

Sam Pitroda's OneWallet: Doing It His Way A telecom maverick takes on the world – again

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It was 1999, seven years after he'd first conceived of the idea, and a crack team of experts from McKinsey & Company, the world's top strategic consulting firm, was finally telling Sam Pitroda what he already knew – he was sitting on a likely goldmine. It was now merely a question of how to extract the bounty. Pitroda's billion-dollar concept – replacement of the traditional leather wallet with a fully digital solution – was big, revolutionary, and simple. For him, the legendary Indian telecom innovator, it was an idea whose time had come, the next logical step in the evolution of the digital lifestyle. For the world, he hoped, it would represent a paradigm shift in the way money changes hands. It was also too far ahead of its time to implement anytime soon, and technology would have to play catch-up. Still, Pitroda's value proposition was compelling enough to galvanize the McKinsey team. Originally conceived as a standalone "black box", Pitroda was now toying with the notion of incorporating his digital wallet into mobile phones. With nearly a billion such devices in use around the world, the time was ripe to get a jump on the competition. Having already secured his digital wallet with two U.S. patents, Pitroda sought the guidance of McKinsey.

Following a six week audit of Pitroda's two patents, the McKinsey consulting team presented Pitroda, accompanied by his trusted associate Mehul Desai, with two options. One proposed that he sit on the patents and wait for competitors to develop their own digital wallet solutions, hoping they infringe and consequently, would be forced to pay him royalties. The risk here was that if no one made a serious effort to roll-out out such a system before 2014, the year Pitroda's patents were set to expire (releasing his digital wallet into the public domain), he wouldn't make a penny. Plan B was just as precarious, but proactive, involving the building of an enterprise around Pitroda's intellectual property. To maintain his lead over potential rivals, his business would need to commence product development, engineering, partner acquisitions, and customer almost immediately.

For Pitroda and Desai, the choice was fairly obvious. "Needless to say we picked the later one. We feel very confident about the IP coverage in general," says Desai, now Chief Operating Officer of C-Sam, the company Pitroda established to develop his "OneWallet" digital transaction system soon after the McKinsey consultation. Seven years into the venture, C-Sam has successfully transformed its self-contained "black box" architecture into a working software-based solution that can be installed on virtually any mobile phone, effectively enabling users to discard their cumbersome leather wallets forever. Although the ambitious decision to develop the digital wallet themselves requires Pitroda and Desai to actively court the gatekeepers of the tech, bank-

ing and telecom realms (with Microsoft, Chase, and AT&T coming to mind), the nuclear option remains within close reach. “I am not in a situation today to take MasterCard or Visa to court because I have to work with them from a business stand point, but at the same time I do want to enforce my patent,” insists Desai, warning C-Sam’s rivals, “If necessary we will flex those muscles and go after people we think are infringing.” For now, though, the industry heavyweights are playing nice, if not holding their card close to their vests. In a competitive landscape littered with the carcasses of once promising startups, where clients can quickly become formidable rivals at the drop of a hat, Pitroda faces a trial of epic proportions with his OneWallet endeavor. But then again, extraordinary challenges have always been his bread and butter. And as do many with such staples, Sam Pitroda eats them for breakfast.

Sam Pitroda

Born in rural India in 1942, Satyanarayan Pitroda, later to be known as Sam Pitroda in the corporate world, arose from humble beginnings, his father a carpenter and his mother a homemaker. Though lacking formal education, they stressed its importance in their children’s lives. While Pitroda’s early grades left something to be desired, “it was more because the lack of application than the lack of intelligence,” he says. Indeed, he would dramatically improve his academic performance in the years to come, eventually earning a masters degree in physics from the University in Baroda, India, and an electrical engineering masters from the Illinois Institute of Technology (IIT) in Chicago.

Having been raised in an environment devoid of most modern conveniences, Pitroda experienced something of a technological baptism during his ‘60s era studies in Chicago, most famously enjoying his first use of a telephone. With virtually no experience with electronic devices and systems, he was literally learning how to build them from the ground up as an engineer, enabling him to develop unique insights. Still, his passion for invention was only kindled following his graduation from IIT, during his employ at a small engineering firm. Designing a tone generator, Pitroda applied a novel approach that would lead to his first patent, spawning lifelong relationship with intellectual property. But it was during his ensuing ten-year stint with General Telephone and Electronics (GTE) that he would acquire the tools enabling him to truly impact millions of lives.

