighting**
  - Use 3-D button depress
- **Sound effects**
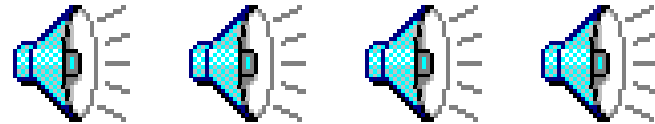 **(click on example):**

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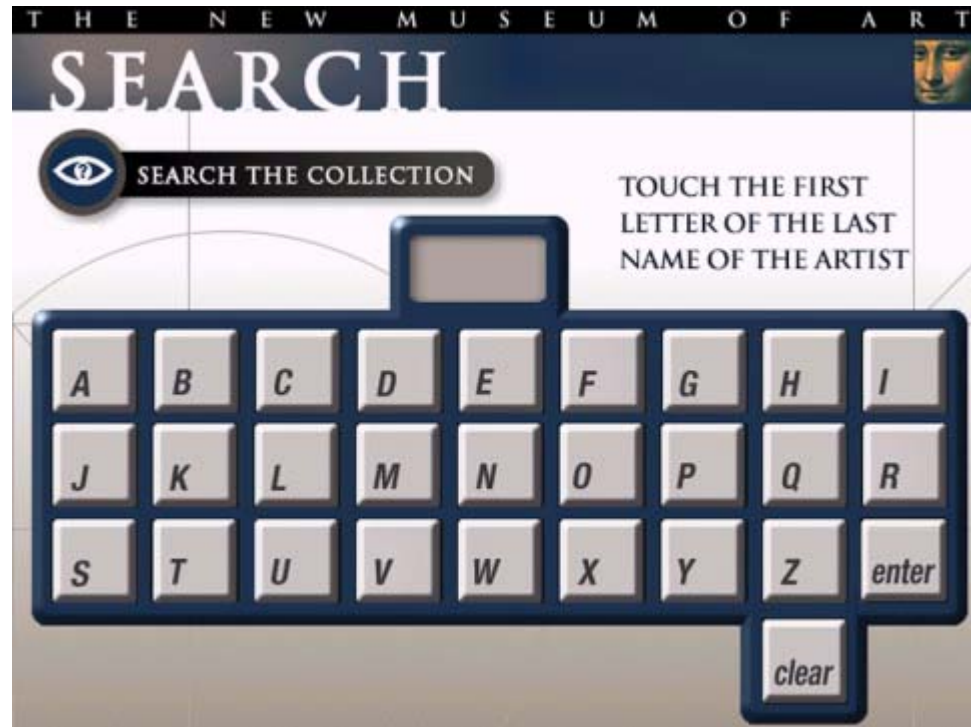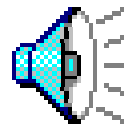
Make Your Application Fun and Fast

Fun

- **Try 3-D "squishy" buttons**

- **Use your customer's language**

- **Use funny sounds on touch**

I'm done

Click for examples
(OK, maybe not the last one!)

Fast

- **Prevents frustration**

- **You want them to use this again, right??!!**

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Limit Amount of Text

- **Large blocks of text are rarely read**
- **Could cause walk-aways**

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Consider Digitized Speech

- **Digitized speech can talk users through your application**
  - Brain can process visual and audio simultaneously
  - Sound cards are free
  - But hire a professional announcer
  - Multilingual versions a plus

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Hardware Choices

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Mouse, keyboard, trackball, or touch?

- **Mouse**
  - Cheap, *but* takes up space, easily stolen, not everyone can use it

- **Keyboard**
  - Fast data input, *but* intimidating even if in combination with touchscreen

    "Keyboards immediately scare away a percentage of potential users who are afraid of computers"

- **Trackball**
  - Cheap, takes up less space, *but* not intuitive, least familiar

- **Touch**

    "Touch displays are preferred by over 80% of U.S. retailers who employ kiosk solutions." – Frost & Sullivan

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CRT or LCD?
Size and Weight

- **15" LCD requires only 40% of space of 17" CRT with same viewable area**
- **LCDs can be wall mounted**
- **Smaller LCDs can lead to overall smaller kiosk**
- **LCD weight much less than CRT leading to shipping cost reductions**

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CRT or LCD?
Image Quality

- **LCD often inferior to a high quality CRT display**
  - CRTs are right choice for ultra-high-resolution applications
  - Dithered color palette on LCD may be objectionable to some users
  - Full Motion Video -- not all of today's LCD displays are quite up to the challenge
- **Viewing angle of CRT much greater than LCD which may attract more users**
- **LCDs are about twice as bright as CRTs**

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CRT or LCD?
Cost

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- **A 17-inch LCD touchmonitor is about 2 times the cost of an equivalent viewing area 17-inch CRT**

- **True flat CRTs look as good and modern as an LCD if you can accept the additional size**

- **CRTs are typically repairable by local TV shops, where LCDs are not – important in remote locations**

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CRT Life vs. LCD Backlight Life

- **CRTs and LCD backlights will eventually wear out and need replacement**

  - Unlike desktop monitors, kiosks are operating 24 / 7

  - Typical CRT life (half-brightness) is 10,000 to 20,000 hours (416 to 833 days)

  - Typical LCD backlight fluorescent lamps last 20,000 to 30,000 hours

- **The two major factors contributing to CRT aging are phosphor aging and cathode aging**

  - Brightness loss

  - Color balance change

  - Loss of focus

- **LCD backlights easier to replace than CRTs**

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LCDs and Touch Applications
Other Strengths vs. CRTs

- **Less power consumption**
  - About 1/3 of comparable CRT
  - Typically run on +12VDC
  - Less heat, and easier form factor to cool in kiosk applications

