



# We Do Things Differently

Mark Stevenson  
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## Rating

9 Importance  
8 Innovation  
8 Style

## Focus

### Leadership & Management

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IT, Production & Logistics

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Small Business

Economics & Politics

Industries

Global Business

Concepts & Trends

## Take-Aways

- The world needs pragmatically disruptive innovators.
- Entrenched “belief systems” serve incumbents; innovative systems benefit humankind.
- Jamie Heywood’s nonprofit PatientsLikeMe portal – modeled after dating sites – facilitates “participatory” trials of new medications.
- Samir Brahmachari, India’s highest ranking scientist, uses crowdsourced gene annotators and computer modeling to fight antibiotic-resistant tuberculosis.
- Some farmers in India are turning to a controversial rice- and crop-growing system to achieve better yields without chemicals.
- Peter Dearman’s “liquid air” engine brings food refrigeration to the developing world.
- The failing town of Güssing, Austria, experienced a revival when it went green, thanks to the efforts of its mayor and a former professional basketball player.
- The Keep Growing Detroit project uses “urban farming” to achieve urban renewal.
- In Brazil, “participatory budgeting” lets citizens set their own funding priorities.
- Educator Carl Jarvis turned a failed school around by inspiring kids and galvanizing staff.

# Relevance

## What You Will Learn

In this book summary, you will learn: 1) How pragmatic innovators disrupt entrenched systems and spark renewal, 2) Why the world needs original thinkers and their practical actions, and 3) How some public-spirited innovators succeeded even though they were outsiders.

## Review

Remarkable trailblazers around the globe are brimming with unconventional ideas and the gutsy pragmatism to carry them out. And upbeat futurist Mark Stevenson should know. He's traveled the world meeting some of the most inspiring and drawing out their innovative passions. His diverse selection includes democracy-building Brazilian ex-revolutionaries, an engineer moved by brotherly love to upend the system for discovering medications, and intrepid urban agriculturists turning Detroit's cityscape green. No pipe-dreamers, all the innovators here understand the enormity of the tasks facing them. Stevenson describes global problems that he believes could engulf humankind without the urgent intervention of such brilliant "outsiders." *getAbstract* recommends his stirring examples to leaders, mavericks and all ardent doers.

# Summary

*"There has always been a subset of people who think differently. A smaller number 'do' differently, people who look at the status quo and not only think 'I could fix that' but actually roll their sleeves up and start working."*

*"They hold up a mirror to our current belief-bound systems, a mirror that reflects an uncomfortable truth: 'What you believe is wrong and I have proved it...by doing it better.'"*

## Fixing Broken Systems

Many people have novel ideas, but only a few take action on them. Real innovators see dysfunctional systems – in food production, energy, health care, education, politics, and more – and devise practical fixes, not in the future but now. They resist standard narratives claiming that established ways are the only ways. The world needs these stubborn, optimistic activists.

## "Rebooting" Medicine, Driven by Empathy and Data

In 1998, doctors diagnosed Jamie Heywood's younger brother Stephen with amyotrophic lateral sclerosis (ALS), called Lou Gehrig's disease in the US and motor neuron disease in the UK. Jamie threw himself into seeking a cure – and in a truly atypical way. A mechanical engineer, Jamie set up a new biotech nonprofit, the ALS Therapy Development Institute (ALS TDI), and raised millions in start-up funds. Not willing to wait six years for drug approvals, ALS TDI tested already-approved drugs that might work as "off label" ALS treatments. A promising lead on Celebrex, an anti-inflammatory drug, proved fruitless. ALS TDI scientists held large-volume Monte Carlo simulations, showing that all other purported ALS therapies were specious. As meta-research on published papers shows, a lot of medical research produces biased, unreliable findings. Conflicts of interest fuel this problem, which "wastes" some \$100 billion per year. Jamie Heywood's passionate, "maverick scientist" resolve to fix the drug-research system held firm after Stephen died in 2006. Aware of the need for patient input in medical research and given his engineer's eye for systems, Jamie, his older brother Ben Heywood, and their friend Jeff Cole launched the PatientsLikeMe website. Inspired by the matchmaking algorithms used by dating websites, it empowers people with various conditions to log their symptoms and treatments in a structured way that makes their data comparable. This enables sufferers to find and befriend others with similar ailments and to join systematic off-label drug trials. Proving critics wrong, patients embraced the system's openness. Statistics show that participation improves outcomes.

*"Fossil fuels, like many other products come with negative externalities – and they're humdingers."*

*"The world needs a wholesale rethink of how the power we use is generated and owned if we're to have any chance of making the future more sustainable, equitable, humane and just."*

*"For a species that is 60% H<sub>2</sub>O, we're dangerously and depressingly cavalier with the stuff."*

*"Create a world where energy is both cheap and no longer dominated by large corporate or national interests and you're looking at a very different world indeed."*

## **"Participatory" Health Care and Drug Research**

A cancer scare drove Dave deBronkart's zeal for participatory health care. His kidney cancer responded to the long-odds drug Interleukin, which he learned of from an online cancer patient community. Inspired by the late Dr. Tom Ferguson, who as early as 1996 believed in empowering patients using the web, deBronkart helped set up the Society for Participatory Medicine.