In the late ‘60s and early ‘70s digital electronic switching systems (ESS) – essentially an automated means by which different phone calls could be connected and routed – were still in their infancy, and GTE was on the cutting edge. As a member of the core development team, Pitroda seemed to have a knack for switching systems as he was scoring patents faster than any of his colleagues. Though thoroughly convinced of the ground breaking nature of the digital switches, Pitroda believed that GTE lacked the resources to scale the productivity of his conceptual work, eventually persuading him to move on.

Consequently, Pitroda and two investors founded Wescom Switching Inc. in 1974. Undertaking the development of a revolutionary new system known as the 580 DSS switch, he spent four years perfecting the technology. Introduced in 1978, the switch was an instant hit and went on to become one of the most successful systems on the market. The 580 DSS was truly remarkable achievement, a fact that didn’t go unnoticed by Pitroda’s telecom peers, elevating him to a new level of repute. Having its share of admirers, Wescom was eventually acquired by Rockwell International for \$40 million, with Pitroda remaining as vice president of Advanced Technology and Engineering at Rockwell.

A multi-millionaire by 1980 with nearly a hundred patents under his belt and the unmatched veneration of his industry peers, Sam Pitroda had become the embodiment of the Ameri-

can success story. Astonishingly, his business triumphs constitute only half of the story with respect to his public achievements. The other half has unfolded in India –in revolutionary fashion, unsurprisingly perhaps.

Giving Back

Following his prosperous pioneering work in digital switching in the U.S., Sam Pitroda began to reflect. “All my life, I had dreamed of wealth and success, but now I suddenly confronted the fact that I had walked away from India,” he recalls. Having enjoyed privileges of modern Western society for nearly two decades, he began to deeply contemplate technology’s relevance to the implementation of the water, sanitation, and agricultural infrastructures he’d come to take for granted in the States. It was painfully clear that his beloved homeland, the world’s largest democracy, lacked the modern support system to facilitate the comforts and even basic needs typical of the developed world. The writing was on the wall – what India needed now was Sam Pitroda.

Returning to his homeland in 1984, Sam Pitroda came armed with the devout belief that information technology, as a great social leveler, could bring all human beings on an equal footing. A potent democratic tool, it would greatly accelerate India’s social development, helping to overcome the rigid bureaucracy and aged caste system that were hampering advancement efforts even in the 1980s. “Politically, economically, socially, and logistically, telecommunications lies at the very heart of progress,” he professed, founding the Center for Development of Telematics (C-Dot) for the Indian government. Visualizing a countrywide network of thousands of phone booths to provide local and international access to every citizen, Pitroda battled conventional wisdom and powerful lobbies who questioned the need to provide telecommunications to the impoverished.

Undeterred by the lack of available funds to extend phone lines to every home and business, Pitroda and C-Dot developed an ingenious workaround, placing a smattering of terminals in each village’s main social venues, for example, a tobacco shop, bazaar, or a cafe. “One-hundred phones in a town of 5,000 may be a laughable density in American town, but it is a miracle in India,” Pitroda would remind skeptics. Furthermore, his plan was simple, upgradeable, and cost effective, leveraging the competencies of local Indian manufacturers to produce the necessary hardware.

The proliferation of bright yellow Public Call Office (PCO) boxes that soon became fixtures across India stood as a testament to his remarkable vision and persistence, firmly establishing his footing in the pantheon of great innovators. More than simply affording Indian society a modern convenience, Pitroda’s financially savvy implementation efforts helped challenge the way people viewed money in India, a harbinger of his future endeavors. Furthermore, his efforts to transform Indian telephony with C-Dot served as an effective template for other developing countries. His accumulation of more than fifty patents acquired during this period for digital switching, synchronization, tone generation, tone receiving, and teleconferencing technologies was just the icing on the cake.

Separate Ways

Pitroda’s work with C-Dot did more than garner him the acclaim of his peers. He had inspired the imagination of Indian leaders as well, prompting President Rajiv Gandhi to appoint him as an advisor on foreign and domestic telecommunications policies, expanding his influence beyond communication and into the likes of the most pressing social quanda-

ries. “I worked on what we call technology missions. The idea was that you take technology, management, communication, public-private partnership, and you motivate a large number of people in creating a newer culture to really make a dent in some of these areas,” explains Pitroda. “We looked at water, geological surveys, satellite imagery, water source finding – all kinds of things that people had not looked at,” he offers as an example of his work.

