

The Future of Sensory & Consumer Science

A personal perspective

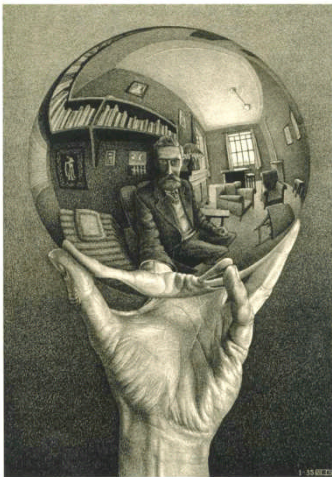


Slide 1

Dominic Buck
product perceptions



- “a personal perspective”.....why me?
- consumer and sensory research:
 - the change in *rationale / requirement*
 - the change in *process / approach*
 - the change in *communication*



Slide 2

“a personal perspective”.....why me?

My **early career** coincided with exciting times in consumer and sensory science

- Innovative methodologies presented at MRS conferences
- Clinical psychology methods adapted for use with consumers:
 - Rep Grid; Perceptual Mapping
- Universities and research institutes_really driving advances in sensory science
 - Pref-mapping ; GPA; Magnitude Estimate Scaling
- Advances in personal computing power
 - Real-time modelling and multivariate analysis



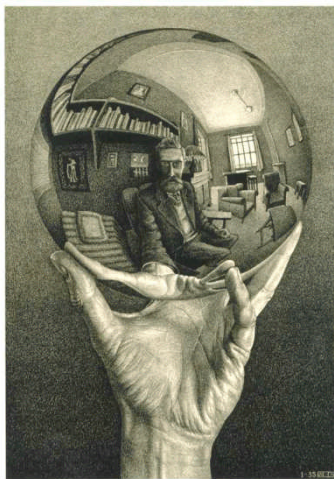
Slide 3

“a personal perspective”.....why me?

Whereas **now**.....

.... we again have exciting times in consumer and sensory science!

- Innovative methodologies presented at ‘New Research’ webinars
- Clinical diagnostic methods adapted for use with consumers:
 - fMRI, EEG
- Universities and research institutes_really driving advances in neuroscience
- Massive advances in personal computing power and continued growth of social networks



so I can provide an historical perspective on ...



It's a time of **unprecedented change** and this is an **exciting time** for sensory & consumer research

And change is on a broad scale

Not only ..

➤ technology

- unprecedented access to sophisticated electronics
- Web 2.0 ...(and Web 3.0 on the horizon)
- increased ability to 'read' brains
- social networks and their impact on communication

.. but also:

➤ the economy

- world recession but ...
- shift in economic power

..And hence, also:

➤ business needs

- added value, speed, cost: all under greater focus
- need to innovate and bring to market quickly



