



Why Capitalism Is Awesome!

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Each year the glossy business magazine *FastCompany* releases a list of what it considers to be the 'World's 50 most innovative companies'. This list is populated much as you would expect.

In 2012, the leader is Apple, followed by Facebook, Google, and Amazon. com. Spot a theme? In the top ten, there are only two companies that are not primarily digital companies. One, Life Technologies, works in genetic engineering. The other (try not to laugh) is the Occupy Movement. *FastCompany* describes them as 'Transparent. Tech savvy. Design savvy. Local and global. Nimble.' One might add: pointless.

Put fashionable Occupy aside. Not only are most of the others digital firms, but they're all flashy, unique, and they're almost all household names.

Everybody from *BRW* to *BusinessWeek* hands out most innovative company awards. They're all pretty similar and predictable.

But these lists have a perverse effect. They suggest that the great success of capitalism and the market economy is inventing cutting edge technology, and that if we want to observe capitalist progress, we should be looking for sleek design and popular fashion. Innovation, the media tells us, is inventing cures for cancer, solar panels, and social networking.

This widely held belief couldn't be more wrong. The true genius of the market economy isn't that it produces prominent, highly publicised goods to inspire retail queues, or the medical breakthroughs which are duly packaged up for a 7pm news bulletin.

No, the genius of capitalism is found in the tiny things—the things that nobody notices.

A market economy is characterised by an infinite succession of imperceptible, iterative changes and adjustments. Free market economists have long talked about the unplanned and uncoordinated nature of capitalist innovation. They've neglected to emphasise just how invisible it is.

One exception is the great Adam Smith. In his *Wealth of Nations*, the example he used to illustrate the division of labour was a pin factory. He described carefully the complex process by which a pin is made. Producing the head of the pin 'requires two to three distinct operations'. To place the head on the wire is a 'peculiar business'. Then the pins have to be whitened. The production of a pin, Smith concluded, is an eighteen step task.

Smith was making an argument about specialisation but his choice of example was important. It would be hard to think of something less impressive, less consequential than a pin. Smith wanted his contemporaries to think about the economy not by observing it from the lofty heights of Windsor or the lecture theatre, but by seeing it from the bottom up—to recognise how a market economy is the aggregate of millions of little tasks.

It's a lesson many have not yet learned. We should try to recognise the subtleties of the apparently mundane.

CAPITALISM MEANS EFFICIENCY

Ikea's Billy bookshelf is a common, almost disposable, piece of household furniture that has been produced continuously since 1979. It looks exactly the same as it did more than three decades ago. But it's much cheaper. The standard model—two metres high and 80cm wide—costs \$79. And from an engineering perspective the Billy bookshelf is hugely different from its ancestors.

In those 30 years the Billy has changed minutely but importantly. The structure of the back wall has changed over and over, as the company has tried to reduce the weight of the back (weight costs money) but increase its strength.



Even the studs that hold up the removable book shelves have undergone dramatic changes. The studs were until recently simple metal cylinders. Now they are sophisticated shapes, tapering into a cup at one end, on which the shelf rests. The brackets that hold the frame together are also complex pieces of engineering.

Ikea is a massive company. Tiny changes—even to metal studs—are magnified when those products are produced in bulk. There is no doubt somebody, somewhere in the Ikea product design hierarchy whose singular focus has been reducing the weight and increasing the strength of those studs. They went to sleep thinking about studs and metals and the trade-offs between strength and weight. Their seemingly inconsequential work helps keep Ikea's prices down and its profits high. With each minute change to the shape of the Billy's metal studs they earn their salary many times over.

Being massive, however, Ikea has an advantage: it is able to hire specialists whose job is solely to obsess about simple things like studs. Ikea is well-known for its more prominent innovations—for instance, flat-packing, which can reduce to one-sixth the cost of shipping, or the extremely low staffing of its retail stores.

Big-box stores have revolutionised retail in the last decade. In the United States, Wal-Mart's extremely well-managed logistics have ground down the price of consumer goods across the American economy. Costco has done the same, eliminating the barrier between consumers and wholesalers. Even Amazon.com, usually thought of as an internet firm, could be easily seen as a big-box retailer. Amazon's network of warehouses across the US are not so different to Wal-Mart's.