Continuing with related efforts to this day, Pitroda remains intent on living what is essentially a double life. “Most of my social work is in India. Most of my technology work is the in the U.S. So I sort of divided my world into two pieces: I do all my technical stuff – high tech, inventions, money making – in America, and I do my social service in India. Why? I don’t know; I don’t have a good answer,” he admits. “But that’s the way it turned out to be.” As with all of Pitroda’s decisions, however, there is a logical rationale behind each. “The ecosystem in this country is great for innovation. The ecosystem in India is great for social contribution. I can’t make a great social contribution to this country because – relative to India – everything works and doesn’t need to be fixed,” he says, revealing a sliver of insight. “It’s very difficult for me to operate a business in India,” he adds. “Here, I can run a business without paying anybody a dime.”

Eureka!

Following a heart attack, bypass surgery, and the assassination President Ghandi, an emotionally exhausted and financially spent Pitroda returned to the U.S. to reclaim his fortune. Already an experienced entrepreneur and strategist, he quickly established several IT derived enterprises, the highlight of which was a Milwaukee based technology incubator that sought to leverage new technologies to ultimately produce patentable innovations. With his incubator focused on areas relatively unexplored by its larger R&D peers in the corporate world, Pitroda was always on the lookout for new ideas.

As with many great inventions, the concept that would later become OneWallet was born of a previously overlooked problem. On the day that Sam Pitroda first realized that his wife’s monthly burden of writing checks, stuffing them into envelopes, affixing stamps, and mailing them off was as anachronistic as driving a horse and buggy to work, the seeds of a new idea were sown. “I started paying attention to this whole business of paying. I began to ask myself, ‘Who writes checks? How many checks do you write? How long does it take to write a check?’” Pitroda recalls. Soon, he expanded his musings to include issues of receipt storage and credit card management, identifying more problems related to personal financial activities before attempting a unified solution. “I think he always works backwards from the problem, from the consumer standpoint,” opines biographer Mayank Chhaya, offering further insight into Pitroda’s concept development. “The problem was, in your wallet you have fifteen credit cards. Each credit card would eventually generate thousands of receipts,” explains Chhaya. “You write thousands of checks to pay those bills. What would a consumer do to get rid of so many credit cards? That’s how I think he approached it.” Indeed, Pitroda, who had years earlier patented a digital diary, was again convinced that the path towards task simplification must be paved with 1s and 0s. “He began to think, ‘Why can’t you have a situation where everything that you do is in a digital format? Rather than having everything in a leather wallet, why can’t you have it in a digital one?’ That’s where the idea began to germinate,” recalls Chhaya. “What’s amazing is that even in ‘94, when the idea was so embryonic, he had the entire concept figured out.”

What Pitroda had actually conceived was more than a digital proxy. It used the leather wallet as a metaphor, replicating all its familiar contents – branded credit cards, licenses, IDs, receipts, and photographs – through a high resolution display. But Pitroda didn’t stop there. He

envisioned banks issuing new cards directly over the air to their customers' devices, retailers beaming coupons directly to patrons, friends exchanging funds with the touch of a button – any transaction imaginable with one welcome omission – the money leeching middleman.

Innovative as the digital wallet was, however, Pitroda knew another inventor might have beaten him to the punch. If a similar idea had in fact been patented, any serious effort to develop his concept might all be for naught. With no time to spare, he called his patent attorney, ordering a comprehensive study of all prior art related to personal transaction systems. While his family watched TV, Pitroda worked in parallel with his lawyer, pouring over volumes of patents, scouring the texts and drawings for anything remotely related to his endeavor. A few weeks later, the verdict was in – the coast was clear. The digital wallet was a go.

Thinking Differently

Early in his tenure with Rajiv Gandhi, Sam Pitroda discovered that successful alleviation of social problems required more than the application of new technologies. “Asking a different set of questions is key to social innovation,” he says, recalling an Indian water management meeting during which he'd caught experts off guard by asking why they hadn't figured the hydration requirements of farm and domestic animals into their water consumption calculations. “This kind of thinking – out-of-the-box thinking, looking at a problem differently – equally applies to a product development,” Pitroda insists, adding that the entire “ecosystem” with all of its dependencies surrounding a given concept must be understood in order to generate workable solutions with the greatest impact. In the case of OneWallet, for instance, Pitroda commissioned a study to estimate the digital wallet's effect on the U.S. Mint's printing operations, wondering, “Do you really need to print that many dollars once you begin to spend and store money on the phone?” The results of the study suggest that OneWallet may not just save businesses and consumer's time and money, but the U.S. government as well. “I see a day when only 5% of the coins we print today are produced. That's what I mean when I talk about understanding this whole ecosystem,” says Pitroda.