Slide 6

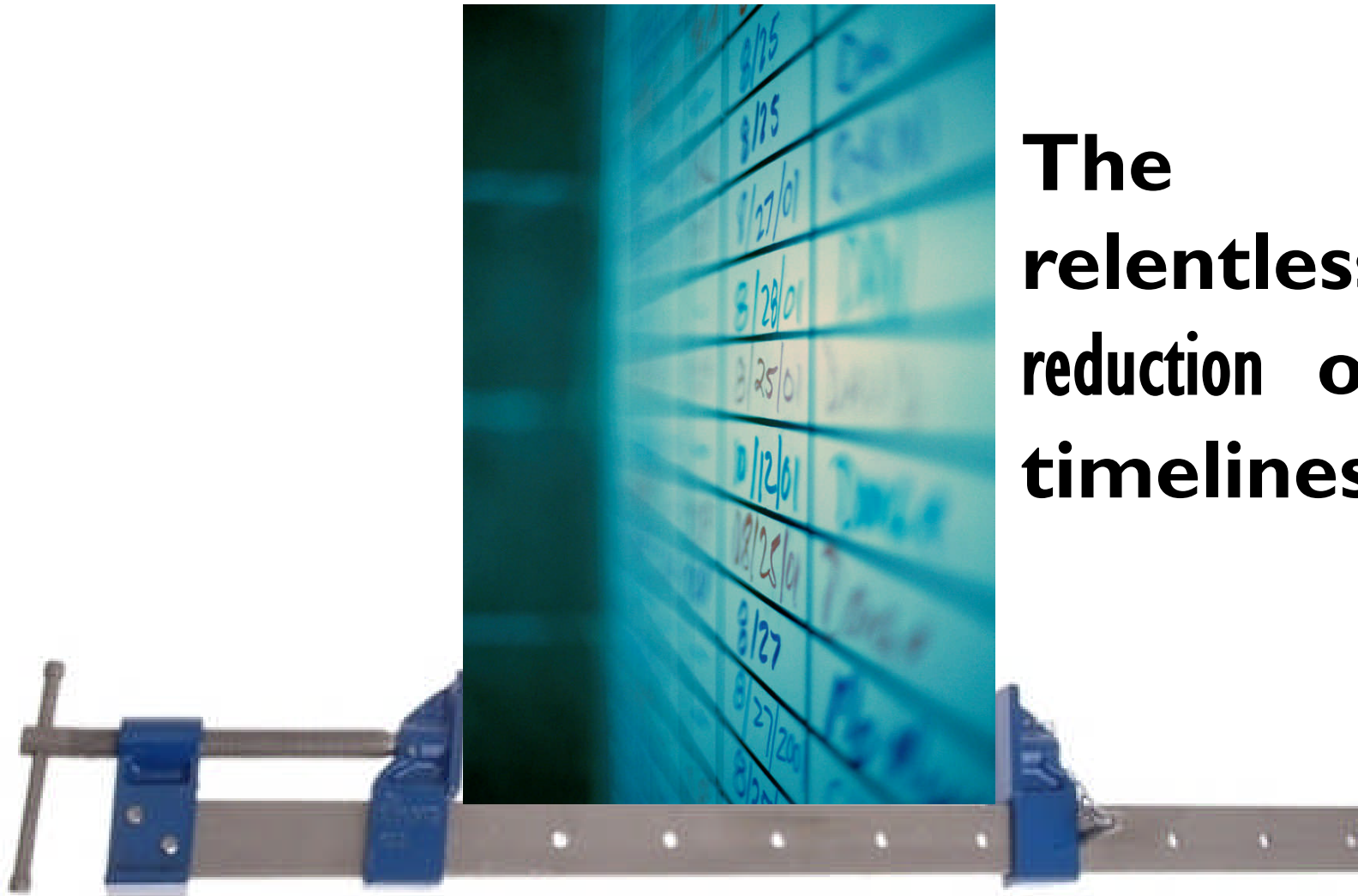
Top ten food trends for 2011 (from Food Technology Magazine)

1. Demographically directed foods
 - Food preferences & eating styles dramatically different across generations
2. Rise in home cooking – driven by economy
3. Appeal of Americana Menu
 - Southern, US Seaboard, US BBQ lead cuisines in 2011
4. Foodie focussed
 - 2/3rd's 'knowledgeable'; adults buying gourmet foods up from 46% to 63%
5. Ingredient list readers – concern over additives, preservatives
6. High nutrient combinations – whole grain; high fibre; low salt, low fat
7. Home baking treats
 - Home baking high but only 41% experienced so mixes, toppings etc. up
8. Three square meals – breakfast biggest beneficiary of trend increase
9. Functional foods – Cholesterol, blood pressure most important
10. Home made snacks out of home – again driven by economy

the change in *rationale / requirement*

The economy has changed.
The rationale for research has
changed and with it, clients'
requirements have changed

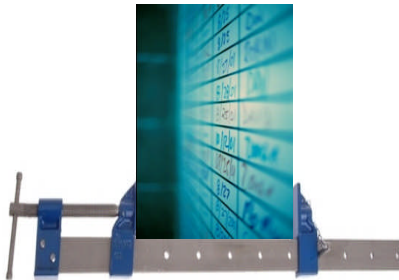
the change in *rationale / requirement*



**The
relentless
reduction of
timelines**

the change in *rationale / requirement*

- **Automated analysis**
 - “Today’s clients want every advance in speed, accuracy and automation possible”
- **Flexibility of organisation**
 - “projects are dynamic – agencies need to accommodate change as projects evolve over time”
- **Nor is there any trade-off between speed and quality**
 - Clients simply want it all: faster, more insightful results
- **Communication of deliverables needs to change to accommodate the above**



the change in *rationale / requirement*

Delivering profit in an uncertain economy



the change in *rationale / requirement*

Delivering profit in an uncertain economy, means greater focus on:

- Successful innovation
- Cost reduction
- Optimising production variables and ingredients
 - 'Appropriate' quality control
 - ❖ 'Just enough' specification for positives
 - ❖ 'Not too much' specification for negatives
- Rationalising Euro- or Global formulations of products



So, greater need for

- ***parsimonious*** experimental designs,
- *interpreting research within **commercial** constraints*
- ***macro-*** in addition to micro-analysis

the change in *rationale / requirement*

**The
increasing
need to
innovate**

??

