

Interaction to the future

about Human Computer interaction



By Daniel Voyager

Technology Outlook

Human Computer Interaction

What about “HCI”?

HCI (Human Computer Interaction) defines the way we communicate with computer devices and systems



by screen_interfacedesign

This is the main bottleneck in today's computer technology Especially in smartphones, netbooks and other small devices:

- Lack of alternatives to mouse, keypad and monitor
- Too small keypads in small devices
- Too small monitors in small devices



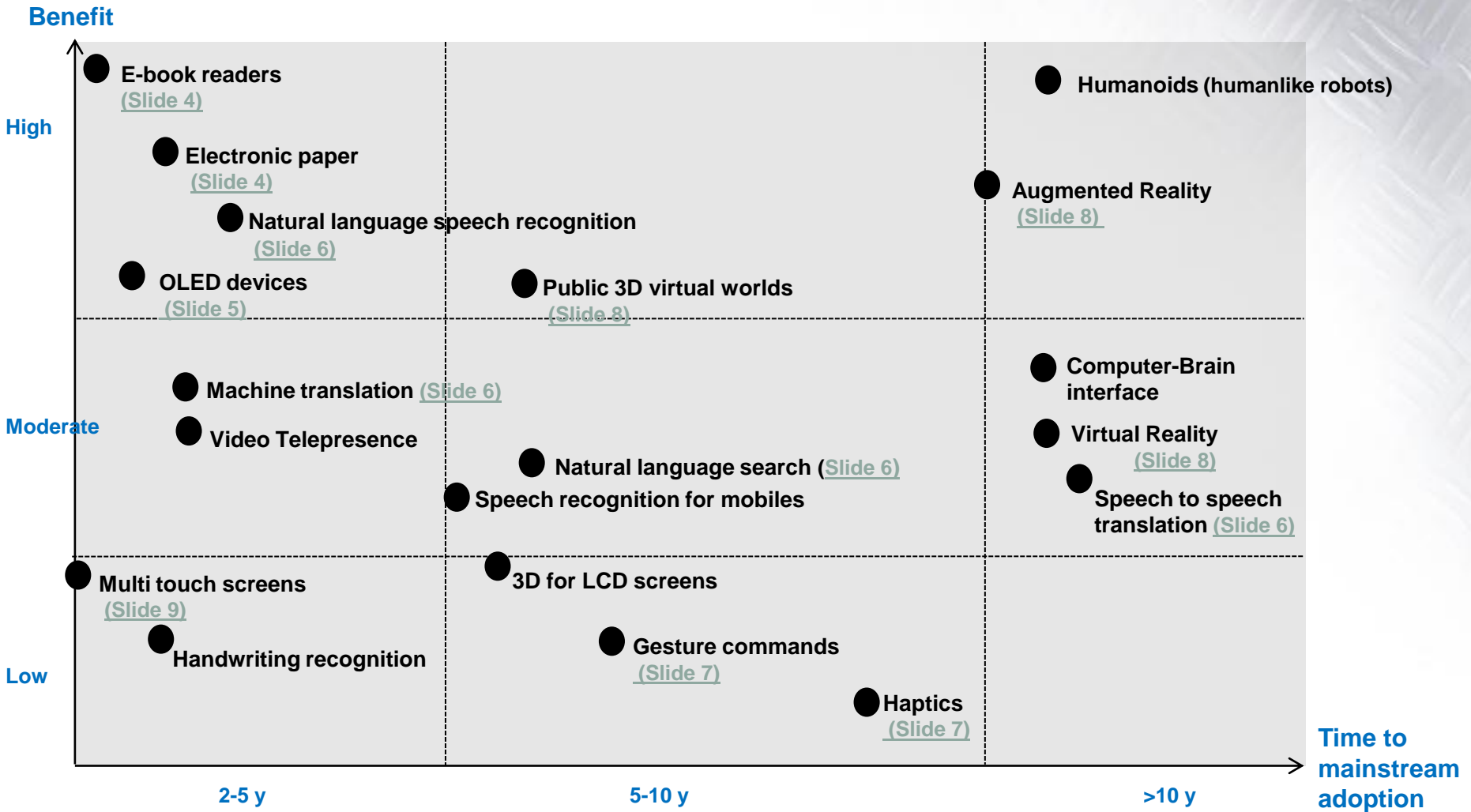
by marcopako

Means time consuming interactions, low quality and inefficient work

New display technologies and alternatives to the standard keypad/mouse and monitor are on the way. When appropriate they can increase efficiency, quality and usability

Human Computer Interaction

Years/Benefit



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Display technologies

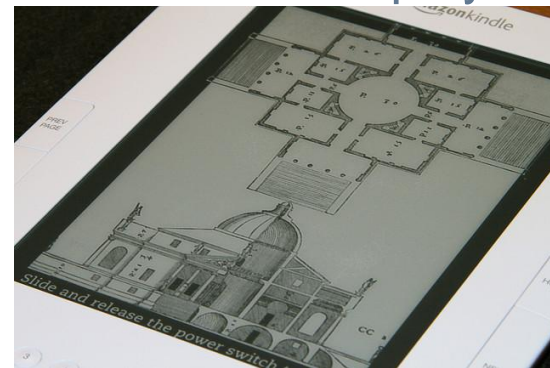
E-readers: A thin light display that can store large amounts of documents. Viewed with **close to paper-feeling**. They will be further developed and combined with devices such as smartphones. Can this technology be used for Head-up displays in vehicles?



