

FUNKTIONEERING

MAGAZINE

WWW.FUNKTIONEERING.ORG

NO.1 – FEBRUARY 2009

COMMUNICATING VISIONS

A look at how extraordinary leaders communicate extraordinary ideas. **p.13**

FORESIGHT IN PRACTICE

Connecting foresight to design using visual, hands-on methods. **p.12**

DANCING WITH AMBIGUITY

The role of wayfaring and improvisation in the search for innovation. **p.15**



“We are responsible for understanding our future ahead, and ultimately, to build it.”

Dr. William Cockayne, Stanford University

p.12

THE LULEÅ EXPERIMENT

An international workshop on design research and video interaction methodology. **p.16**

MIMIR'S WELL

Global innovation team turns thin air into drinking water in dry and polluted areas. **p.20**

“New breakthrough ideas require a story to start and will fail the usual criteria of success.”

COMMUNICATING TECHNOLOGY VISIONS

Tamara Carleton
Stanford University

Gordon Moore, retired chairman, CEO and co-founder of technology pioneer Intel, said once in an interview: “Except for a technology vision of where we wanted to go, we really had nothing else.” As a new idea takes shape – before a company project is first funded or the startup is founded – all the creators have is a compelling story to build interest and support. This story is the core of their vision.

Radical visions of technology are particularly tricky. When no one has experienced or seen what you are talking about yet, when the product or service has never existed before, how should you start to explain your new vision? Consider the Segway transporter, the two-wheeled self-balancing scooter. Before it was built, the inventor Dean Kamen could point to partial precedents, including his previous far-reaching inventions. Kamen could also describe aloud the Segway concept, pantomime what the product might do, or draw sketches to help others to understand.

Another example is EPCOT, an American vision of an idealized city in central Florida. By the early 1960s, Walt Disney had already produced the first animation film “Snow White”, as well as other celebrated characters like Mickey Mouse, so he had a strong public reputation for imagination. To build American understanding and awareness, Disney produced a short video about a new concept called EPCOT – short for the Experimental Prototype Community of Tomorrow – and broadcast it to the American public in 1966. More than a modern infomercial or cartoon, the video of EPCOT presented an accessible and engaging story of a new place where people would live, work and play. EPCOT was an idea of the time that built on the European concept of Garden Cities and the popular World Fairs.

Disney shared not only his vision that one evening on national TV, he showed future visionaries how to present a radical dream. Part of his premise was to engage companies to continually test and showcase their best technology ideas at EPCOT. He reminded viewers that all the sketches and examples shown were only a starting point in the conceptualization:

“EPCOT will take its cue from the new ideas and new technologies that are now emerging from the creative centers of American industry. It will be a community of tomorrow that will never be completed, but will always be introducing, testing, and demonstrating new materials and new systems.”

You would never know that Walt Disney was two months away from his death; his energy and belief in the EPCOT vision is tremendous.

The potential payoff for a radical technological innovation is high, as well as the corresponding risk. Radical ideas in technology are typically pushing the limits in multiple ways, including harnessing emerging and often partially defined technologies, developing new commercial models, and changing industry paradigms. The team behind the Eclipse 500 jet has a vision to change all those dimensions in the market of very light jets. As you would expect, by introducing any of these variables into the broader innovation process, effective communication is further complicated in the early stages.

Often, I am asked how radical technological innovations can be identified as radical. Many research studies evaluate innovations solely as commercial successes. Innovations are successful in terms of financial outcome, specifically meeting management’s expected sales, profits, market share, and return on investment. This test makes sense. In many ways, innovation is simply an invention that sells. Financial success provides a simple and objective baseline of measurement.

For radical innovations, this default definition presents a thorny issue. There is an assumption that all innovations are predicated on financial results. Many experts today consider the Apple iPod to be a successful example of a highly radical technological innovation, and most would argue that the product was radically innovative from the start. However, if the iPod was measured solely in terms of financial profit based on its first few years on the market, then its proof as a successful innovation is not as strong or convincing.

Radical innovations may be truly radical and innovative without necessarily producing monetary gains. There are at least three ways to be considered radically innovative. An innovation could create an entirely new market or product category, such as the Honda Insight, the first American hybrid vehicle that laid the foundation for other cars like the Toyota Prius to follow. Or an innovation might generate a significantly new customer base but still not produce revenue, such as Napster, the original file-sharing service for music. Or an innovation may introduce a new technological application that is recast as novel or revolutionary in a different market without generating lasting financial returns. This would be the adoption of text messaging in the U.S., years after it was a widespread phenomenon in Europe. Let us return to the Segway example. It was the world’s



first self-balancing mobility solution, yet the Segway has never been truly profitable as a product, particularly as wildly predicted in the early 2000s for broad commuter adoption. Instead, financial analysts have seen steady growth rates of the product within niche markets, such as law enforcement agencies, and the novelty and publicity of the Segway have helped to raise public awareness about accelerometers in other consumer products. When all innovation is predicated on financial success, can the Segway be radically innovative and financially unsuccessful at the same time?

There is another problem in using the common test of success. Financial information about a radical innovation must be available and unambiguous. However, during the early stages, radical technological ideas are still in development and commercially untested. The teams and their sponsors are taking a calculated bet that the idea will be tremendously profitable and disruptive, but only time will truly tell. Historical analysis will identify radical innovations clearly in terms of success and failure, but investigation of contemporary or budding innovations for the future require different metrics.

In short, measuring only financial results for a radical innovation presents a partial view. Researchers may entirely miss radical innovations that had a major market impact or influence during their early development. Instead, radical innovations can be identified through other practical tests during the early stages. One possible method uses third-party experts, such as serial innovators or venture capitalists in the field, to gain an impartial evaluation and help confirm the strong potential for technological originality and uniqueness.

Once you have a good working sense of a radical innovation, then the next step is to engage others in building and creating it. My research at Stanford University is digging deeper into the specific question of how to communicate visions of radical technology in the beginning of the innovation process. Radically new ideas in technology may require radically different approaches to facilitate understanding of the unfamiliar and strange. This is the wonderful question that is keeping me up at night.

Tamara Carleton (carleton@stanford.edu) is the Bay Area Science and Innovation Consortium Research Fellow. She is a doctoral candidate at Stanford University and welcomes hearing from companies interested in participating in her global data collection.