??

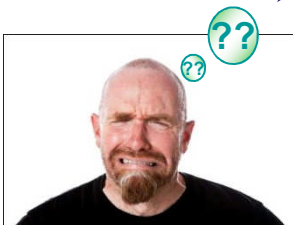
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the change in *rationale / requirement*

But innovation has many facets these days. Clients (and therefore their consultants) must respond to many changing needs

- Online panels / communities to inform:
 - Idea generation
 - Early trend identification
 - Identifying unmet and sometimes unknown (to consumers) needs
- Increased pressure on retail shelf-space
- Considering emotional response to brands & products
- Sensory branding
- Consumer requirements of the 'democracy of choice'
- Developing influencing strategies that embrace web 2.0

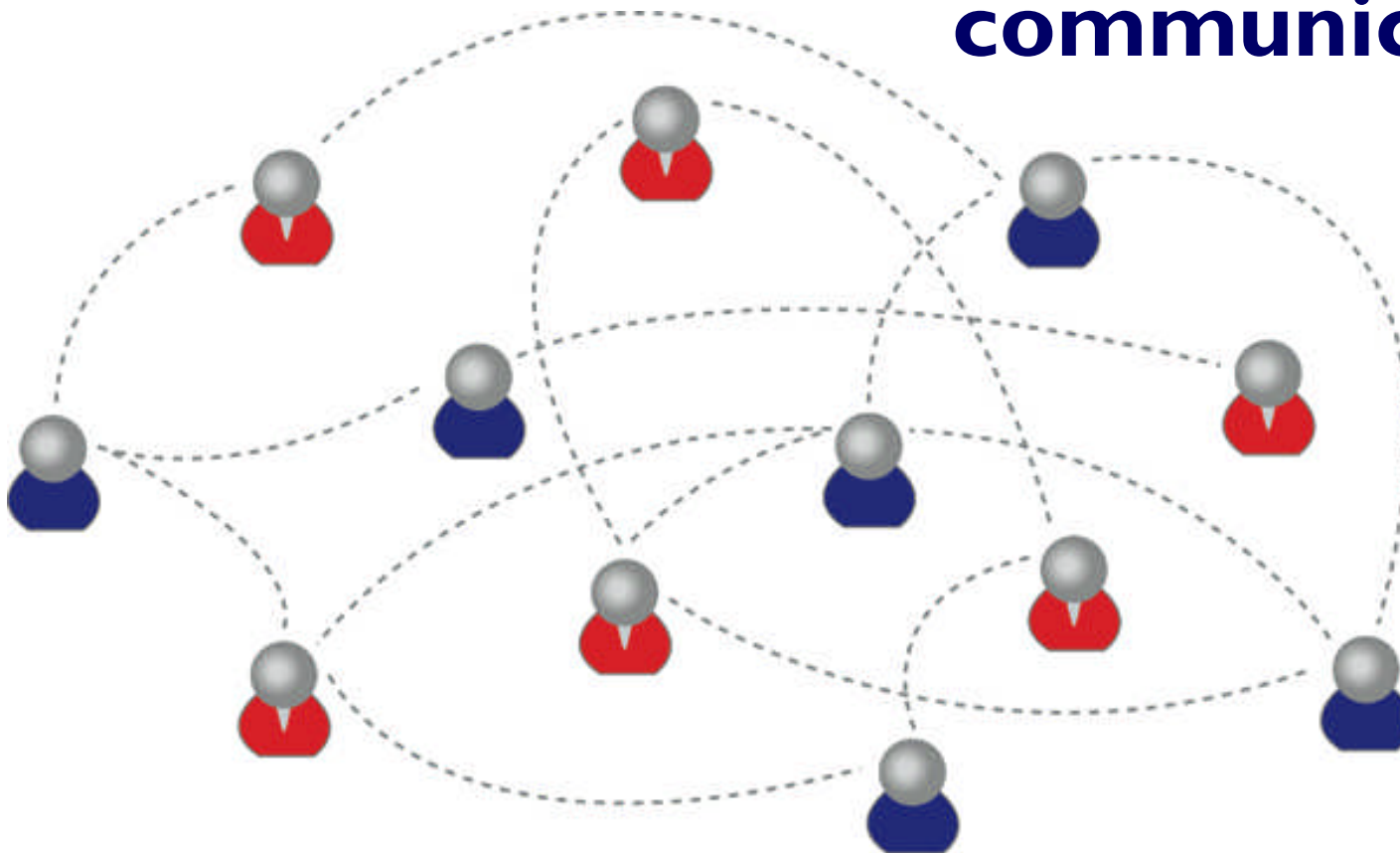


the change in *process / approach*

**Which leads on to the
changes in process and
approaches**

the change in *process / approach*

Rapid changes in technology and communication



the change in *process / approach*

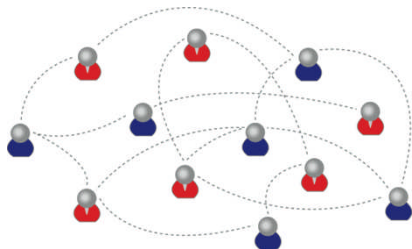
- Web 2.0 moved the internet from primarily a broadcast medium

Business → Consumer

- ... to one where information and content flows in 3 directions:

Business → Consumer

Classical marketing



Consumer → Consumer

*Influence via
Word of Mouth*

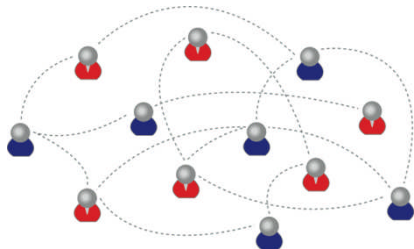
Consumer → Business

Feedback loop

the change in *process / approach*

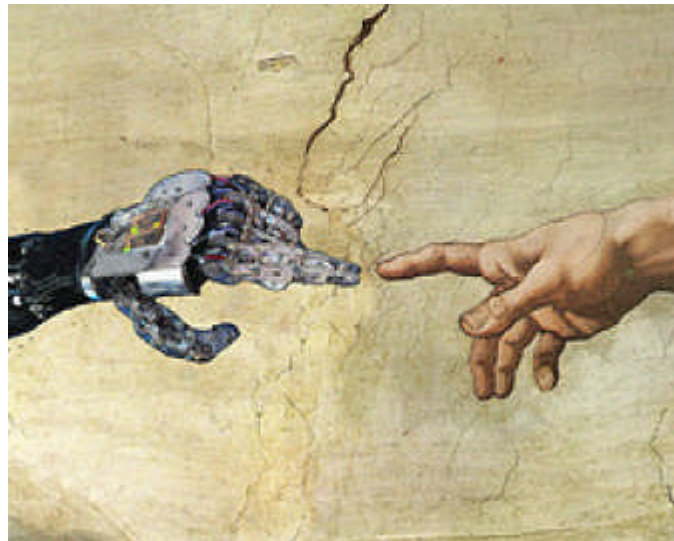