While posing unconventional questions is an integral component of Pitroda's innovation process, much of the method to his madness remains elusive even to him. “I internalize all my issues. I know I'm ready to execute when I feel comfortable that I understand these issues, but it's very difficult to explain them to anybody,” he says with a shrug. “To internalize something you have to go deep down,” he says. “It has to become part of your life. You live it, you realize it, and you sort of grasp it. You don't have all the details figured out.” Biographer Mayank Chayya, who knows a thing or two about Pitroda's innovation history, offers a simpler take on his subject's shadowy process. “Like all inventors, there's some degree of intuitive leap involved,” he suggests. “As an engineer he's trained to look at everything in problem solving terms. He zeros in on the problem immediately and then works backwards. That's the structure he follows,” adds Chayya, along with an even more revealing tidbit. “He comes from a family of carpenters. If a frame is even a little bit awkwardly hung, it will make him restless for the rest of the day.”

If Pitroda's innovation process is a bit cryptic, his practice of documentation is quite the contrary. Since the granting of his first patent, he has obsessively committed his daily life and ideas to paper, filling countless notebooks front to back with notes, annotated diagrams, and detailed sketches. “You need that discipline of documenting,” insists Pitroda. “Everybody knows it, but nobody does it.” Since proper documentation can ultimately determine whether a patent was granted or rejected, it was destined to play a crucial role in the development of OneWallet.

Iconoclasm

While sharing with the academic world a healthy commitment to the rigor of documentation, Sam Pitroda's innovation process stands in stark contrast with the structured methodology currently espoused by product design theorists, institutions and practitioners alike. The Institute of Design (coincidentally an adjunct of Pitroda's alma mater IIT) for example, advocates a four-pronged, innovation process that includes a succession of research, analysis, synthesis, and delivery phases (Figure 1). The cycle is repeated until the product or service has been sufficiently refined, after which it may be introduced to a wider audience. Where such a systematic approach is goal-oriented and reliant on an accumulation of insights garnered through research and analysis, Sam Pitroda's process (Figure 2) is more of a meandering journey through a fluid landscape of evolving trends, emerging technologies, and shifting socio-economic realities, an almost haphazard quest for new ways of addressing unspecified problems. Although they are invariably skewed towards trial-and-error and intuition, Pitroda's methods do, however, begin to bear a resemblance to something approaching convention once the problem has finally been identified and prototyping of a solution begun.

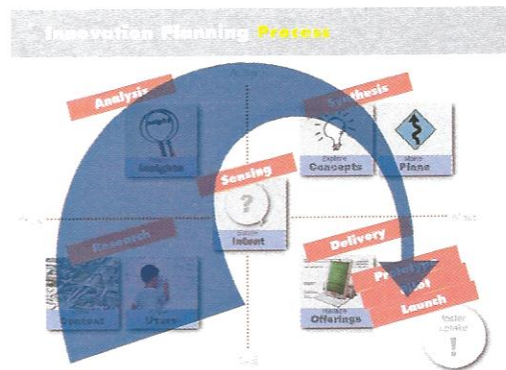


Figure 1. Innovation Toolkit

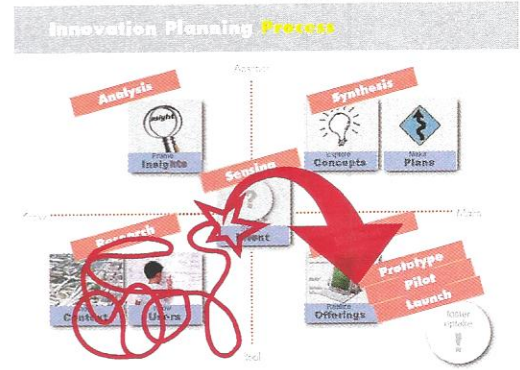


Figure 2. Inventor's Process

In practice, the two separate methodologies exhibit more readily apparent parallels, most notably in the realm of user-centeredness. At the very heart of all Pitroda's inventions, after all, lies the notion that solutions must fulfill user needs – and easily. “The point is, if your vision is simple, and you understand the space you're playing in, the space obviously has to start with the end user,” Pitroda explains. “It has to make sense to the end user.” While doubt over the likes of Sam Pitroda's idiosyncratic process may persist in academia, the proof of convention-defying success is, nonetheless, in a pudding chock full of successful innovations, a recipe the inventor is surely attempting to replicate with OneWallet.

