

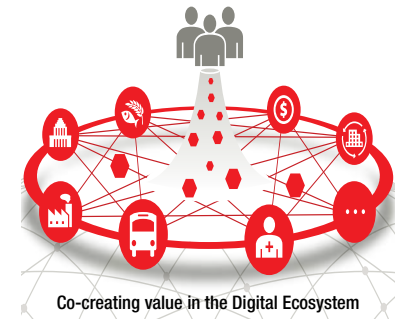
Shaping tomorrow

How does a large multinational put values and aspirations to work? Can it change how it thinks about business and conducts itself? **Stuart Crainer** and **Des Dearlove** gained inside access to Japanese technology giant Fujitsu and its mission to shape a better future for society

Engaging engineering
Masami Yamamoto believes
ICT companies will have a
big role to play in addressing
serious global social problems



Gleaming spire Fujitsu's headquarters in Tokyo is the hub of an operation with 162,000 employees in more than 100 countries



What is the point of technology? It is a naïve question, but one you often feel like asking as another technological marvel is unveiled. From Candy Crush to self-parking vehicles, so much technology has a peripheral or trivial feel. Perhaps it will go on to play a major role in our lives (think smartphone), but there is often a sense that it is technology for its own sake; smart (no pun intended) but decorative – and potentially very lucrative.

What, then, is the *raison d'être* of a technology company? Is it to dazzle us with ever more impressive and ostentatious gadgets? Or is it, as Steve Jobs famously observed, to make a ding in the universe?

To put it another way: if a stereotypical technology company placed an ad in the classified pages, what would it say? “Obsessive geek seeks adoring partners for casual relationship – no strings attached.” Harsh, perhaps, but anyone who has visited an Apple store lately and waited hours for a Genius Bar appointment can empathise. It is reassuring, then, to know that not all technology companies are the same.

Visit the gleaming headquarters of the Japanese company Fujitsu in central Tokyo and the point is made abundantly, repeatedly and uncompromisingly clear. Technology exists – and matters – in order to make the world a better place. Societal and human improvement relies on technology. So, a technology company should be measured by the improvements it brings about in the world rather than the novelty value of its products or simply financial value.

Fujitsu is the world's fourth-largest IT services provider and number one in Japan. It talks about creating value through the integration of technology into our lives and businesses. Its practical vision of the role of technology finds its most powerful voice in the shape of its president, Masami Yamamoto. Compact and serious-minded, Yamamoto had a youthful interest in kendo (“the way of the sword”), an explosive but disciplined martial art and, like many of his senior colleagues, has spent his entire career with the company.

“I am an engineer,” he says with engaging candour. It explains everything. The entire ethos of Yamamoto and Fujitsu springs from this realisation. It is a company built by engineers and, lest we forget, it was engineering excellence that transformed war-ravaged Japan into an industrial powerhouse, and still to this day the third-biggest economy in the world.

Social benefits

With this come the preoccupations and fascinations of engineers. They seek out problems and apply their ingenuity to solving them. For that reason, Fujitsu's products and research are wide-ranging. As soon as a social problem is solved, another follows. Solving our social problems is what the company does. That is why it boasts about 100,000 patents worldwide and a US\$2.5 billion annual R&D budget. The impression is that the company's agenda is not dictated by simple money making, but by the interests and passions of the engineers, combined

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with the input of consumers and the likely social benefits of any project they work on.

Talk to other senior executives at Fujitsu and the engineering vision holds true. The company with 162,000 employees operating in more than 100 countries begins with engineering. But where does it go from there? What is its intended destination?

In 2010 Fujitsu proclaimed to the world that it had a new brand promise – shaping tomorrow with you – and aspired to a fresh coherence in its global operations. It talked of being responsive, ambitious and genuine. It wanted to change. Typically, such announcements from corporations attract headlines, but do they really deliver genuine change? Do words translate into actions? The first thing Fujitsu's leaders emphasise is that “shaping tomorrow with you” is not just an advertising slogan. Instead, it encapsulates what the company really stands for. This is made clear by their insistence that the brand promise emerged after extensive interviews with customers, partners and employees. It is a descriptive crystallisation rather than a distant aspiration.

There is also a strong sense that it is driven by a sense of duty as much as opportunity, a point confirmed by Tango Matsumoto, corporate senior vice president. “Behind our brand promise, there is our strong belief that aligning our business operations to positive social outcomes is not just our aim but our obligation. Our actions must contribute to creating a better society, and short-term profits are not our only goal. We are facing serious global challenges – food shortages, rapid urbanisation, environmental protection, ageing, mitigation of natural disasters and more. We believe that information and communication technology (ICT) companies will have a big role to play in addressing them.”