Many other advances have been driven by technology change

- Proliferation of internet research of all types
- Data capture via PDA's / Pads, allowing
 - Research in context: e.g. at events, point of purchase or consumption
 - Recruitment to complex e.g. attitudinal segments
 - Complex routing; intelligent questioning; randomisation of lists and attributes



the change in *process / approach*

Can machines or machine-measured response replace human-evaluated and human-communicated response?



Three examples

- GC-MS vs. sensory panellists
- Eyetracking vs. standout / stated interest
- Measured brain-activity vs. stated liking / purchase interest

the change in *process / approach*

Can machines or machine-measured response replace human-evaluated and communicated response?

Instrumental measures



Gas chromatograph-mass spectrometer

vs. sensory panellists



the change in *process / approach*

Can machines or machine-measured response replace human-evaluated and communicated response?



Instruments such as GC-MS plus predictive software have their place...

... but as John Hayes recently wrote (comparing with fragrance house ‘noses’):

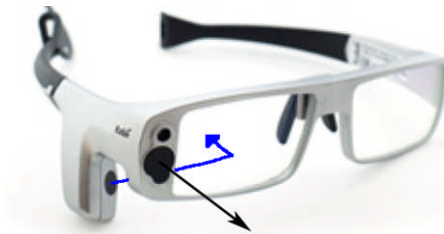
“.. it’s hard to see how adding rancid/goat-like to herbal/woody would get you to (a sensory perception of) violet, based on some sort of predictive additivity ..”