The success of these firms rests entirely on the management of their supply-line. For big-box retailers, innovation is about efficiency, not invention. Famously, Wal-Mart's logistics capability proved greater than the American Federal Emergency Management Agency (FEMA) during Hurricane Katrina in 2005. Wal-Mart brought supplies to stricken New Orleans suburbs well before FEMA managed. As one New Orleans sheriff told the press: 'if [the] American government would have responded like Wal-Mart has responded, we wouldn't be in this crisis'. Another suburban mayor said that Wal-Mart was his town's 'only lifeline'. Extremely resilient supply chains may not win glossy innovation awards but they are the source of much of our modern prosperity.

But Ikea and Wal-Mart are big and famous companies. So let me suggest another icon of capitalist innovation and dynamism: pizza.

CAPITALISM TASTES BETTER, CHEAPER

Pizza is one of our most mundane and simple foods. It would be the last place most people would look for innovation and engineering. It is, at its most basic, a thin bread topped by tomatoes and cheese—a food of the poor of Naples, exported, and endlessly interpreted by the rest of the world. The most expensive pizza in the world is \$450, topped with lobster, Russian caviar, Alaskan cod, and has to be ordered a day in advance. Yet it does not deviate from the basic model: pizza is, and will always be, just flatbread with toppings.

Forty one per cent of Americans eat pizza at least once a week, whether purchased frozen and reheated in home ovens, delivered or taken away, or cooked from scratch at home. All of these choices are more complicated than they seem. Keeping a pizza crisp long out of the oven so it can be delivered, or making sure it will crisp up in a variable home oven after having been frozen for weeks is anything but simple.

Moisture is the enemy. For frozen pizzas, this means that toppings have to be pre-cooked precisely to avoid some ingredients being burned while others are still heating through. Frozen pizza takes a lot of abuse—it is partially thawed each time it is transferred from manufacturer to supermarket to home freezer. So the dough has to be precisely regulated to manage its water content. Cheese freezes poorly, and consumers expect it to melt evenly across the base, so manufacturers obsess about cheese's pH range, water and salt content. And of course all these decisions are made with an eye on the customer's budget and the manufacturer's profitability. The consumers of family-sized frozen pizzas tend to be extremely price sensitive. The opportunities for innovation in processes, equipment, automation, and chemistry are virtually endless.

It gets even more complicated when we factor in changing consumer tastes. The modern pizza customer doesn't just want cheese, tomato and pepperoni. As food tastes grow more sophisticated they look for more sophisticated flavours even in frozen pizza. It's one thing to master how cheddar or mozzarella melts. Dealing with more flavoursome brie or smoked Gouda is another thing entirely. Like Ikea's stud specialist, there are hundreds of people across the world obsessed with how frozen cheese melts in a home oven. These sorts of complications are replicated across every ingredient in this simple product. (How does one adapt an automated pepperoni dispenser to dispense fetta instead?)

Customers demand aesthetic qualities too—as they say, we eat with our eyes as much as our tastebuds. Processed food can't look like processed food. Frozen products have to look authentic. Customers like their pizza crusts to have slight burn marks, even if home ovens won't naturally produce them. So manufacturers experiment with all sorts of heating techniques to replicate the visual result of a woodfired oven.

Takeaway pizza seems easier but has almost as many complexities. Some large pizza chains are slowly integrating the sort of sauce and topping applicators used by frozen goods manufacturers. Cheese is costly and hard to distribute on a budget. Dominos use a proprietary 'auto-cheese' which takes standardised blocks of cheese and, with a push of a button, shreds them evenly across a base.

For takeaway pizza, moisture problems are even more pervasive: the cooked pizza has to survive, hot and crispy and undamaged for some time before it is consumed. If the box is closed, the steam from the hot pizza seeps through the bread, making it soft and unappealing. But an open box will lose heat too quickly. Engineers have struck a balance. Vents in the box and plastic tripods in the centre of the pizza encourage airflow. Deliverers carry the pizzas in large insulated sleeves to keep the heat in and reduce the damage from the steam.

We could easily replicate this analysis for almost every processed or manufactured food in the typical supermarket. Then we could reflect on the complexity of serving food, not in a home kitchen, but on an airplane flying nearly 1000 kilometres an hour, 36,000 feet in the air, cooked in a tiny galley, for hundreds of people at a time. Some of the most extraordinary logistical accomplishments of the modern world are entirely unnoticed. Some—like airline food—we actively disparage, without recognising the true effort behind them.

