

Disruptive technology

written by Jeremy Huggett | 06/12/2014

Curiously, according to Bloomberg's recent 'The 85 Most Disruptive Ideas in Our History', the microchip comes second to the first-place jet engine. And their justification seems stranger still – the way in which the jet shrunk the world is perhaps fair enough, though the claim that for the first time the entire surface of the planet was reachable is open to question. Tell that to the likes of Alcock and Brown (first non-stop transatlantic flight, 1919), Macready and Kelly (first non-stop transcontinental flight, 1923), Smith and Nelson (first round the world flight, 1924) (and see **Famous Firsts in Aviation** for more in this vein). And yet in almost the same breath it is noted that the jet engine technology has become remarkably static.

So what about the poor microchip? The justification provided for the microchip in fact focuses on the transistor which perhaps explains why it was trumped in the list by the jet engine. Even so, allowing for the mis-titling of their second most disruptive idea, and despite the microchip being fundamental to at least twenty of the disruptive ideas mentioned in Bloomberg's list (and in the process, demonstrating that its development, unlike the jet engine, has not been static in recent years!), it seems strangely overlooked. If the jet engine gains its pre-eminent status through its capability to shrink the world, the defeat of distance has also been a major theme of the use of information technology, back to the time of the telegraph and semaphore, beacons and smoke signals. And the way that computer-based communications compress time and space has become something of a technological truism.

But the computer chip does more than just shrink distance in a geographical sense between people. It also alters time by providing near-instantaneous access to information and people, and simultaneously bridges time to access data which were created in the past, and, to a lesser extent, to the people who created them (although information about them (us!) is becoming increasingly available as the digital world becomes embedded into society – hence the current concerns about privacy). Couple this with the time dimension inherent in archaeological data – the kind of thing that Samuel Arbesman has called 'long data' in contrast to 'big data' – in which we deal with long timescales within our datasets, and the microchip does more than just shrink the world. In the context of archaeological data, it crosses space, and multiple dimensions of time at the same time. A jet aeroplane might help transport you to a site, or a museum, or an archive, but the microchip enables you to travel without leaving your desk, to review data about different time periods and timescales collected at different times by different people. And that is far more disruptive than a jet engine, in ways that we're only just beginning to appreciate.