Emergency departments in hospitals use whiteboards to make notes about patients. In some hospitals these whiteboards have been computerised, but often with disappointing results. One of the iconic images of the disappointing failure of computerisation is a hospital room with ten scrubbed-up clinicians all standing around and using a conventional whiteboard, but with a computer screen opposite it, intended to replace it, being totally ignored.

It is not too far-fetched to see this new interactive computer technology being about as ineffective for today’s clinicians as a scalpel would have been in Pompeii. A scalpel made then (around AD70) would have been a disappointing and misunderstood device: it would have been poorly designed, people would not know what it was, it would be dangerously fragile, and, as used, it would have spread more disease than it cured.

It isn’t such an extreme analogy. To be effective, an ordinary whiteboard requires the supportive confluence of many factors: its users have to be able to read and write and understand the nature of permanent and temporary pens (and that some pens don’t work at all on whiteboards); its designers have to understand that whiteboards must be smooth, robust, wipe-clean, sufficiently large, rigidly fixed on a wall. The physicality of the whiteboard has to match the task that it is being used for. There is a huge amount of tacit knowledge (such as the invention of colour-codes to represent patient data) that is developed in concert with a deep understanding of the whiteboard/environ/reading/technology.

The point is that a whiteboard looks so easy to use, that surely a computer could only do the job better. Whiteboards are such primitive technology compared to computers! It is, after all, so much more flexible and modern! With IT, you could put the whiteboard on the Internet and a clinician could view it from the other side of the world; you could add all sorts of other useful information about patients, from allergies to religious losses. You could work out how much treatment was costing, or you could track waiting times. Wow. E-wow.

We forget that to use a whiteboard requires skills that take the best of us maybe a decade to learn, and even then a few people never read and write reliably. I, for one, was the despair of my teachers, who thought that I would grow up and be a break in the continuity of civilisation.

The skills the successful whiteboard manufacturer needs are even rarer and harder to define. And to create the social context where the whiteboard happens to work so well so many centuries, if not millennia, to sort out. When a whiteboard “just appears” in a modern hospital, emergency department, we easily overlook this entire tacit socio-technical baggage.

Why does an expensive computer system fail so magnificently compared to a cheap sheet of plastic stuck on some mixture of epoxy and recycled woodchip?

Why does the hope of interactive systems continue to triumph over frequent frustration and failure? Why did anyone want to spend thousands of pounds on a small, unreadable display that nobody knew how to use, that would cost thousands more in wiring, that needs technicians and a maintenance contract and a backup system to keep it working — when something perfectly adequate was already working for a fraction of the cost? If the computer system breaks down, as it will, everything will grind to a halt, but if the whiteboard broke down (even the very concept boggles the mind) anybody would know how to work around it.

They could write on the wall. If somehow the whiteboard broke, whiteboards don’t even need rebooting, and if there is a power failure card for whiteboards, it would only matter at night. Each piece of technology discovered well before the Iron Age would get them working again.

Whiteboards look so simple that it must surely be simple to automate them. Indeed if you automated them properly you’d end up with something pretty much like a whiteboard, and there wouldnt be many advantages in that. If you don’t automate them properly, you end up with something full of unfamiliar tacit knowledge that nobody has.

Complex ways of failing are not the only problem with computerised whiteboards. They also can’t be appropriated, extended, modified; it’s not just that they don’t fit in with deep social knowledge about use, they don’t integrate with the many other technologies that do so well.

If not in hospitals, then computers have been stunningly successful in some areas. Consider mobile phones, computer games, the Internet. Computers have also been stunningly successful in popular culture and in science fiction. They’ve even been successful in some mundane areas like payroll, although their success in finance seems to have been literally over-ridiculous, as the resolution of complex financial instruments recently showed.

The point is: their stunning success in certain areas is no predictor of their success in other areas. In fact, it would be more truthful to call their “stunning success” anywhere an “accidental success”. Mobile phones weren’t planned to be so successful, and white text messaging became an unexpected success, many ideas failed terribly — but we can’t recall what they were, as not many of us saw them in the first place! Fortunately, some things fall really quickly.

Not only are we excited and fooled by narrow success, it suits powerful interests to keep us excited and fooled. A whiteboard manufacturer doesn’t have good profit margins and competes against plenty of other suppliers. In contrast, a “computerised whiteboard” supplier can sell an unfulfilled, unfulfilled bit of technology with huge margins and, moreover, lock the purchaser into a complex contract, to say nothing of paying for a training programme.

Since anybody who can make computerised whiteboards can also make office information systems and lots of other stuff, they aren’t going to fail quickly enough if they have one rubbish product. Badly designed whiteboards – badly designed interactive stuff – are going to be around for a long time.

You can look at a damaged conventional whiteboard and see at a glance if it won’t work well. It’s transparent, honest technology. But you can’t assess a half-finished computer system and put a sensible price on it, predict how much its under-performance or errors will cost the people who try to use it, or even come up with reliable workarounds so you can stay working. And this is where HCI comes in: to assess and understand how things work so that insights can go back to designers to improve the next generation of systems, and so that insights can go back to the rest of us who have to decide what to invest in to make our lives more effective, fun and worthwhile.

Some people in HCI have to cope with messes; there are indeed people studying hospital whiteboards, for example. Some hospitals need all the help they can get! But HCI must not confuse studying problems, fascinating as they may be, for the larger and more strategic responsibility of avoiding them in the first place. One hopes that HCI will do more than understand or improve specific situations (for that is usability, not HCI) and be able to generalise insights into a transforming science. As the examples above make clear, the real contribution of HCI isn’t knowing details like when voice input is better than a pie menu, it’s contributing to the whole socio-technical context: helping designers use better processes, helping technical authors be honest, helping procurement choose wisely, helping managers hire competent programmers, etc. In short, helping everybody match the task and technology synergistically. I hope, putting more effort into defining good technology than studying the consequences of bad technology — how a whiteboard fails is much less useful knowledge than how to make a better one. That it failed is one thing; that anybody thought it would succeed is more interesting; that nobody for (not enough people?) who developed it had been on an HCI course is a disaster. Good HCI wasn’t there for the people who needed it.

It would be tempting to digress into the nature of reliable knowledge that HCI should aspire to so that it is effective in this under-taking, but that is a well-worn discussion (the philosophy of science) that is not about HCI, computers, human factors or users specifically.

Instead, the thought I want to leave you with is this: with computers, clearly we can and have changed the world; with HCI we should be aiming to change it for the better, and, let’s hope, doing so a good deal faster than those delaying interests that thought the most profitable use of iron was the sword and not the ploughshare or scalpel. Don’t think that understanding usability problems is going to be as radical as strengthening the science behind HCI so that it has wider, faster and more reliable application.