Samir Brahmachari, India's most senior scientist, turned his attention to "totally drug-resistant" tuberculosis (TB). Globally, TB kills some 4,000 people daily and one person each minute in India. Drug companies haven't developed a major new drug for TB since the 1970s – mainly because it primarily affects poor people who can't afford prices steep enough to cover the cost of R&D on a new drug. Researchers instead pursue profitable treatments for "lifestyle conditions" like obesity. Industry researchers cite a cost of \$2.6 billion per approved drug, but only one in every 5,000 potential drugs gets final approval. Using crowdsourced gene-sequence annotators, Brahmachari's Open Source Drug Discovery (OSDD) method provides a speedy, cheap – less than \$15 million to date – alternative. OSDD uses an *in silico* computer simulation model of a TB bacterium to gather data. It has identified 11 "invariant genes" as potential drug intervention targets. It hopes to reduce the failure-to-success ratio of 5,000:1 to 100:1. The Open Source Malaria project uses similar techniques.

## **Agricultural Development**

Working with the KGVK agricultural rural development agency in India, Erika Styger and Gaoussou Traore, who are soil and crop scientists, are advocating the use of a controversial rice- and crop-growing method, the System of Rice or Root Intensification (SRI). Social sciences professor Norman Uphoff, who learned the system from Father Henri de Laulanié in the 1980s, was its first promoter. Supporters believe SRI can produce high crop yields using plant spacing, weeding and rain watering but no chemicals or GMOs.

Nobel Peace Prize–winner Norman Borlaug's earlier Green Revolution used high-yield methods, which called for fertilizers, pesticides, weed-killers and intensive irrigation. It fed thousands, but it also poisoned and depleted water sources, acidified and eroded soil, and released climate-affecting levels of CO<sub>2</sub>. Now some Indian farmers claim they've harvested SRI rice yields of "three or four times" normal crops raised with chemicals. The International Rice Research Institute – "the" rice research body set up as part of the Green Revolution – "dismissed" these reports. While Styger also finds such high claims implausible, she sees strong evidence that favors small-scale "agroecology" methods like SRI, part of a quiet, sustainable "green revolution."

## **Cold Power**

Around 1899, engineer Hans Knudsen's firm advertised a vehicle powered by "liquid air," but no one outside his company ever saw anything except a drawing. Later attempts produced an engine that lacked pick-up, because liquid air has low "energy density." But a century later, in 2000, an Englishman working in a backyard shed solved the 100-year-old liquid air problem and perfected a world-changing new engine. Peter Dearman injected antifreeze into his engine, boosting its pressure to drive the pistons longer.

Unlike gasoline- or diesel-fueled combustion engines, the Dearman engine runs clean and cold on liquid air. Since air is mostly nitrogen, it turns to liquid at a similar temperature – about minus 195°C. Scaled-up, his engine should run cheaper than gas-powered models. It might struggle to run large vehicles, so the Dearman Engine Company may sell it for use

*“Batteries may be essential, but they’re dependent on a host of toxic components – unless, of course, you make them out of air.”*

*“The world’s health care systems are, in reality, astonishingly expensive and labyrinthine sick-care systems.”*

*“Our global food system is heading for collapse. If it fails, billions will starve.”*

*“Students, parents, teachers and nations, keen to score well, become fixated on exam results – a culture which inevitably favors a traditionalist approach to education.”*

in small vehicles. Yet, its main use lies elsewhere. Hunger is a global killer, yet up to half of the world’s annual food output goes to waste for lack of refrigeration. The developing world lacks refrigerated food supply lines – or “cold chains.” The Dearman engine, which runs cold and produces coldness, can mitigate this problem cheaply, as well as reducing pollution and cutting resource waste.

Professor Yulong Ding of Birmingham University grasped the further importance of Dearman’s engine. The UK energy grid – like all energy grids – lacks sufficient instantly accessible power during periods of peak demand. Generating power using stockpiled coal and gas takes time to ramp up and increases pollution. Yulong’s project employs Dearman-type technology in a huge battery that is powered by liquid air and that creates instant, clean, deployable power. Given the possibility of producing fuel in solar-powered, air-liquefying factories, such “batteries” may soon form part of a truly sustainable, climate-friendly energy system. “Pumped hydro” schemes, such as the one at the Dinorwig Power Station in Wales, use excess cheap power to pump water uphill for later high-demand release through power-generating turbines. In effect, this forms giant, rechargeable batteries. With solar plants that generate energy in the daytime coming on-stream worldwide, the need for peak-demand power and nighttime energy storage will increase. “Grid-connected batteries” will mitigate this problem in sunny countries, but northerly locations will still need alternative power sources and storage.

