

## **Innovation for Innovators**

**Roger Smith**

### Einstein and Picasso in R&D

The image shows two handwritten signatures. The top signature is 'Albert Einstein' in a cursive script. The bottom signature is 'Picasso' in a bold, stylized, blocky font with a thick underline.

On April 18, 1955, Albert Einstein, the world's most famous scientist, passed away. The mystique around his intelligence was so great that the doctor performing the autopsy gave special attention to the brain. In fact, Dr. Thomas Harvey removed Einstein's brain, weighed it, photographed it, dissected it, and preserved the pieces. These pieces have traveled the world to be studied by numerous scientists who are eager to find a connection between Einstein's unique intelligence and the physical structure of his brain.

But there was another genius contemporary to Einstein who received very little scientific scrutiny after his death. Pablo Picasso, born just two years after Einstein, changed the art world with Cubism and its influence on modern art. But when Picasso died, no one performed an autopsy on his brain. It was not dissected or studied to determine what made him such an artistic genius. Why not? He was equally influential and brilliant in his own field.

Picasso's genius wasn't scientific, so he didn't capture the attention of the scientific world in the same way that Einstein did. But Picasso's artistic genius may be just as important to the effective operation of an R&D department as Einstein's scientific genius.

### **Multiple Intelligences**

Genius comes in many forms. Howard Gardner (1983) suggests that there are multiple, unique forms of intelligence; he identified a total of eight "intelligences":

- Logical-Mathematical – scientific and technical talent;
- Verbal-Linguistic – the ability to use words and language effectively;
- Interpersonal – the ability to interact effectively with people and teams;
- Intrapersonal – self-reflective and self-understanding tendencies and talents;
- Visual-Spatial – imaginative and artistic talent;
- Bodily-Kinesthetic – physical talent and dexterity;
- Musical – the ability to create music; and
- Naturalistic – an ability to manage and relate to the natural world.

We all have some mix of these intelligences, while most of us balance several. The exceptional brain may express itself through math and science—as Einstein’s did—but it may also excel in language, relationships, spiritual understanding, art, even physical abilities.

We tend to recognize most readily those geniuses who share our own intelligences. In the R&D department, we respect the logical-mathematical intelligence—and we may miss the value of other forms of intelligence. Is there a place for other forms of intelligence as well in the R&D lab? How would an R&D department built by Picasso differ from one built by Einstein?

### **Einstein’s R&D Department**

Einstein would almost certainly staff his R&D department with the smartest scientists and mathematicians. Colleagues like John von Neumann, Stanislaw Ulam, and Werner von Braun, all of whom showed their expertise in creating the atomic bomb and exploring new theories of physics, would be at the top of his recruitment list. Such a brilliant group would seem to be the natural choices for an R&D department; surely, there would be no theoretical or technical problem that they could not solve.

Einstein might also recognize the need for interpersonal skills in the managers who would oversee and organize the scientists. His experience at Princeton's Institute for Advanced Studies showed him that scientists could be very contentious, unwilling or unable to compromise without effective intermediation. With this in mind, Einstein the R&D architect might turn to someone like Robert Oppenheimer, who was a master at dealing with these kinds of personnel problems on the Manhattan Project.

With these two categories of skills accounted for, Einstein may well close the door to his department and set off to create new products for the likes of General Electric, General Motors, ALCOA, IBM, or AT&T. But would such a department be successful from a business perspective? Would all of this logical intelligence, guided by talented management, be able to create products that were both functionally valuable and aesthetically attractive to customers?

### **Picasso’s R&D Department**

Pablo Picasso's R&D department, on the other hand, would likely be composed primarily of visual-spatial geniuses like himself. He would probably recruit other artists, perhaps