It is an approach that delivered revenues of 4.8 trillion yen (US\$46 billion) for the last fiscal year. Doing good can also be good business. But making profits is not an end in itself. As Peter Drucker, the father of management thinking, famously observed, money is a by-product of creating value.

Fujitsu's core value proposition is to work together with its customers and partners to co-create innovative ideas and realise a better society for the future. The company calls such a world a “Human Centric Intelligent Society”. It is a safer, more prosperous and sustainable society, which people will build with the power of ICT. “We are harnessing computer sciences to contribute to the creation of a networked society that is rewarding and secure, to bring about a prosperous future,” says Yamamoto.

The leaders of the company stubbornly insist that providing technologies is not enough to make a better world. Instead, how people use technologies is what really matters. With this mindset, its engineers are working to develop technologies and services to empower people to innovate and build a better society. In the past, people had to adapt to technology, but Fujitsu aspires to create technology which is naturally aligned to the needs of people; technology which connects everything and harnesses information to create knowledge, helping people make judgments anywhere and anytime.

Internet of Things

But making the vision a reality is more complicated. To do so, the company has set out its Technology and Service Vision and embarked on strengthening a portfolio of technologies and services spanning the cloud, mobile, big data, security and others, and delivering them globally. The document, updated annually, underpins operations worldwide, encompassing Fujitsu's direction for basic technology research, research and development of all products, solutions and services, and global marketing initiatives.

“A new world is emerging. It is a world of connectivity. People and the things around us are all linked together, sharing information. The World Economic Forum calls it a hyperconnected world and it will have a huge impact on the future of business and everyday life of people,” one of the company's engineering leaders told us.

“The next generation of the internet, the Internet of Things, is a driving force for this drastic change. Combined with big data, we expect new innovative services will be created. At the same time, we will face serious challenges in information security and privacy protection, ensuring organisations look for skills and trust in their partners.

“In this new world, it is essential for organisations to enable three dimensions: people, information and infrastructure. How we connect and empower people; how we create knowledge from information; and how we connect everything and optimise business and social infrastructure. Fujitsu helps customers deliver new value by bringing together these three key dimensions. This is what Human Centric Innovation is about.”

Matsumoto offers his take on the new reality. He is smiling, but his message is serious: “We have emphasised to all our employees as well as customers that our brand promise is not an advertising catchphrase, but represents who we are and how we do our business. It is our DNA. The brand promise was created through extensive interviews with customers, employees and partners. Our customers told us that we worked with them together to create innovative solutions and they earnestly appreciated this style. In that sense, it was easier for our employees to internalise this brand promise and it was quicker for our customers to embrace it.”

Matsumoto pauses to give a summary: “I trust our people to maximise value for ▶

Co-creating value
Tango Matsumoto sees developments such as agriculture mapping (below), the K computer (right) and the 3D Tsunami simulator (bottom right) as joint innovations with customers



our customers. My ambition is doing well by doing good. We have to verify through our customers whether we are doing good or not.”

Education and healthcare are obvious targets for technology that aims to be useful. Visit the University of Tsukuba Elementary School and you will see a uniquely collaborative project involving Fujitsu, Microsoft Japan and the office equipment supplier Uchida Yoko.

The Future Classroom project seeks to bring information and communication technology into the classroom as never before. Each student has a tablet computer. The classroom has a multiscreen display on which the teacher's tablet screen and those of students can be displayed. Desks and chairs can be easily and flexibly arranged. There is an electronic interactive whiteboard, a wireless LAN, battery chargers and much more. Teachers use tablets to identify areas where a student may be having difficulty by creating a customised learning record for each student.

Technology at work

Healthcare is another big area of technological promise. In healthcare, Fujitsu leads the Japanese market in Electronic Medical Record systems and is expanding to other regions around the world. It established the Center for the Future of Medical Care in December 2013, proactively expanding industry partnerships and collaboration with academic research institutions in advanced medical fields. Fujitsu talks of co-creating a value proposition for the wellbeing of people instead of just the treatment of patients.

Another area of growing involvement for Fujitsu is agriculture. Japan's arable land is being abandoned because of a lack of people willing to take over farms. Meanwhile, Japanese farmers are growing older. There is a real danger that valuable knowledge, gleaned by back-breaking work over generations, will be lost. To contribute to a solution, Fujitsu dispatched its engineers to work side-by-side with farmers in the field. The engineers asked questions to understand the implicit knowledge of the farmers and transform it into a more tangible form.

“We have to verify through our customers whether we are doing good or not”

The result was an agriculture cloud service, Akisai. This uses sensors, mobile devices and cloud technology to analyse fertiliser use, optimal environmental conditions and the impact of pests. The data generated has significant value not just for producers but also for retailers and logistics companies. The hope is that by sharing information between retailers, logistics companies and producers, a cross-industrial value chain for safer food can be forged.

