Future of HCI

Historic developments

Where are we now?

What about the future?

Views of where we might be in 2020

What trends or future directions might we predict?

Microsoft Research

- Being Human - Human-Computer Interaction in the Year 2020 – Microsoft paper on Moodle

- Pivotal significance in 21st century

- recognition that any new direction for HCI would need to place human values at its core.

- focus on how computers can support human-to-human concerns, rather than simply human-machine interaction

Microsoft Research

1. Look back over the past 20 years
2. How these changes are transforming the nature of our interaction with computers, and specify key questions that need to be addressed in the next few years as a result
3. Human-Computer Interaction (HCI) as a field of research - how the field can move forward by focusing on human values.
4. Recommendations, suggestions for HCI in terms of how the field needs to change.

Being Human....

The question persists and indeed grows whether the computer will make it easier or harder for human beings to know who they really are, to identify their real problems, to respond more fully to beauty, to place adequate value on life, and to make their world safer than it now is.

Norman Cousins – The Poet and the Computer, *1966*

Future Research….

- Ask new questions about how we ought to interact with technology in this new world

- Our concepts of how the mind works will affect the way we design technologies to support memory, intelligence and much more

- Implies strong links with other disciplines e.g. Arts

Our World…

- The world we live in has become suffused with computer technologies.

- They have created change and continue to create change.

- It is not only on our desktops and in our hands that this is manifest; it is in virtually all aspects of our lives ….. in our communities, and in the wider society of which we are a part

What will our world be like in 2020?

- Digital technologies will continue to proliferate
- But will such developments improve the quality of life, empower us, and make us feel safer, happier and more connected?
- Or will living with technology make it more tiresome, frustrating, angst-ridden, and security-driven?
- What will it mean to be human when everything we do is supported or augmented by technology?

Positives and Negatives

- People may use technology to pursue healthier and more enjoyable lifestyles, expand their creative skills with digital tools, and instantly gain access to information never before available.

- On the other, governments become more reliant on computers to control society, criminals become more cunning via digital means, and people worry more about what information is stored about them.
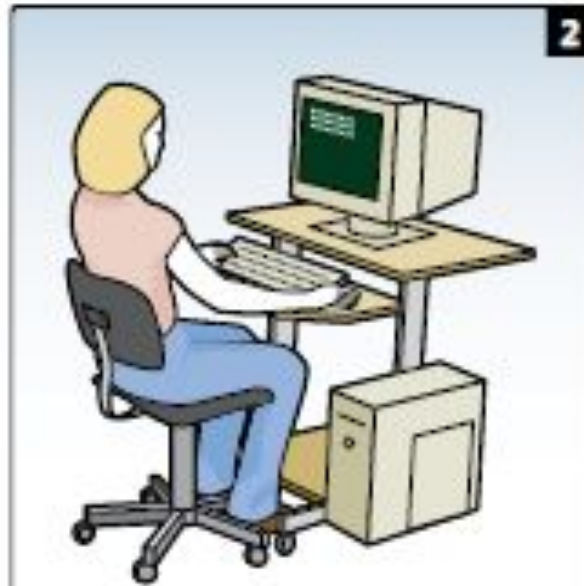
The World is Changing!

- Computers are now embedded within a huge range of materials and artefacts, and take on roles in almost all aspects of life.

- People and lifestyles are altering.

- These changes may be spurred on by technology, but other times work in parallel or provoke technological innovation.

- There is a global scale of change which is taking place hand in hand with new technologies.

- This gives rise to tensions
  - between individuals and governments, and between
  - globalisation and cultural diversity.

1960s ....to 1980s

1960s: Mainframe Era
One computer per many users.

1980s: Personal Computer Era
One computer per user.

2000s ....to ....2020?

3 2000s: Mobility Era
Several computers per user.

4 2020 and beyond: Ubiquity Era
Thousands of computers per user.

History…

- There have been various computer-driven revolutions in the past:

- widespread introduction of the personal computer(PC)

- invention of the graphical browser (GUI)

- Internet

- Mobile devices… etc

3 minute brainstorm

- In pairs (or 3's)

- Name 3 of the main interactive devices/ technologies/computing products
  - That are around today
  - That were not around 15 years ago

Some visions.......