So, a continuing and strong need for human calibration

the change in *process / approach*

Can machines or machine-measured response replace human-evaluated and communicated response?

➤ Eyetracking



➤ vs. standout / stated interest



the change in *process / approach*



A typical Heatmap from an eyetracking study on web-pages.

Some conclusions obvious:

- More interest top-left of page (actually, typical 'F' pattern)
- But other hotspots need respondent commentary
 - Interest or confusion

So, a continuing complementary need for human interpretation

the change in *process / approach*

Can machines or machine-measured response replace human-evaluated and communicated response?

Measured brain-activity



vs. stated liking / interest in purchase



the change in *process / approach*



**Our ability to
better
understand
the brain
is increasing
exponentially**

the change in *process / approach*

- There are many ways to view the brain: here is one
 - 'New', 'Middle' and 'Old' brain



- **'Old' brain:** concerned with survival – hence rapid decision making for flight or fight. Governs motor response and 'automatic' functions like breathing
- **'Mid' brain:** processes emotional response
- **'New' brain:** concerned with rational thought, language processing, playing/listening to music



the change in *process / approach*

- Experiments show



- Old brain reacts to snake-like image in 2 milliseconds
 - It's largely visual: optic nerve 40 times faster than auditory nerve
- However, the visual cortex within the New brain takes 500 milliseconds to work out it's not a snake – it's a Slow Worm.



the change in *process / approach*

- So, studies of the 'New', 'Middle' and 'Old' brain suggest:
 - Increasing acceptance of emotional in addition to (sometimes in place of) rational factors in decision-making
 - Hence an increasing criticism of rational question response



- Improved ways of asking questions are being developed that get a response closer to the emotional reaction



the change in *process / approach*

- Obviously, much research now conducted into brain activity associations with stimuli via fMRI, EEG, etc.
- Universities and research institutes are making great headway – talk to Joanne Hort about their results
- But practical application is still some way off, certainly for fMRI

- Environment



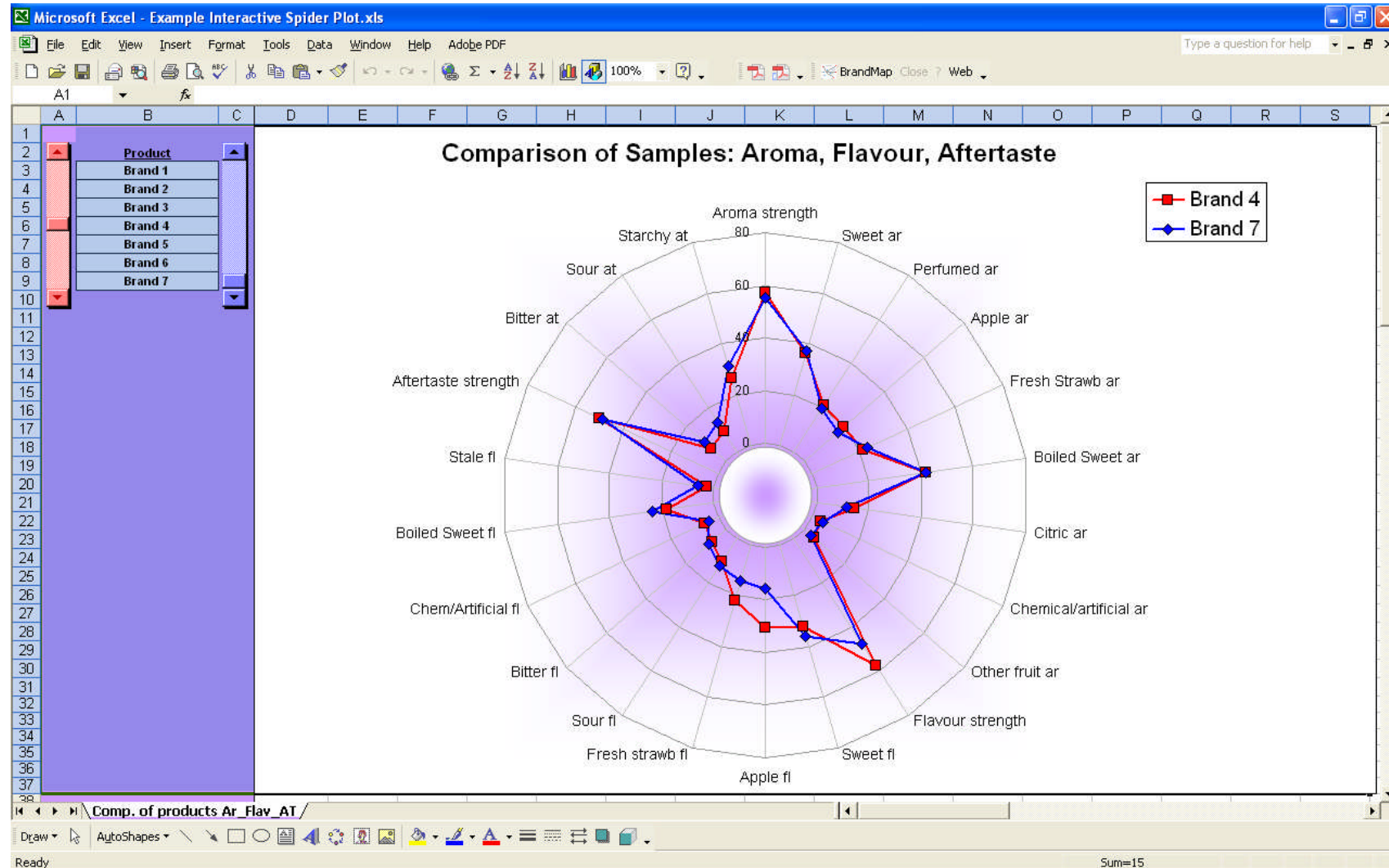
- Chewing & swallowing not usually possible
- Research currently on simple flavours, aromas
- High resource: equipment plus subjects, replications
- Time (in years) to complete a single study