Reinventing innovation

Powering all of these initiatives is innovation. Innovation and engineering are the company's watchwords. The emphasis is on innovative engineering. Not surprisingly, given its history and background, the company is turning its attention to the knotty process of innovation itself. To Fujitsu, innovation is an engineering challenge like any other challenge. It wants to understand how it works and what makes it tick. (It is a testament to the company's ongoing interest and commitment to managing innovation that in 2011 and 2013 it sponsored the Thinkers50 Innovation Award, won by Clay Christensen of Harvard Business School and Cambridge University's Navi Radjou, respectively.)

Increasingly, Fujitsu's emphasis is on how it innovates. It has recently started a new project around open innovation. This

aims to foster co-creation with the innovation ecosystem emerging in Silicon Valley. It signals that the company's outlook has expanded. Fujitsu has long-standing relationships with major institutions such as Parc (Palo Alto Research Center), Stanford University and the University of California at Berkeley.

The new project is opening up Fujitsu's innovation and tapping into the rapidly-growing open innovation movement. “Our

Technology that enables innovation

The jewel in Fujitsu's technological crown is the K computer, one of the world's fastest supercomputers, jointly developed by Fujitsu and RIKEN, Japan's leading research institute. The supercomputer broke the 10 petaflops barrier. The number ten peta, or 10 quadrillion, corresponds to 1 followed by 16 zeros. In Japanese this is expressed as one “Kei” and explains why the supercomputer was christened “the K computer” by RIKEN.

Supercomputing isn't simply a technological arms race, a battle between major global IT titans such as IBM and Fujitsu to build bigger, faster, more impressive models – although it doesn't do a company brand any harm to be the leader. There is a serious purpose. In the field of drug discovery, for example, supercomputers play an essential role. Fujitsu expects to support

accelerating the discovery of new drugs by delivering its ultra-high speed computing power over a common cloud platform among a variety of players, including pharmaceutical companies, advanced technology research institutions and other stakeholders.

“The K computer was very important to us. It was a jewel in the crown of Japan's technology. Now, our challenge is to take this technology and ecosystem to the world,” observes Tango Matsumoto.

The pressing need for such computing power was brought home to the Fujitsu engineers working on the project. After Japan experienced the huge earthquake and tsunami that destroyed areas on its eastern seaboard, the K computer was reaching completion in 2012.

Problem resolution being high on the agenda of engineers, Fujitsu has been seeking to develop practical

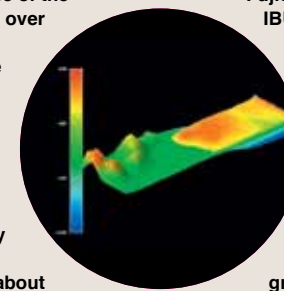
technological solutions to such natural disasters. It cooperated with the Japan Meteorological Agency to develop a mobile phone warning which alerts people of an imminent earthquake. Currently this gives users a ten-second warning – which might be enough time to get under a desk or in a doorway. The frequent aftershocks experienced in Tokyo and elsewhere meant that this technology was widely used in 2011. Fujitsu hopes that further development of the technology will give people even greater warnings of incoming 'quakes.

Fujitsu and Tohoku University have also developed a 3D Tsunami Simulator which enables very precise tsunami forecasting. While there was an existing 2D tsunami simulator, it was difficult to replicate urban inundation and river surges precisely and to incorporate 3D data, such as the shapes of buildings or levees, which affect the power of the tsunami and the flow velocity of surges. Fujitsu and Tohoku University worked together to integrate the data on

wave height and flow velocity replicated using the 2D tsunami-propagation simulation technology into the 3D fluid simulation technology. By combining these two technologies, the researchers developed a 3D tsunami simulator.

With the 3D tsunami simulator, the complex flows of the tsunami from its hypocenter source, as well as the behaviour of wave breaks and overflow on the coastal areas, can be replicated. As a result, it is hoped the damage caused by the impact force of the tsunami as it launches up over the breakwaters and then crashes down will be able to be more precisely estimated.

One of the other issues Fujitsu is working on is the little-talked about environmental cost of much of the technology which powers the world's economies. Fujitsu talks about



“Technology company seeks caring customers for serious relationship with a view to world improvement.” Now that does sound like a useful innovation. ■

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‘Green ICT’. Information and communication technology now accounts for three per cent of greenhouse gas emissions, anticipated to grow to six per cent by 2020. Research also shows that ICT is responsible for up to 60 per cent of an organisation's energy consumption – in the United States, companies spend \$5.8 billion powering servers and a staggering \$3.5 billion keeping them cool every year.

Fujitsu is also involved with IBUKI, the world's first dedicated satellite to monitor concentrations of carbon and methane, and developed a control system which manages and stores data from the satellite and which visualises the distribution of greenhouse gases.