Electronic paper: Nearly paper-thin display materials that can be viewed without consuming power. Will start an era of new display product types.



By OfficeNow



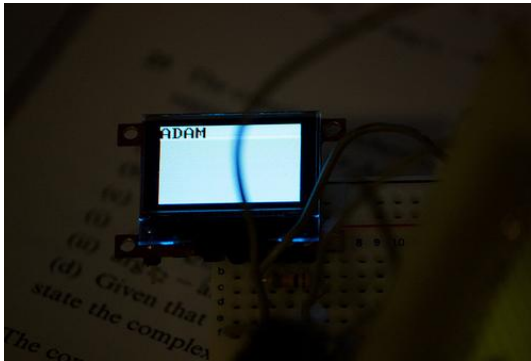
By Yutaka Tsutano

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Display technologies (cont.)

OLED (Organic light-emitting devices): A technology that can be used for very thin TV's and displays. The relatively low power consumption make it also interesting for **smartphone displays**. Further developed it can be used as **bendable/flexible screens**.

Devices and TV's with OLED technology is **already out** on the market. There are **still issues around product lifetime and cost** that are supposed to be solved.



By Randomskk



By MShades

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Voice, speech, natural language

- Next generation **smartphones** will be controlled by voice
- In the 5-10 years to come, the **speech to text** technology will be more developed and so also **speech to speech translation**
- In-vehicle systems can already **read emails for the driver**
- **The Pick-by-voice prototype** is a Volvo example of voice commands for picking orders
- PC's with a **speech command interface** will become mainstream, maybe 5 years from now
- **Machine translations** will be integrated in systems and devices and with increased quality
- **Natural language speech recognition** evolves and will boost to the trends above



By cbowns

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Gesture input and haptics

Gesture recognition will be combined with touch screens and voice. Simple forms can be found in the latest smartphones (for example iPhone and Palm pre)



By [TheAlieness_GiselaGiardino](#)²²



By [dam](#)

Haptics is when the system produces sense feedback. For instance giving realistic resistance when you touch a virtual 3D object. Probably more than 10 years before this is mainstream.

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Augmented & Virtual reality and Virtual Worlds

Augmented Reality development will take more time to become mainstream. It is hard to find good business cases before the technology is further developed and more comfortable.

Second life is an example of a virtual 3D-world. This kind of interface can be used as a collaboration tool but can also give an increased usability in applications.



http://commons.wikimedia.org/wiki/File:Slateliterates-secondlife_bots_GroysWeibelWyssSloterdijkRihm-01-screenshot.jpg

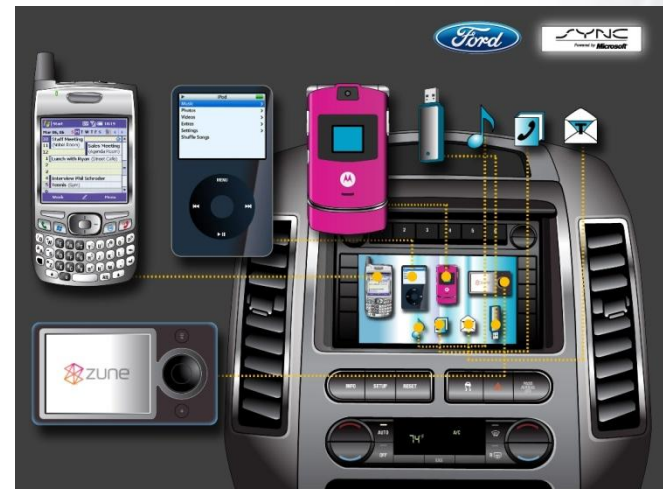


By [John E. Lester](#)

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Some other technologies

- Microsofts Surface board is an example of a multi-touch screen. Used by BMW as a configuration tool for the customer. The game console Wii mote can be used as a **low cost** multi-touch device
- **Interoperability** is a key issue, especially for the automotive industry. Currently, the Ford and Microsoft initiative with SYNC looks very promising.



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Conclusions

- Better input/Output solutions are essential. Usability is the key. It both increases **efficiency** and generates better **quality**.
- **E-readers** is the most promising HCI trend in the near future (~2 years)
- A fey years later later will the mix of **OLED** technology, **electronic paper** and **flexible screens** change the display market noticeably
- The mix of **natural language recognition** and **speech to speech translation** will be the next wave including **natural language search** etc.



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