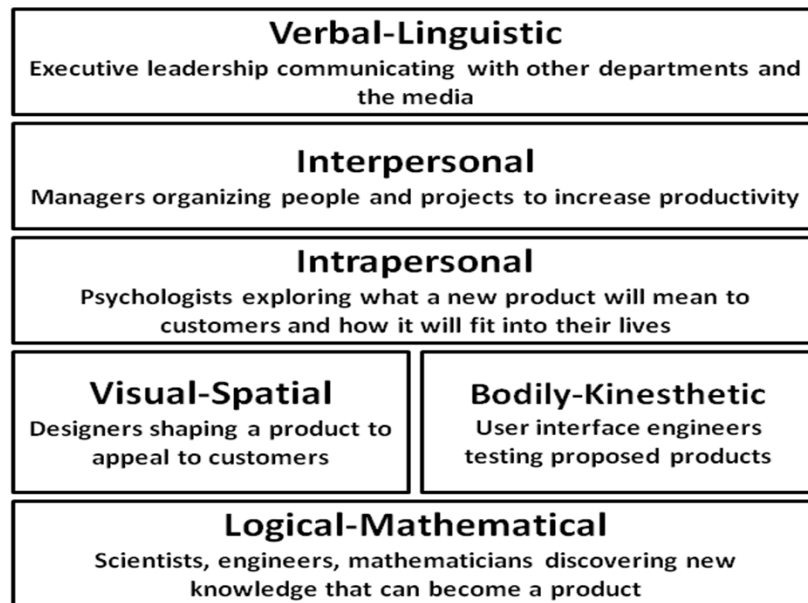
the masters who started him down the path toward Cubism. Edouard Manet, Claude Monet, Camille Pissarro, and Edgar Degas could be the leading thinkers and creators in Picasso's department. Such a unique, creative group should be able to out-design any competitor. They may not create advances in technology, but they would significantly improve the visual and functional style of everything they touched.

Picasso was a sculptor as well as a painter; as a result, he may also recognize the role of bodily-kinesthetic intelligence in product testing and usability. Perhaps he would seek out some of these geniuses for a department that would be able to suggest functional modifications to the design team. Such an R&D team would be the pride of companies like Apple, Google, and Hyundai.

### **Einstein + Picasso**

Most likely, neither of these geniuses alone would create the optimal R&D department. In either case, the resulting structure would be lopsided, heavy in the area of the founder's personal genius. While both Einstein and Picasso represent the extreme success of one unique form of intelligence, their stories in isolation could lead to a neglect of the benefits of other intelligences.

The truly successful R&D department will use all eight intelligences (Figure 1). Executives and market-facing staff members who promote new products and services and attract attention to them need verbal-linguistic genius. Interpersonal geniuses can handle internal personnel and organizational issues, while intrapersonal geniuses identify the psychological needs of customers. The visual-spatial geniuses would create the look and shape of a product, making it sexy and attractive. Bodily-kinesthetic geniuses test product functionality and ergonomic fit. And the logical-mathematic geniuses create new technology that is the basis of completely new products.



Something like an Einstein vs. Picasso contest seems to be playing out in a number of industries, but most noticeably in the Apple vs. Microsoft battle. Each company creates the operating system for a major proportion of the world's computers. Both have chosen to pursue the creation of hardware, Apple in digital music (iPod) and cell phones (iPhone) and Microsoft in computer gaming (Xbox360). But while Microsoft has made huge investments in R&D, Apple has captured a much bigger market with an R&D budget just under a quarter the size of Microsoft's (Peers 2011). In this case, it seems that Picasso's team has created a product with a much larger market impact, something that is ubiquitous that offers significant visual-spatial advantages over competitors, not to mention a distinct design signature. Meanwhile, the Einstein team has focused on overpowering competitors with a product that is impressive to hard-core technologists, but not terribly relevant to the largest portion of society. Is this because Einstein cannot see that mass consumers need a ubiquitous product that is perhaps less feature-heavy than the Xbox, while Picasso is not attracted to the raw power of computer technology when there are such obvious opportunities in design?

Is it easier to be an Einstein or a Picasso? Does Picasso's R&D come from a brain that is somehow more unique than Einstein's brain? When we create R&D teams, are we putting too much emphasis on that which is most easily measured and too little on less easily recognized forms of genius, which may have greater impact?

Does the culture inside of a company allow an R&D team to choose to be Einsteinian, or Picassoesque, or a combination of the two? Or does corporate culture dictate which pattern must be used?

## References

Gardner, H. 1983. *Frames of Mind: The Theory of Multiple Intelligences*. New York: Basic Books.

Peers, M. 2011. RIM: Less research = more motion. *Wall Street Journal*, March 30, C16.

*Roger Smith is the chief technology officer for Florida Hospital's Nicholson Center for Surgical Advancement. He has also served as the CTO for U.S. Army Simulation and for Titan Corp. and as a vice president of technology for BTG Inc. A member of RTM's Board of Editors, Smith has led technology innovation for medical, defense, software and computer systems. He holds a Ph.D. in computer science and Doctorate in business administration. roger.smith@flhosp.org*