- Microsoft's vision of the future of Computing 5.46 min
  http://youtu.be/DGFE4G3x4fk

Future Timeline Events 2020-2029) 7 min

- http://www.youtube.com/watch?v=1Lmd3l0W5JI

- Nokia Future Vision 3.12 min
  http://youtu.be/A4pDf7m2UPE

Changes…

- Computers affect how we undertake many activities – from buying food to paying our bills

- They do so in ways we might not have imagined when the first PC was introduced

Changes…

- Wholly new experiences, for example, allowing us to inhabit virtual worlds with people from many different parts of the world.

- Computers have taken over from older technologies in many ways e.g. digital photography

- The world, now, seems so much smaller than it was even a decade ago.

- http://www.youtube.com/watch?v=L3w9z6CJZyU

How has technology changed lives?

- GUIs to Gestures

- VDUs to Smart Fabrics

- Handsets to the World in our Hands

- Simple Robots to Autonomous Machines that Learn

- Hard Disks to Digital Footprints

- Shrink-Wrapped to Mash-Ups

- Answer-Phones to Always-On

How has technology changed lives?

- ' New data sources are available to us all the time. We are all fast becoming content producers, publishers and developers as much as we are consumers'

Changing Lives

- Learning Differently

- New Ways of Family Living

- New Ways of Growing Older

□ **Audiovox's Digital Message Center is designed to be attached to the refrigerator, letting families scribble digital notes and leave audio and video messages for each other.**

3 minute Brainstorm

- Give an example of each:
  - Learning Differently
  - New Ways of Family Living
  - New Ways of Growing Older

Changing Societies

- Governments are using computers and, in particular, theWeb, in more ways than ever
  - to inform their citizens (eg sickness benefits, visa requirements etc)
  - to gather information about them (eg online tax forms, voting online)
  - Cameras take pictures of car number plates to automatically bill owners for road taxes and tolls to congestion charges.
  - Identity cards and passports have increasing amounts of digital information embedded in them that can be readat passport controls.

Changing Societies

- Opinions about what information governments need and ought to have, and what citizens ought reasonably to provide are changing.

- Just as governments are using new technologies to change how they do business, so too are the public using them to change their governments.
  - The use of mobile phones to mobilise demonstrations is a recent case

Changing Societies

- By 2020, there will be very few people left on the planet who do not have access to a mobile phone.

