





[Home](#) > [Innovation](#) > [Innovation features](#) > Information and the web – a better way?

0

## Innovation news

### Innovation features

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Innovation and 'hanging out'

Net gain for TV voting

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BT Radianz 'stock' rises

### Information and the web – a better way?

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The rise of applications

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## Information and the web – a better way?

Today we all have access to more information than has ever been available to people at any point in our history. This is both amazing and a problem.

The web interfaces that we currently use to access this vast array of information, display it in a fast and efficient fashion, but frequently fail to take into account the ways in which people consume and store information.

When we look at a screen often filled to the edges with textual and visual information we are likely to take in and process only about six or seven discrete pieces of that information at a time. Depending on how well these pieces of information relate to our personal model of how the world works, we may remember some of them in the longer term.

However, if the text and images on the screen form some sort of narrative story and are associated with something in our existing personal memory, then experiments have shown that we have a much higher chance of remembering the information.

So why does this happen?

Those who study psychology and cognitive neuro-science will have a good model of how our brains work. The link between our short-term memory and our long-term memory is quite well understood - as is the processing of visual information and language which are thought to be quite different.

### View of the world

Also well understood is the concept of a personal model of the world, generally built up between birth and the age of four or five, which allows us to interact in a quite astonishing way with everything around us. For example, our internalised models of the world hold information such as that liquid will spill from a glass if it is upturned, but if that same glass is put upright on a table it will sit safely without spilling.

For decades scientists have studied how we learn, that is, how information can be entered into our long-term memory. There has also been a substantial body of research into how our information input systems (our eyes and ears) relay the information to our memory systems. It is known that if information is presented in the form of meaningful sentences, then it will be remembered more easily than unrelated string of words.

What's more, if those sentences form a story that either triggers emotions or links to our personal experience, then we have even a greater chance of remembering it well.

However, surprisingly, few have used this knowledge to shape the design of web information interfaces.

With the availability of immense amounts of information, relying on the present interface design is no longer good enough. In fact, it has not really been good enough for some time as the frustration of those attempting to access information on the internet will attest.

### Problem solvers

Historically, we would have turned to our colleagues from the field of HCI (Human-Computer Interaction) to solve this problem. They were the people who attempted to optimise the interaction of human beings and computers in order to make it as efficient as possible. For example, by measuring how quickly individuals could press a key having seen a prompt on a screen.

I would argue that in designing a system to allow us to interact with vast amounts of information in an easy and efficient way, we must build into that system recognition of how our human information consumption and memory systems function.

Over many millennia, we have developed filtering systems that allow us to visually scan enormous amounts of information, focusing on the most informative and interesting parts and processing some of these into our long-term memory, while at the same time reacting quickly.

### User-friendly

If in designing a user interface we adhere to and build in the principles of the human information processing system, then we believe we will allow people to use those interfaces in a more intuitive and user friendly way.

Some colleagues from Cambridge and I have been looking at these issues and thinking about ways in which we could pragmatically improve interface design.

In doing so, we are focusing on two things:

One - the way in which we process information; and:

Two - our internalised models of the world.

The first of these appears to be common for all people. However, the second is based on our personal experiences and culture and, as a result, is subtly different for each individual.

Therefore, a possible solution to the problems with the current design of web interfaces could be a learning interface, which quickly learns about the individual using it and builds a representation of that user's world model.

This coupled with a filtering system that presents information in usable chunks, again tailored to a user's needs, could make a significant leap forward in the way we interact with information.

To be continued...

*Jeff's follow-up to this piece will appear on BT's innovation pages soon.*



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