- **Not affected by magnetic fields**
  - Degaussing metal kiosks (with CRTs) is a serious problem
  - Fans and loudspeakers can cause problems for CRTs
  - Magnetic fields can be encountered in many public and industrial places
  - Any application where movement of the display is involved favors LCDs
  - LCDs can be shipped worldwide with no video geometry issues
  - Setup of LCD is essentially perfect and permanent

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Native Resolution of LCD

- **Unlike CRTs, application software must be written specifically for the correct resolution to look best**
  - Otherwise image is stretched by replicating pixels periodically

    Small text will look bad

- **"Native Resolution" is determined by the size of the panel, for example:**
  - 10.4" = 640x480
  - 12.1" = 800x600
  - 15.1" = 1024x768
  - 17", 18" = 1280x1024

- **Dot pitch is fairly constant (about 0.3mm) across panel sizes**

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Expect LCD Pixel Defects

- **LCDs will typically have defective pixels out of the box**

- **Your customer must understand this in advance**

- **Same software tips which hide fingerprints and reflections also hide dead pixels**

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Cabinet Design Tips

- **Design and color should match**
  - Company colors
  - Image
  - Decor
- **Kiosk cabinet should not show fingerprints**
  - Test finish
- **No flat surfaces**
  - Avoid spills — don't have any place where they might set down drinks
- **Have proper ventilation**
  - No intake near floor
- **Best viewing angle**
  - Minimizes differences in user height
  - Beware of overhead lights

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Full Enclosures vs. Countertop

Full Enclosure Advantages

- **Unattended 24/7 operation**
- **Resistant to abuse**
- **Accepts many peripherals**
- **Reinforced branding with design & graphics**
- **Outdoor**

Countertop Advantages

- **Mobile and versatile**
- **1/4-1/2 the footprint**
- **1/4-1/2 the cost**
- **Can be incorporated into existing retail fixtures**
- **Off-the-shelf availability**

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Criteria for Choosing Your Kiosk Form

	Full Enclosure		**Countertop**
• **Functionality**	Flexible computer	←→	All-in-one computer
• **Price**	Expensive	←→	Inexpensive
• **Space**	up to 0,9m^2	←→	0,2m^2 or less
• **Mobility**	Fixed location	←→	Frequent floor changes
• **Security**	Unattended, 24/7 use	←→	Supervised use, store hours
• **Peripherals**	Many	←→	Limited
• **Cash handling**	Full enclosure typically required	←●	
• **"Branding"**	On enclosure	←→	Choose attractive design and brand with software or signage
• **Rollout/upgrade**	May need long-term dimensional stability	←→	Short model lives
• **Staff cost vs. value of transaction**	Low-value transactions / high staff cost	←→	High-value transaction / low staff cost

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Outdoor and Unsupervised Locations
Anti-Vandalism and Weatherproofing

Needs a well-engineered kiosk

- Sunlight-readable display
- Armored touchscreens
- Metal/molded casings
  - Avoid wood in tropical areas even indoors
- Waterproof seals
- Robust locking systems (multi-point)
- Protection for printer/card slots
- Internal design for liquid run off, slot entry
- Air conditioning, humidity control (use low power PC to minimize)
- Component selection
  - Temperature rating >60ºC
  - Typically internal temperatures 10-20º > ambient
  - Heating needed for < 0ºC (32º F)
- UL/Agency approvals for outdoor electronics enclosures required for waterproofing and safety

Compliance Issues

Most countries now have substantial requirements

- **EMI/RFI**
  - Requires careful routing of wiring (even if components separately approved)
  - LCDs can be a significant problem at present

- **Electrical Safety**
  - Must comply with wiring standards

- **Fire Safety**
  - Materials must comply with standards

- **Other**
  - In Spain, credit card readers must retain stolen cards

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Printer Tips

Biggest cause of problems is printers

- **Need rugged kiosk printer, not a receipt printer**

- **Speed is an issue**

  - Aim for <2 second delivery

- **Thermal printer best compromise**

- **Printout should fit in shirt pocket**

- **It should pull back and discard printouts not taken**

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Installation and Rollout

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Test Your Kiosk Before Deployment

Management may kill project if field test is unsuccessful (profitability not demonstrated)

Get it right the first time:

- **Test software internally with focus groups**
  - Use people off the street, not employees
  - If they scratch their head, change the software!
  - Use new testers after each change
- **Small, low-key field trial (2 locations)**
  - Interview employees near kiosk
  - Watch how people are attracted to kiosk
  - Measure usage
    - Number of users
    - Times of day
    - Average use time
    - Last screen before exit/timeout

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Kiosk Placement

- **Do not locate in back of store**
- **Point towards foot traffic**
- **Staff should not feel threatened by it**
  - Get staff "buy-in"
  - It should make their job easier and they should recommend it
  - If staff does not like it, it will not be successful
- **Attraction audio loop should not be annoying**
  - Staff will turn it off immediately

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Keep it Running

- **Non-performing kiosks is major industry problem**
  - Select reliable components
  - Monitor kiosk through network
  - Sensors for paper out, CPU down, vandalism
- **Properly maintain it**
  - Keep clean
  - Does the printer work?
  - Make an employee responsible for it
- **Easy replacement of consumables and parts**
  - Minimize downtime
  - Minimize spares holding

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Ongoing

- **Keep content and signage updated or usage will decline**

- **Improve software -- simpler, faster, better!**
  - Track which screens were most viewed, and make these the easiest to find
  - Track most frequent walk-away screens, and correct the reasons why

- **Perform regular inspections and interviews**

- **Move units that are not widely used**

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