

# Ten Futures

# Kakadu

- If I ever write a book, I am going to call it Kakadu



- People say the future is impossible to predict... nonsense
- We predict the future all the time
- The future is no less uncertain than the past

- How to predict the future: my old slide - we see the future in the same way that we see the past, by reading the signs

- In this talk - I will offer a set of predictions of the future
- The point of these predictions is not so much to predict, but to show *how* to predict
- So... on to the predictions

# 1. The Pragmatic Web

- The semantic web may or may not give us meaning...
- But it doesn't give us context
- Charles Morris (1938) *Foundations of the Theory of Signs*  
[http://en.wikipedia.org/wiki/Charles\\_W.\\_Morris](http://en.wikipedia.org/wiki/Charles_W._Morris)
- Eg.



- The pragmatic web:
- Your tools know...
  - who you are and what you're doing,
  - who you've been talking to
  - what you know
  - where you want to go, where you are now
  - what the weather is like outside.

- The pragmatic web...
  - is chock-full of information
  - but none of it is off-topic
  - and none of it is beyond your understanding

- The pragmatic web...
  - isn't just a web you access, read to and write to
  - it's a web that you *use* every day

- What do we learn from this...?
- A: x,y,z
- B: x,y,??
- Patterns repeat - what we see in one domain (and *especially* the theoretical domain) often shows up in another domain

## 2. Global Intelligence

- Our computers may be smart...
  - Think *Big Blue* and other feats of intellectual strength
- But our computer *network* will dwarf that intelligence

- This won't merely be the 'invisible hand' of the marketplace, this will be the whole body
- And it won't be based on one dimension, like 'value', but will range across a multiplicity of measures

- it will be composed of multi-dimensional interactions of wide varieties of media, including all of what we call 'media' along with:
  - Money, votes
  - Population movements (aka traffic)
  - Utilities (power, water, gas, oil) and resources (minerals, food) and more.



- We won't understand it
- We won't know what it is trying to do, what it wants, what it thinks are 'good' and 'bad', or whether it is even sane and balanced.
- (Of course, there will be no shortage of evangelists claiming to 'see') the global mind

- The global mind will not affect, and be indifferent to, individual humans
- The global mind is the sort of thing that raises questions about:
  - the meaning of life
  - the value of ethics
  - and the nature of knowledge.

- How will we answer these questions?
- Our answers to these questions over the next few decades - even as global climate change and wars and natural disasters ravage our populations - will shape the course of society through the next centuries.

- What do we learn? A couple of things...
- First of all, combinations of things happen, and are very powerful - don't just generalize from the single case
- Second, a lot of what happens in the world is outside our own ken - knowing what the mysteries will be is as important as knowing what the facts will be

# 3. Extended Reality

- Today, we distinguish between:
  - The ‘real world’ of physicality
  - The ‘virtual world’ of the digital
- In the future, this distinction will blur
- The non-physical will be seen to be as ‘real’ as the physical

- This is not just a conceptual blurring...
- We will have full sensory coupling with the virtual world, making the virtual world every bit as 'real' to us as the real world...
- For example, if it 'hurts' in the digital world, it 'hurts', period.

- What will emerge as the combination of the two is a kind of 'hyper-reality', where objects exist both in the physical world and the digital world
- think 'Spinoza' rather than 'Descartes'



- The physical world and the virtual world will act as one; eat in the 'virtual' world and your body (such as it is) in the 'real' world will be nourished.

- How could this ever be? We already have a great example: money
- Is money real or virtual?
- When we spend it, do we exchange it for real or virtual goods?

- Money can be either real or virtual - that's what makes it so useful
- But when money was tangible - when it was *gold* - it would have been the *last* thing we would have thought could go virtual

- Compared to money, converting virtual entities to (say) food or drugs, delivered via bio-neural devices, is child's play

- What do we learn?
- Sacred cows... aren't
- Things we think are permanent and forever almost never are
- The thing you think 'could never change' will create the most change when it ends

# 4. Mobility

- We will become nomadic again
  - (Nomadic in the sense of long-term slow movement, not the breakneck commuting behaviour we see today)
- We will graze on energy and information, as it becomes available

- This won't be an idle phenomenon...
- People who are 'rooted' will be thought of as social misfits, unable to adapt...
- Why would we do this?