- The mobile will become an increasingly important platform for computer applications for economically growing countries.
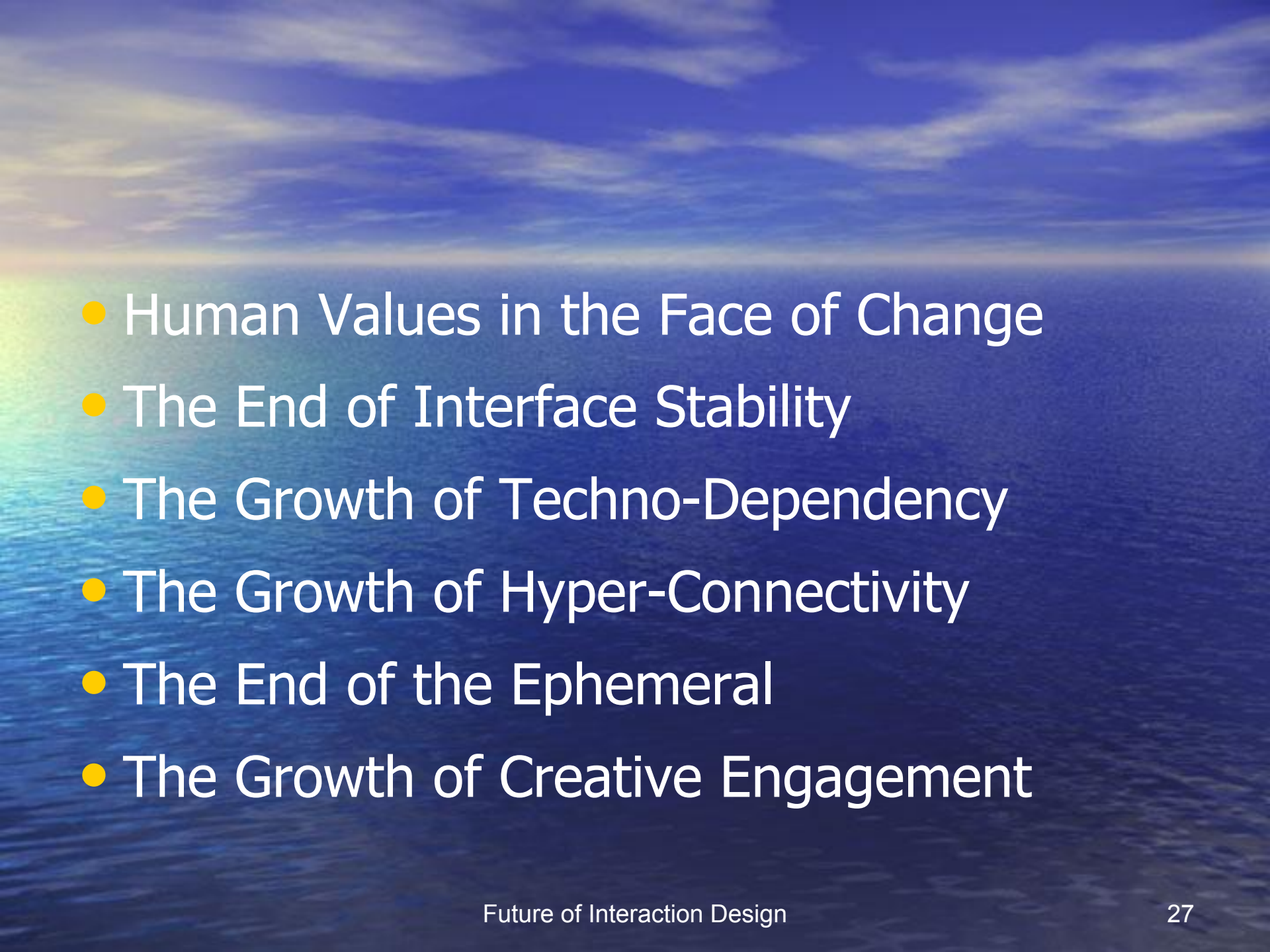
Changing Societies

- People who have been acquiring mobiles in Africa may not be computer-literate.

- May be unfamiliar with concept of information hierarchies, making it hard to understand hierarchical menus.

- Concepts that are familiar to their culture and the local ways of doing things may instead become more common-place as we move toward 2020.

The next thing in the digital economy? Visa Micro Tag does away with the need to swipe a credit card or give your card to the cashier. Just wave the tag in front of a secure reader and the payment is made. □

Future of Interaction Design

Transformations in Interaction

- Major transformations that are dramatically affecting how we interact with computing technology as we move towards 2020

- Human Values in the Face of Change
- The End of Interface Stability
- The Growth of Techno-Dependency
- The Growth of Hyper-Connectivity
- The End of the Ephemeral
- The Growth of Creative Engagement

In Vodafone's vision of the
future, young musicians will be able to create
music with friends in remote places, all following
or creating a musical score together. A
wraparound screen shows video images
of friends and displays the digital score.

Microsoft's 'Surface' is an interactive tabletop allowing two-handed interaction with digital objects such as photos, music files, games and maps. These kinds of interactive surfaces encourage collaborative, creative engagement.

HCI: Looking Forward

- HCI needs to extend its methods and approaches so as to focus more clearly on human values

- HCI will need to form new partnerships with other disciplines

- notions of the 'user', the 'computer' and 'interaction' are no longer sufficient

Activity

- Design a phone for the year 2020
  - How will it will be used?
  - What features will it have?
  - Who will use it?
  - What will they use it for?
  - What new technologies (which do not exist at present) would you like to see to make the device more 'usable'
  - What will you call it?