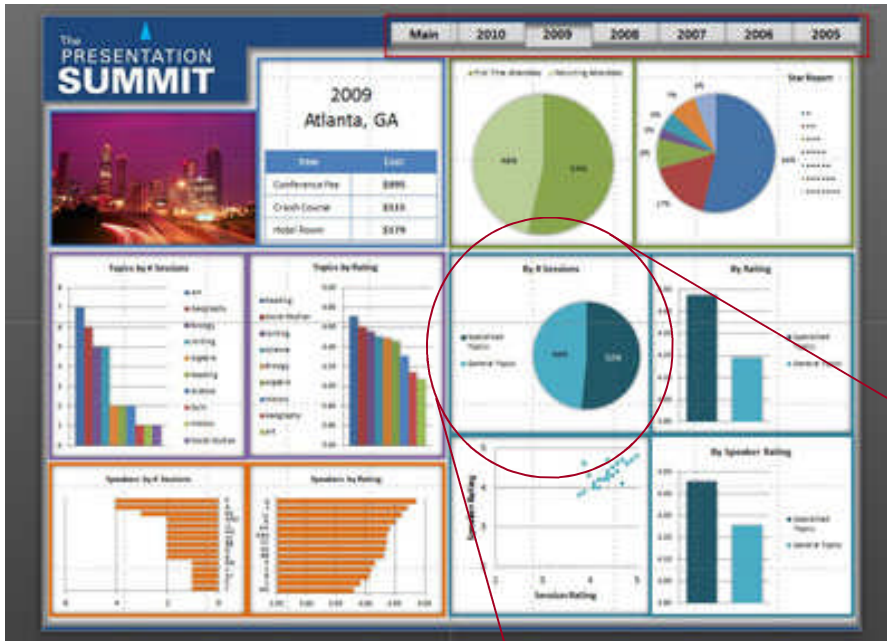
**And what about
communication to clients and
colleagues?**