Mehul Desai

If Sam Pitroda is C-Sam's visionary, Mehul Desai is its executor. Years before ascending to the rank of COO, Desai joined C-Sam in its prenatal stage, working initially as an engineer and later a product strategist for the incubator. The strength of his relationship with Pitroda is no coincidence. “My parents and Sam were very close friends,” explains Desai. “They went to IIT together back in the '60s. Because of that, Sam has literally known me since the day I was born.” With an impressive academic resume featuring telecommunications and engineering

management degrees from the prestigious Bangalore University in India, his hiring as an R&D engineer Pitroda's Milwaukee incubator seemed particularly karmic.

Cutting his teeth on IT oriented product design and patent writing, Desai refined his eventual mastery of the patent process and developed his strategic business skills as the group explored an array of business opportunities. "The point of the incubator was to come up with ideas, convert those ideas into products, and then spin those products off into separate business units," says Desai, now having worked with Pitroda for nearly 13 years, developing an array intellectual properties and products. With respect to OneWallet, Desai has been a part of the core development team from its very inception, originally tasked with computerizing Pitroda's initial hand sketches. Little did he know at that time how much his role in the effort would change.

Commencement

Having filed his first patent for the digital wallet in 1994, Pitroda was continually refining his concept. The fact that the whole process felt like *deja vu* to him was no cosmic mystery. "What was happening with the wallet was in a sense the logical conclusion of what he began in 1975," says Mayank Chayya, referring to Pitroda's patented electronic diary. "It was like coming full circle. Perhaps it was too ahead of its time, even in '94." Nevertheless, a U.S. patent for the digital wallet was granted in 1996, affording Pitroda the legal protection he needed to proceed with a full court press.

The race was on to construct the first prototype digital wallet, which Pitroda envisioned as a simple portable device, a "black box" that could be purchased at the likes of RadioShack or Best Buy and filled with various electronic receipts, digital dollars, and credit. Mehul Desai, by then a senior manager responsible for facilitating development of the prototype, contracted a group of Indian hardware and software developers to work in parallel with a U.S. based team. Maintaining a sense of alignment with the original vision of the product often proved frustrating, especially for its creator. "We spent a lot of time trying to get people on team to understand it and not go off and do their own thing, because they all wanted to invent," laments Pitroda. "Everyone wants to be an inventor. They aren't capable of inventing. They don't realize that. You give them something to do, and they give you something totally different," he says with a familiar *c'est-la-vie* shrug. "Sometimes you don't wind up with the right people. It's a trial and error process."

Despite the personnel glitches, Pitroda's digital wallet enterprise was officially incorporated 1998 as "C-Sam", a nod to its founder. The company set up shop in Chicago due mainly to Pitroda's familiarity with the city, having lived there on and off for forty years. Prototype development continued apace through 1999, when an extension of the original patent was granted, affording improvements in the product's architecture legal protection. While exploring implementation scenarios in the Indian market, however, Pitroda and Desai (now COO) realized that they'd reached a crossroads. With the one billion cell phones in worldwide circulation now surpassing the number of personal computers, the lure of piggy-backing their wallet technology onto the expanding mobile phone market was eclipsing their zeal for the standalone black box. Such a transition, however, would require a significant investment. Aiming to devise a new business model that would better enable C-Sam's profitability, they sought the guidance of strategic experts at McKinsey & Company.

Owning Up

With his decision to jump into the competitive fray, it was time for Pitroda to face the bane

of every startup's existence – the question of investment capital. His stance with respect to his business finances, however, had always been firm, and he was loath to change his time-proven ways. "Once you take somebody else's money they begin to dictate your life," he says, underscoring a particular distaste for a certain breed of investor. "I have not run out to venture capitalists, and I've made that choice by design, partly because as soon as you use VC money, they begin to take away control. That's why all my inventions have been only built on my money," reveals Pitroda. "I want to keep all the responsibility here," he adds emphatically, stressing that "responsibility is something nobody gives you – you take it. So I take all the responsibility for this."

Requiring total control of his creative environment, Pitroda's innovation process is inherently prone to a number of risks and limitations, something he readily admits. Furthermore, C-Sam's reliance on the widespread implementation of technologies like Java on mobile phones only compounds its financial burden. The tech market crash of the year 2000, for instance, resulted in a deployment delay of smart phones – an essential component of their business plan at the time – forcing the company to mark time developmentally while continuing to bleed cash. Despite the market's eventual recovery, C-Sam's financial drain continued, with the holes in Pitroda's own pocketbook showing no signs of sewing themselves shut. The company wasn't earning a cent, but Pitroda remained steadfast in his determination to dominate the digital transaction universe. He was thankful he hadn't taken C-Sam public, mindful that investors would never have permitted its monthly \$200,000 cash burn in the absence of revenue.

