Majorities and individuals

Lucky you, if you happen to live in one of the democratic western countries, because then you live in a society that gives you maximal freedom and opportunities to pursue your goals. But what if you are one of the disgruntled people who think that our elected leaders have got a certain issue all wrong and nobody except you is smart enough to see that they are heading the wrong way? Then you have the problem of convincing the masses and their elected leaders that things have to change, even if the masses feel quite comfortable with the *status quo*. Thus, some critics—sometimes correctly—have labelled democracy as the ‘tyranny of the majority over the minority’. Or, as Sir Winston Churchill more eloquently put it: ‘No one pretends that democracy is perfect or all-wise. Indeed, it has been said that democracy is the “worst” form of Government except all those others that have been tried from time to time.’

In electing a chosen few to make decisions for us, there is always the drawback that these people need to please the greater part of their voters. Similarly, committees will most likely come to a conclusion that reflects the opinion of the majority. But our history is not shaped by decisions made in committees or by the majority but by the ideas of individuals. Although the concept of democracy is more than 2000 years old, it was not created by a committee in ancient Athens but by Plato and Aristotle and later refined by Voltaire, Rousseau, Montesquieu and Locke.

Science and technology contain even more prominent examples of what individuals can achieve, because their progress is largely determined by inspiration striking one smart person. By watching an apple fall from a tree, Isaac Newton devised the concept of gravity. The single paper that Albert Einstein published about the theory of relativity revolutionised physics and profoundly changed the way we see our world and the universe in which we live. Similarly, Charles Darwin’s

Origin of the Species is one of the most influential works of modern times and has changed our view of ourselves. And were it not for James Watson, Francis Crick, Rosalind Franklin, Maurice Wilkins or Fred Sanger—to name but a few—the field of molecular biology as we know it would not exist.

But scientists and their ideas have also had a direct influence on the much wider spheres of politics and society. Albert Einstein’s letter to President Franklin Delano Roosevelt in which he warned of the possibility of a German atomic bomb was the reason for creating the Manhattan project and the dawn of the atomic age. Indeed, Roosevelt seemed to have a knack of singling out people with bright ideas and listening to them. When World War II was finally coming to an end in early 1945, there was the inescapable problem of what to do with all the scientists who had been employed to develop new and more effective weapons. So Roosevelt asked a scientist. Vannevar Bush, an electrical engineer from MIT and Director of the US Office of Scientific Research and Development that oversaw the work of more than 6000 scientists in the war effort, opened his desk drawer and sent Roosevelt an essay that he had, in fact, written as early as 1938. In this paper, *Science: the Endless Frontier*, he laid out a vision of science policy: ‘Scientific progress on a broad front results from the free play of free intellects, working on subjects of their own choice, in the manner dictated by their curiosity for exploration of the unknown.’ Roosevelt liked what he was reading, ordered the creation of the National Science Foundation, and the ensuing success of the US scientific endeavour has vindicated them both. In Europe, physicist and Nobel Prize laureate Leo Szilard returned from his US exile after the war and started to spread the word that biology was the science of the future, not physics. And indeed it was Szilard, Max Perutz, John Kendrew and

Sidney Brenner, as well as a few politicians and investors who were persuaded by their ideas, who went on to promote and fund research in molecular biology in Europe.

Ideas are always good, but, just as it takes individuals such as Vannevar Bush to put them forward, it also takes a Roosevelt to listen to these people. Imagine Harold Varmus standing in Congress and saying to politicians: ‘Hey, stop telling the scientists at NIH what they should do and let them decide what to work on. And while we’re at it, why not double their budget?’ That was quite revolutionary, but obviously some politicians listened and the immense success of the NIH under Varmus’s leadership has proven him right. And obviously people listened to James Watson and Walter Gilbert and provided them with money to sequence the human genome. Elsewhere, people listened to the maverick scientist Craig Venter and gave him money to build up Celera and also sequence the human genome. And people listened to Kári Stefánsson and funded him to found deCODE and investigate the genetic make-up of the Icelandic population to find the genetic causes of disease.

Now imagine if Bush, Watson, Venter or Stefánsson had had to have their proposals passed by a democratically elected committee. Most likely, their obviously great ideas would have died an early and lonely death. Clearly, it sometimes pays to listen to an inspired person and fund him or her to see if it works. Of course, there are many whackos out there and many ideas later prove to be wrong, but any venture capital investor will acknowledge that the success of a few good ideas more than compensates for the failure of the bad ones. What holds true for economics is even more important for science, as it is solely based on ideas.

Holger Breithaupt

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