### Revitalizing Energy

In the late 1800s, Thomas Edison campaigned hard in favor of making direct current (DC) technology the public standard since it drove many of his patented inventions. However, “the transformers of the day required alternating current (AC)” – which Nikola Tesla and Samuel Insull favored and which beat Edison’s choice in the “war of currents.” In a movement some energy industry insiders call “Edison’s revenge,” some local communities are now taking control of once-centralized energy systems spawned by AC. One such town is Güssing, Austria. Peter Vadasz, who became mayor of Güssing in 1992 and is now retired, wanted to use progressive energy policies to help ease the poverty of his youth. Seeing the town’s money flow into profit-making energy companies, the mayor sought to create a renewable energy system based on locally-generated power using the area’s resources, including its abundant forests.

The World Energy Council defines the “energy trilemma” as the supposedly intractable problem of guaranteeing a supply of energy with fair, affordable access and no major environmental harm. It asserts that renewable fuels mean higher bills and more power outages. Environmentalists and fossil-fuel lobbyists have clashed over subsidies. Fossil-fuel supporters say renewable energy sources get more subsidies than traditional providers. But the fossil-fuel lobby’s equation doesn’t include the “negative externalities” of air pollution and climate damage. The International Monetary Fund says such issues cost \$5 trillion globally, but the International Energy Agency’s estimates are \$500 billion, a tenth of the IMF’s tally.

Güssing, near the border with Hungary, lost vital trade when the Iron Curtain fell. But thanks to Vadasz’s policies and the business drive of pro basketball player-turned-engineer Reinhard Koch, the Güssing area now owns and runs sustainable utilities. Its innovative ventures include a biogas fermentation plant, solar water-heating systems, a “Fischer–Tropsch reactor” that makes liquid “hydrocarbon” fuels from waste gas, and a *Biomassekraftwerk* (*Kraftwerk* is German for “power station”) that “gasifies” dry forest-floor waste to generate electricity and heat homes. Güssing’s early energy “subsidies” came

*“Wherever you are in Detroit there’s an urban farming project or local food business no more than a block or two away.”*

*“Here I am, standing on a plot of land that apparently only a madman would think to farm on, and yet it’s blooming.”*

*“Many futures are already here – and now we have to decide which ones to distribute.”*

with “strings.” Koch felt that banks and big suppliers tried to strong-arm the town, but it responded to the “trilemma” with sustainability, economic viability and local ownership. Incumbent suppliers generally oppose moves toward accessible energy markets. Güssing generates power locally, but relies on Austria’s grid for distribution, so it still must work with price-setting intermediaries. If small-scale, renewable-based, power generators had direct access to the grid, they could sell surplus energy back into it competitively.

### Open Utility

Ethernet co-inventor Bob Metcalfe envisioned a smart grid-based “Enernet.” Inspired by him, James Johnston co-founded Open Utility, bringing peer-to-peer tech – like Uber’s or Airbnb’s – to energy markets. Open, flexible market access can change the game for green-energy suppliers. Small-scale Enernet trials will become major projects in California, China and elsewhere.

### Farming Urban Renewal

Ashley Atkinson, co-director of Keep Growing Detroit (KGD), helps coordinate multiple “urban farming” projects. Projects like the Plum Street Garden, which KGD supports, grow fresh produce in the heart of the city to supply Detroit’s culinary industry. KGD and Detroit’s ethical Foodlab project have found that providing supermarkets with healthful food or even training and employing people isn’t yet enough to make a big difference in public health. However, their work – along with that of Detroit’s Heidelberg urban art project – galvanizes community action and “collective efficacy,” reduces crime and eases tensions. Now, many other cities worldwide – including Santa Fe, Addis Ababa, Cape Town and Kathmandu – are embracing urban farming.

### Doing Things Differently in Politics and Education

Activists globally are proving the impact of doing old things in new ways:

- In Brazil, ex-revolutionaries Maria Inês Nahas and Fernando Pimentel are advocating “participatory budgeting” a process that includes citizens in deciding local budget priorities. Citizen committees evaluate competing projects and vote on their funding.
- In England, Carl Jarvis responded to a “save our school” employment ad about Hartsholme Academy. When he arrived, he found a chaotic school with low morale and “feral” kids. Jarvis, a former nightclub owner, drew on his own poor educational experience to figure out what the school lacked. Now the principal, he turned Hartsholme around by giving pupils freedom to “self-critique” and to learn from each other and by galvanizing staff and faculty members into a team with high aspirations. Now the school ranks at the “top of the UK achievement tables.”
- In New South Wales, Australia, farmer Bruce Ward uses a “holistic management” (HM) method for his cattle, keeping them in a single roaming herd instead of splitting them into groups. The animals don’t overgraze small paddocks, so they stay healthy and well-fed. Each paddock gets a chance to “rest” and regrow its grass. HM’s practices draw from the past, preserve resources and work with nature.

## About the Author

**Mark Stevenson** is a London-based futurist, writer and entrepreneur. He founded The League of Pragmatic Optimists and advises organizations such as Civilized Bank and Virgin Earth Challenge about the future. He also wrote *An Optimist’s Tour of the Future*.