Despite his financial sacrifices, Pitroda relishes his independence. "I have not worked for anyone since 1974. I have no boss. I do my own thing," he says with a dismissive wave of his hand, as if to ward off doubters. Numerous prior and parallel successes aside, a sovereign organization is essential for Pitroda, from both team management and process execution standpoints. With an innovation process derived from his continued observations, deep deliberation, and a wide range of professional expertise, the traditional team-driven development cycle typical of larger corporate enterprises seems an ill fit.

Incidentally, Pitroda singles out his initial team-building efforts at C-Sam as one of his most serious deficiencies. "The hardest thing is building teams that really understand, communicate, and get the message. You say something and they immediately understand," he confides, though still resigned to the necessity of the trial and error process in finding suitable talent, a methodology he's found just as applicable in test marketing and more importantly, selling OneWallet to the corporate giants who would ultimately embrace or reject it.

Feet on the Ground

The larger implications of transforming OneWallet from a stand-alone wireless device into a piece of mobile phone application were not lost on Sam Pitroda. Having committed to the new strategic shift, he and Desai were plainly aware that a software solution reliant on a telecom backbone, a financial circulatory system, and computerized guts would require the unconditional support of respective industry gatekeepers. But they remained remarkably unfazed, confident in the value propositions OneWallet offered these participants. Banks, for instance, stood to save a fortune on the cost of issuing credit credits to customers as OneWallet would replace plastic with a far cheaper digital representation. Furthermore, as mobile phone usage increased and expectations rose, they also reasoned, so would demand for a new breed of convenience oriented services. "It's almost as if people expect things to happen on their mobile phones. It's taken for granted that mobile phones will do these things," Desai argues, convinced of digital money's inevitable draw.

Faith in Pitroda's vision, however, did not blind the C-Sam stalwarts to the daunting challenges they faced then and continue to encounter. "Complexities in the banking and retail industries mean it's going to take a while because you have to convince so many stakeholders" admits Desai. "But it's started happening," he counters, predicting that America's business environment will serve as the quintessential proving ground for OneWallet. "If Wal-Mart or Home Depot starts to do this, everyone will do it. It's like a domino effect, a herd mentality," asserts Desai. Still, he and Pitroda remain focused on the fundamentals. "It has to be priced right for the end user, and you need to have a good understanding of the stakeholders in your value chain," Desai explains. "You can then start catering your solution to their vested interest, whatever it is," he continues, mindful of the permanence of key players like merchants and credit card issuers. "You're not going to cut most of them out and somehow come up with an innovative business model that can be priced right for the end consumer," he argues.

Early Trials

Despite the attraction of the promising U.S. market, available cellular hardware was inadequately equipped to support OneWallet in the late 1990s. Because C-Sam had written their digital wallet software using Sun's Java language, they would require a "smartphone" capable of running it and receiving updates to allow for improvements. Fortunately, the necessary resources could be found across the Atlantic in Scandinavia, which had been at the vanguard of the mobile industry ever since the invention of cellular phone technology in Finland. It was also home to an abundance of cellular hardware and software developers, including those experienced in Java. Eager to move forward, Pitroda hired a small team of Scandinavian engineers to finally bring OneWallet to fruition.

Once the initial system prototype was complete in Scandinavia, C-Sam established an Indian development team, who would benefit from their predecessor's work as well as Pitroda's close ties with India's business community. Simultaneously, a Scandinavian pilot program designed to test the digital wallet's efficacy with banks and telecom companies was launched. While banks initially balked at C-Sam's invitation to participate in the live network tests – perhaps intimidated by the systemic shift OneWallet threatened to foist upon tradition transaction venues – telecom interests proved welcoming, with phone manufacturer Ericsson and service provider Vodafone jumping aboard.

Following the subsequent release of Ericsson's first Java-enabled smartphone in the U.K, Vodafone authorized testing of a "closed loop" OneWallet system. While not fully functional, it provided C-Sam key insights into system implementation along with the assurance that they could deliver on reliability and security guarantees to prospective financial institution partners.

Rising Sun

The first fully functional deployment of OneWallet occurred in Japan in 2002, a joint venture with Japanese telecom titan DoCoMo. It had taken Pitroda, Desai, and the entire team of C-Sam twelve years to reach this milestone, an alarming length of time for a product belonging to rapidly evolving tech sector. Luckily for Pitroda, the stars were just now aligning – consumers as a whole were beginning to demonstrate the desire to use phones for tasks other than voice calls, and the technical capabilities to handle related applications were finally available.