- First, we will no longer be in want
  - Production will become abundant
  - There will be no single ‘means of production’ owned by a single class of people; *everyone* can create wealth
  - Hence, there will be no wealth, no artificially imposed scarcity
  - Hence, there will be no need to hoard

- Second, we won't want so much
  - Consumerism, as a philosophy, is simply not viable in the future
  - Consumer goods (eg., books) will become expensive and impractical - a “wealthy man's folly” (material wealth will be seen as odd and eccentric- and indicative (accurately) or probably criminal activity)

- What do we learn...? Values matter, but
- Our values, our 'way of life' is learned...
- Change the environment - remove, say, scarcity, or cheap oil, and our way of life and values change
- Be sure to ask, what *would* you value, if things were to change?

# 5. The Human Grid

- Human minds are:
  - Efficient and effective processing systems
  - Able to assimilate megabytes of information in seconds
  - Excellent pattern recognition devices
  - Good at making decisions
  - Good communicators, skilled at language and arts

- Hence, human contributions to the ‘economy’ ...
  - (that is, the system of production of material goods for the sustainment of life)
- Will consist of providing ‘inputs’ to the machines that actually do the work
  - (like, say, ‘driving’ a tractor)

- We will derive value by enabling human minds to cooperate in the coordination or operation of elements of production.
- But how.....?

- We contribute our thoughts and opinions on everything from celebrities to the weather to tomorrow's sports scores
- From this, computational systems will derive the algorithms that will process iron ore, grow grain crops, and harvest energy from the wind and the Sun.



- Pop culture is a metaphor for the instruments of production
- Human cognitive capacity can be mined directly by tracking thoughts and opinions about popular phenomena
- Productive capacity will thus be 'steered' by human thought

- If this seems implausible, think about how a *sports team* (the Roughriders, say) can be used as a measure of social and economic well-being (Saskatchewan, say)
- Think also about how the *advertising industry* mines pop culture to identify consumer trends

- The collection of these thoughts and opinions from a network of people, all interacting with each other in an environment that includes entertainment, sports and other pastimes that engage the mind will be called the 'human grid'.

- What do we learn?
- When the environment changes - where do we derive value?
- History of art is illustrative - when photos became the standard for realism, artists invented surrealism, depicting things that could not be photographed

# 6. Smart Objects

- Bruce Sterling's *Distraction* - the hotel that instructs its crew how to build it

- The objects will be *connected* to other objects...
  - The smart fishing rod
  - The jar of strawberry jam
- Objects will be able to...
  - Sense compliance with you
  - Know where they are, what else is around
  - Offer their services (or at least assist the room to converse with you)

- Your use of a product will cause a whole ripple of effects in the network...
  - Your data and artifacts will follow you in independent transport systems
  - Global production systems will monitor and react to resource usage (eat some strawberry jam, and somewhere, a strawberry plant will be planted)



- What do we learn?
- First - learn from gifted observers - eg. Science fiction writers
- Second - predicting capacities is easy - but remember to predict the existence of the capacity *everywhere*
- Think, eg., o 'writing'

# 7. Holoselves

- Your day today...
  - shift your sensory input matrix to the holoself sitting down at the desk for the meeting in Denver...
  - lunch-time walk, so you transfer to the next holoself, which has been waiting patiently (like a book on the shelf) for you to pick it up in the Amazon eco-reserve.

- Stint as a comet-watcher (volunteer, using the Hubble 4 space telescope)
- Meeting in Zurich
- Then settle in with your 'real' self in Cairo for a nice evening meal and a show at the Pyramids.

- Holoselves...

- Are *not* (necessarily) virtual - may be any combination of biological, mechanical and virtual artifacts
- They are, for all intents and purposes, artificial humans (of various forms)
- When occupied, have all the rights and responsibilities of a human

- Holoself practice...
  - People prefer their own holoselves, but will share (especially if it's an expensive piece of machinery)
  - Cognition takes place partially in the holobrain, partially in the human brain

- Virtual identity...
- Questions of identity become moot: asking 'am I the same person in Denver as in Cairo' is like asking 'Am I the same person tomorrow as I am today?'