the change in *communication*

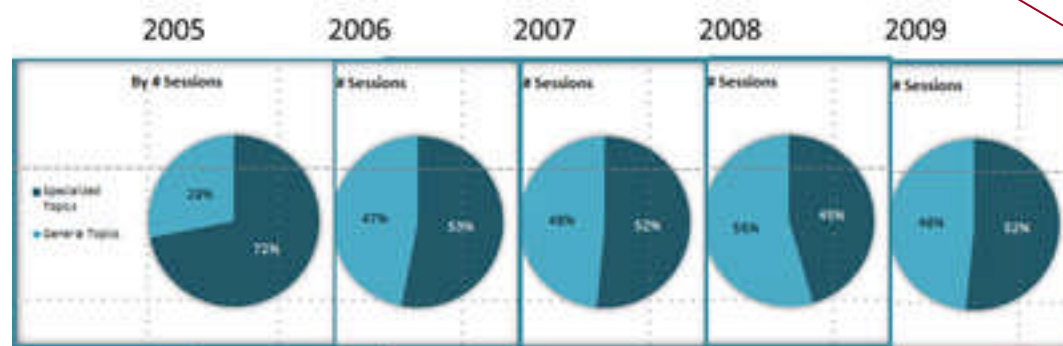
Interactive charts are efficient, effective and clients like them



the change in *communication*

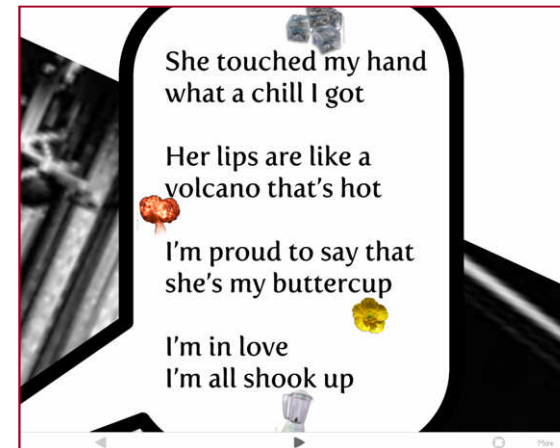
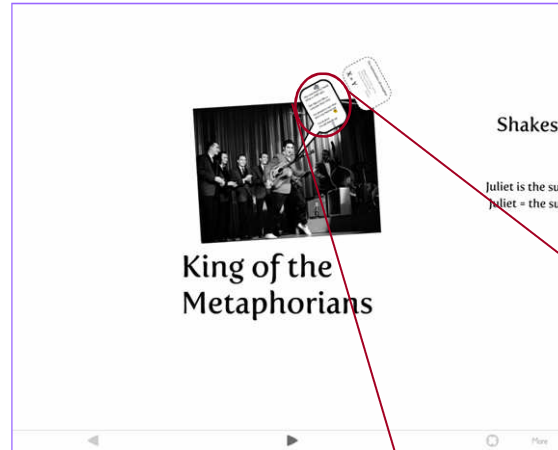
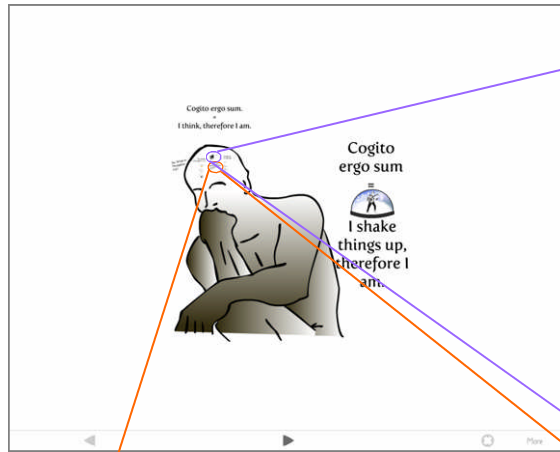


Interactive dashboards offer easily assimilated summary of key measures plus ability to drill down



the change in *communication*

‘Storytelling’ has always been important: arguably easier in packages like Prezi rather than the more linear PowerPoint



the change in *communication*

- This is a conference phone
- Very few of our clients have video-conference suites, so most use telecons via conference phones like this for presentations
- ...but it is hardly fit for this purpose



So my personal plea for technical advancement is:

When can we have efficient hard & software for video conferencing?

- centralised chart navigation
- decent visuals to observe audience & presenter body-language
- clear sound

And finally, some more crystal ball gazing



What else will (or might) the future bring.....

- Web 3.0
 - Context-defined response
 - Intelligent / personalised response from computers (based on learning algorithms)
- Higher / lower resolution sensory evaluation panels-better use of supertasters
- Sensory solutions for commercial production to mimic small-scale, chef-inspired processes (wine and stock reductions, etc)
- Pro-active sensory: sensory science playing a greater part in creating designer foods
- Effective Food-choice models for In-Home / Out-of-Home

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