Since time was still money in 2002, however, C-Sam's limited resources forced it to work judiciously with respect to their choice of test markets. "We had to pick very carefully. We couldn't afford to do showcasing trials in Singapore or Hong Kong because these were too

small. Even Scandinavia didn't make sense even though they were way ahead in technology," recalls Pitroda. The perfect balance was found in Japan, a nation with a GDP second to only the U.S., a cellular infrastructure light years ahead of its international brethren, and a banking sector far less complicated than that of the U.S. or Europe. Despite the plethora of patent and licensing groundwork required of C-Sam, Japan helped confirm OneWallet's value. "We started to realize that we could use the platform as is for a lot of over-the-air services – topping off prepaid, paying bills, and money transfers, for example," notes Mehul Desai. New uses were discovered as well, like the idea of "proximity transactions" or the beaming credit card information to specially equipped cash registers for payment.

Ultimately, the Japan trials provided C-Sam with the gravitas it would need to demonstrate its corporate competence and its product's potential. Touting OneWallet's scalability and adaptability, they could now approach a variety of markets. "Our story for the rest of the world essentially became, 'Look, the technology is architected in such a way that at one end of the spectrum it can apply to a market like Japan, where you have all the right pieces in place, including the GDP and buying power to run value-added services, and the same platform can apply to a market like India, where the key challenges are a lack of legacy or structure and no buying power anywhere close to Japan,'" explains Desai. "But still there are relevant applications, and because of volume, it makes the right business sense," he continues, "and if you can use this same platform in Japan and India, all other places in the world fall somewhere in between these.' That's the story we started developing and it seems to be working, at least for now."

Great Expectations

With smartphones currently on the brink of widespread adoption, C-Sam stands patiently at the ready, poised to revolutionize the way we use our wallets – or the lack thereof. "It will radically change the entire concept of money as we understand it," says Pitroda, now 64, his swept-back gray frock resembling a more ordered version of Einstein's chaotic do. "Just coming up with a credit card on a phone may not be enough, but coming up with applications which drive the use of credit cards on a phone definitely starts making sense to people," he says, referring not to end users, but rather to OneWallet's true target audience. It is a point that Pitroda is never hesitant to belabor. "We don't deal with end users. We only deal with banks, operators, and marketers," he reiterates, and for good measure. Without the backing of these system enablers, after all, OneWallet is doomed to remain stuck at demo status on Sam Pitroda's smartphone. "Innovating with the wallet, frankly, has been a challenge. It has taken me ten years. Nobody has grasped it. I'm talking about all the big boys," he confides, referring to industry heavyweights like Verizon and Chase. Staunchly conservative, banks have been particularly resistant to the digital wallet, due in part to the lack of comprehension to which Pitroda alludes. Following a 2002 presentation of OneWallet to the executives of one major bank, for instance, a vice-president famously asked Pitroda, "Here's my credit card, and here's the phone – where should I stick the card in?"

Such evolutionary intransigence, however, is not unexpected. It was twenty years before plastic credit cards were fully adopted, for example, and nearly thirty to completely implement the magnetic strip. Sam Pitroda knew full well that in order to convince banks of OneWallet's value, he would need a powerful ally or two in his corner. "You need the big guys because nobody's going to trust 140 people," he admits of his sparsely staffed company. "We need that endorsement from Motorola, Microsoft, IBM, Google – then it's easy to work with Citibank."

Despite the formidable hurdles obstructing C-Sam's path, it now seems that their audience is,

in fact, listening. With OneWallet having reached an advanced stage of development, Pitroda and Desai report that they currently have no less than five platform developments in progress and twenty-five commercial launches underway. Furthermore, they predict that 30% of the cell phone market will install OneWallet when it becomes available, potentially netting the company billions in revenue. While the likes of Paypal and Ebay begin rolling out their own mobile payment solutions, Pitroda and Desai remain unfazed, detecting no competitors worthy of their concern. “It’s not about going to McDonald’s and doing this to pay for a hamburger,” Pitroda says, pretending to wave a credit card through the air. “You can put that functionality on [a OneWallet enabled phone] as well, but we’re not in the texting or RFID payment business.” Desai underscores his mentor’s point, adding, “What we have is something very different. In a sense, we’re the only ones in the market who will allow you to issue credit cards, debit cards, coupons, ticketing – nobody does that.” Their excitement is not unwarranted, as C-Sam’s initial testing of OneWallet is starting to yield palpable dividends. “It’s already happening in Japan, for instance. Adoption will be faster than credit cards since people are now used to this kind of technology,” proclaims an optimistic Pitroda. “It’s just now that people are beginning to understand how disruptive – in a positive sense – it will be,” adds an emphatic Desai.