WHY CAPITALISM MEANS INNOVATION

One of the great essays in the free market tradition is Leonard Read's 'I, Pencil'. Read was the founder of the influential American think tank the Foundation for Economic Education. In his essay, he adopts the perspective of an 'ordinary wooden' lead pencil and purports to write his genealogy. He began as a cedar tree from North California or Oregon, was chopped down and harvested and shipped on a train to a mill in San Leandro, California, and there cut down into 'small, pencil-length slats less than one-fourth of an inch in thickness'. Read goes into detail about the lead—not really lead, but a complex graphite and clay mixture whose components are sourced from Ceylon and Massachusetts—the lacquer, the labelling, the eraser and the metal that holds it in place.

Read's point: 'not a single person on the face of this earth' knows how to make a pencil on their own. There is nobody in the world that can harvest, construct and bring together all those components. The construction of a pencil is entirely dispersed among 'millions of human beings', from the Italians who mine pumice for the eraser to the coffee manufacturers who supply the cedar loggers in Oregon.

Read was vividly illustrating a famous point of Friedrich Hayek's—these separate people manage, through nothing but the price system, to make something extraordinarily complex. None of the pumice miners intend to make a pencil—they simply want to trade their labour for wages. Adam Smith's invisible hand does the rest.

Read published his essay in 1958. The chemical formula for the eraser—known as the 'plug'—has changed repeatedly over the interim half century. The production is highly automated, and the supply-lines are tighter. Chemicals are added to keep the eraser from splitting. Synthetic rubber production in 2012 is much different than it was in 1958. These tiny plugs look pretty much the same but have evolved in a dozen different ways.

'I, Pencil' magnificently captures the complexity of markets, but it doesn't quite capture their dynamism. The millions of people involved in pencil production aren't merely performing their market-allocated tasks, but trying to find new ways to make their tiny segment easier, cheaper, and more profitable. The pencil market—as far from a cutting edge firm like Facebook as you could imagine—is still full of entrepreneurs trying to break apart established business models, to shave costs and rationalise supply chains. In 1991, a gross of 144 simple, Chinese-made wood pencils sold on the wholesale market for US\$6.91. In 2004 that price had declined to \$4.48.





And this is before we consider the variety of pencils available to consumers—not just wooden ones of different shapes, sizes, and different colours and densities, but mechanical pencils, jumbosized childrens' pencils, rectangular carpenters' pencils, and on, and on, and on.

WHY GOVERNMENT DOESN'T UNDERSTAND INNOVATION

Even the most iconic devices of the modern age have behind them this quiet iterative change.

Apple launched its iPod in 2001. In retrospect it seems like the device exploded on the scene and created an entirely new market overnight. But it took years, and many iterations of the iPod for it to become iconic—the first model's price was far higher than any of its competitors (the iPod was not the only MP3 player on the market) and its user navigation was clunky.

There have been nearly two dozen versions of the iPod. Some features and designs have been tried and dropped. The software has been revamped over and over. It wasn't until 2003 that Apple even launched the iTunes store, which is tied so closely to the iPod (and iPhone) consumer experience today. Each new feature added to a device like the iPod creates its own problems, and they take time to sort out.

Steve Jobs' did not manage a team of inventors. He managed a team of refiners.

If *FastCompany* has a warped view about the nature of innovation in a market economy, they are not alone. Governments do too.

The Australian federal government has its very own Minister for Innovation (currently Greg Combet) and his Department of Industry, Innovation, Science, Research and Tertiary Education doles out grants for inventions and start-ups. The Commercialisation Australia program sponsors inventors who 'have transformed an innovative idea into reality'. Innovation Australia funds grant-seekers to turn their 'ground-breaking ideas into commercial products'.

But ideas are the easy part. Getting things done is hard. Setting up a business, paring down costs, acquiring and retaining market share: those are the fields in a market economy where firms win or lose. Apple's iPod wasn't a success because of the brilliance of its idea, the elegance of its prototype, or the financial backing of its parent firm. It was a success because it was continuously refined and changed and the prices of its components were kept as low as profitability would allow.

The brilliance of the market economy is in that—the small innovations made to polish and enhance existing products and services.

Invention is a wonderful thing. But we should not pretend that it is invention that has made us rich.

We have higher living standards than our ancestors because of the little things. We ought to be more aware of the continuous creative destruction of the market economy, the refiners who are always imperceptibly bettering our frozen pizzas, our bookshelves, our pencils, and yes, even our smartphones.