- Holofads...
  - People spending ‘relaxing’ time as holo-birds, holo-fish, etc.
  - Transborgs - holos made of multiple people, each of whom plays the role of a ‘sense’ or ‘function’
  - Holo-splitting - occupying two holos at once



- What do we learn...?
- First - inventions often serve a purpose - eg., to give us mobility after the age of mobility has ended
- Second - remember to keep in mind that the way we *perceive* can change - and this produces affordances (global village, eg)
- Third - people will misuse technology

# 8. Living Art

- Words and sentences will be abandoned as the dominant mode of communication
- People will begin to use multimodal artifacts as ‘words’
- We see this already with lolcats and YouTube videos

- Our powers of expression (and the tools that help us) will become increasingly sophisticated
- Hence, so will our expressions
- Some of these may qualify as 'life' (and will certainly qualify as art)

- Examples abound in Harry Potter...
  - A wizard wouldn't write a note, a wizard would send an owl
  - The artifact (owl) does not 'carry' the message, it *embodies* the message - it *is* the message
  - You don't 'read' the owl, you interact with it, have a conversation with it

- Communications...
  - Is usually thought of as a way to ‘carry’ or ‘convey’ information... and may still do this
  - But it will actually *be* the information - and may be all aspects of the information the receiver may need or want

- Expressions...

- May be sentences, but also...

- May be conventional icons (eg., sending a white rose)...

- May make points via references to pop culture, etc. (the only genuine sense of 'shared meaning')

- Unwanted messages...
  - Living graffiti will have to be sprayed off ways and fed to organic recycling
  - Spam messages will exist, but will be edible (“the best place to advertise,” said boy genius Chang Wei in 2028, “is in their *food*, because almost *everybody* eats.”)



- What do we learn?
- The misuse of tech, again
- Tech isn't just machines, especially in the future
- Fantasy implies potentiality - 'Any sufficiently advanced science is indistinguishable from magic' - Clarke

# 9. Global (Non-)Government

- A bit obvious, but: 'nations' will become obsolete
- This will be caused mostly by the clamour of refugees from Europe and America trying to get back into their ancestral homes - China, India and Africa (the economic powerhouses)

- Government...
  - Not of geography, but of sectors
  - (eg. Standards councils, professional associations, trade groups, etc)
  - Nations will never again be allowed to govern some things - eg., fisheries, which they ruined in the 2000s
  - other industries - aviation, telecommunication, food production, finance - are already being governed in this way.

- How it will happen...
  - The result of mass-democratizations movements of the 2050s following mismanagement by oligarchic sector councils
  - Will probably follow significant disaster
  - The ‘free movement movement’
  - The war between government and corporations, and resulting power-sharing agreements

- Government will 'disappear' ...
  - No elections - people will cooperatively manage the sectors in which they are involved
  - Management (which depends on coercion) will disappear - decisions will be made via network processes ('the invisible body of society', some will say)

- each person will create creatively and 'pseudo-entities' composed of temporary collections of simultaneous inputs will achieve corporate outputs. That's how the first mission to Mars will be managed.

- What do we learn?
- Kingdoms didn't last forever (ridiculous stories of galactic emperors) and neither will representative democracy
- Remember to factor in utility and convenience - and the dogged resistance to control



# 10. Cyborgs

- The easiest prediction of all...
- The only thing preventing us from doing it now is our inability to make technology small and complex enough
- This will be solved in our lifetime

- But - as people like Ray Kurzweil point out, it will be much more than that...
- with biocomputing and nanotechnology we will be able to build, say, neural nets that can be installed alongside our existing cerebellum and can take over functionality as the original equipment wears out.

- Initial successes...
  - Artificial perception
    - Replacing eyes, ears, nose, etc...
    - Replacing sensory processing, eg. The artificial hippocampus

- The Psychology of Cyborgs...
  - Are you still human if you're a ship?
  - Can a person be a ship and not become insane? (and how would we know?)
  - How do you entertain a ship?

- When metaphor becomes reality, it will be a major issue - and a right - to be apprised of your real situation
- (There will be really seriously bad cases of virtual enslavement, holo-delusions, and the rest)

- 'Ways of thinking' tend to become reality...
- In the past, after we moved from concrete to abstract, the abstract became real
- Today, we are moving from the abstract to the metaphorical, from the word (from logos, from logic) to the creative, to the multimodal, to the emergent
- We study ourselves, our artifacts, not to see what the world is, but to see what the world *will be*