Organizational Structure

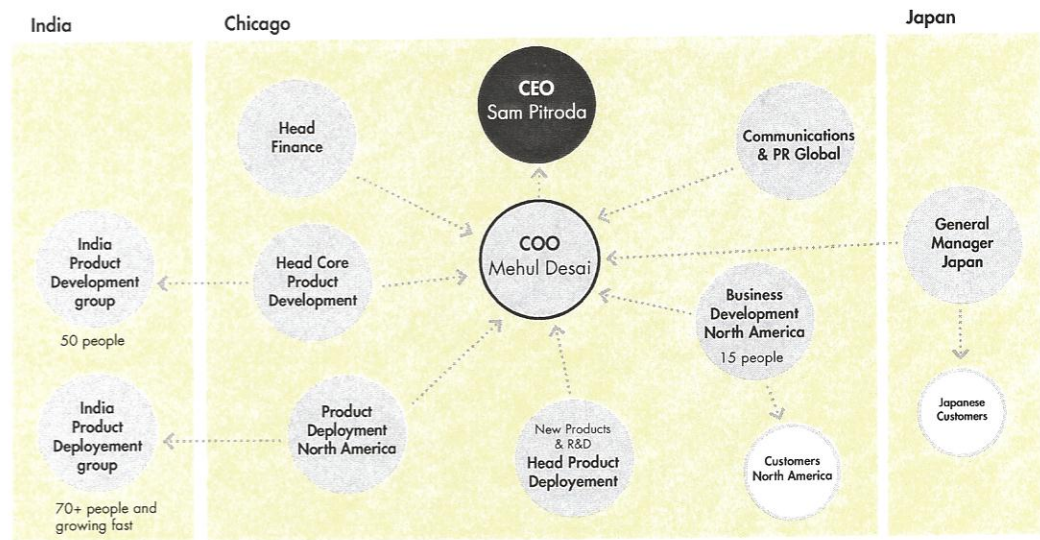


Figure 3.

While a large scale rollout in the American market remains in the offing, C-Sam is well-equipped to accommodate the U.S. corporate juggernaut when the zero hour arrives. Despite its global expansion due to a growing number of deployments throughout smaller international markets, complexity remains in check thanks to a modular organizational structure (Figure 3). With core deployment teams are based in India, additional teams are spawned with the signing of new clients, their primary function involving the customization of the software in a way appropriate to the business context. Executive decisions are made in Chicago, where Pitroda and Desai continue to reside.

Exit Strategy

When it comes to judging the success of OneWallet, Sam Pitroda is entrepreneurially blunt. “It’ll be done when I can say, ‘Oh, \$100 million in the bank,’ meaning then it’s done for me. It’ll really be done when one billion people are using it,” he says, pausing briefly before offering a decidedly philosophical qualification. “It doesn’t matter if it doesn’t happen tomorrow. I’m interest in the journey. I’m not interested in destinations.”

Coming from a man who has accomplished so much in so many different arenas, such an ideology isn’t altogether surprising. Pitroda has never been one to dwell for too long on a single task, and with OneWallet this pattern remains firmly intact. “This is probably my last big idea,” Pitroda admits, mindful of his advancing years, before adding almost nonchalantly, “Then I just want to do other things.”

For now, however, Sam Pitroda remains stoically at the helm of a cutting-edge enterprise, his Chief Operating Officer unwavering in his commitment to a proven formula. “There aren’t any textbooks on innovation for us,” attests Mehul Desai. “From a C-Sam perspective, the key issue is that the vision has to be extremely simple, and I think that’s the strength of Sam’s.” While an equivalent level of confidence certainly isn’t lacking in Pitroda himself, he isn’t beyond a concession. “It’s not done. The jury’s still out,” he says with a shrug. Likewise, assuming he is a tenth as restless as his biographer says he is, then the jury will surely be out on his retirement as well.

Deliverance

On the morning of February 8, 2006, Motorola’s stock was sharply on the rise upon its announcement at the 3GSM Conference in Barcelona of “M-Wallet”, a revolutionary new mobile transaction system. Enabling owners of Motorola mobile devices to effectively discard their cumbersome leather wallets, it bore more than a passing resemblance to a lesser known application that Moto had actually licensed. Lack of public acknowledgement for this little known fact, however, was irrelevant to the man whom it would matter most. If the sun wasn’t smiling on Barcelona that morning, Sam Pitroda certainly was.

Appendix

