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Services

Interviews with Takeshi Natsuno, Live | Work (Chris Downs, Ben Reason, and Lavrans Løvlie), and Fran Samalionis


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IM
Messaging
iTunes
MEdia Net
MEdia Mall
My Account
My MEdia
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Exit
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Janet Smith
480-555-2323
Speed No.82#(P)
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468 Cedar St.
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You are what you use . . . not what you own

Slogan from Live|Work Web site[1]

The telephone service is one that many of us take for granted, having used it every day for most of our lives. But is it designed? Everything is designed in the sense that someone decides how to do something or make something, and that set of decisions is developed into a recipe or a prescription for doing and making. For services, the development of the prescription has until recently been thought of as a marketing and training function rather than a design function. Now services are becoming more and more enabled by technology, and that means that they have to be designed by an interdisciplinary team, just like products that contain technology.

■ Modern cell phone service—menu and address book

Photos
Nicolas Zurcher

A modern cell phone is a good example of a service where design decisions are making the difference between success and failure. The evolution of telephones is used to illustrate the design of services, starting out with a contrast between early phone services and modern ones. Takeshi Natsuno, managing director in charge of strategy for the *i-mode* cell phone service from DoCoMo in Japan, explains the phenominal success of his venture. A cautionary tale is included about the difficulties encountered when trying to operate a vending machine with a cell phone using the *i-mode* service.

In the rest of the chapter, the three young founders of the London-based service design consultancy Live|Work explain their philosophy and process for designing services, and Fran Samalionis, a leader of the service design practice at IDEO, expands on this process with examples.

The Phone in the Hall

The interactions needed to make a call were simple in the early days of telephony. You walked into the hall and found the phone hanging on the wall, between the hat stand and the mirror with the gilded frame. The earpiece was connected by a thick woven cord, and was hanging on a hook-switch made of metal, which was spring-loaded to click upwards and make the connection to the line as soon as you lifted it. You pressed it against your ear with one hand, while you rotated the handle of the ringer a few times with the other hand to get the attention of the operator, speaking into the mouthpiece on the front of the phone.

"Could you connect me to Mrs. Smith in Shady Glen, please?"

"One moment please: is that the Mrs. Smith on Main Street or on Cedar?"

"Cedar, please."

"Thank you. The phone is ringing now."

These interactions were simple enough, so that it was not very complicated or difficult to design them satisfactorily. The physical design of the phone supported some of the interactions. It was satisfying to turn the handle of the ringer, differentiating between routine and urgent by the speed and duration of the rotations. You could hear well because the earpiece was big enough to allow the dished shape to seal over your ear. The horn-shaped mouthpiece collected the sound waves from your voice, and the hook-switch was shaped to invite you to hang the earpiece up on it again when you had finished your call. The service was defined, and thus in a sense designed, by training the operator to respond politely to customers, to know how to deal with emergencies or errant behavior, to make the connections by plugging jacks into the patch board, and to connect to the long-distance operator.

■ Telephone for operator-assisted phone service

Photo
Ryan McVay

A Modern Cellular Phone Service

CONTRAST THIS WITH using your cell phone in the new millennium. If you want to talk to Mrs. Smith in Shady Glen, you may have her name and number in the address list in you phone, in which case you can look up her number and then dial it. Here is an example of how that works:

Turn on the phone, wait for it to boot, go to menu, select "contacts," choose "find contact," thumb 7 four times to enter the first letter of her name, s*, scroll to "Smith on Cedar," select, and send.*

If you know the number, you can dial it yourself.

Turn on the phone, wait for it to boot, enter the seven digits on the numeric keypad, and send.

If you want to find the number through a human operator, you can do it, for a price, by dialing the number for assistance. Alternatively you could look the number up on the Web-based listing, connecting to the Internet through your phone; the interaction sequence is too long and complex to list here in detail, making it not surprising that most people never get to the point where they can take advantage of the browser access features on their phone. A typical cell phone has options for messaging, music, games, organizer functions, personal preferences, as well as phone book, calls and Web-based services, supported by an instruction manual of around a hundred pages.

The cell phone itself is a little technological miracle in the palm of your hand, complete with high-resolution color display, an array of buttons, a pointing device, electronic circuitry and storage, main and backup batteries, transmitter and receiver. The design of the interactions is based on a confusing hierarchy of overlapping systems. Each call is supported by the infrastructure of the network of cells, as well as the overall telephone system of lines, exchanges, optical networks, microwaves, and satellites.

Ideally all of this should be transparent to the user who just wants to make a call, but in practice it often becomes annoyingly visible. The service provider is designing an offering in a competitive environment, leading to an escalating range of

features that soon become impossibly complex. The service provider is separate from the handset vendor, as the handsets take longer to develop than the services and are more intimately linked to the electronic behaviors of the input and output devices and the chips that drive them. Once you connect to Web-based services, each individual site or service that is accessible through the phone has interactions that are designed by separate teams of people. They try to provide a version of their offering to fit the scale of the interactions that work well on the phone, but they often do this with very little knowledge of the details of the interactive capabilities of the cell phone. With all this complexity in play, it is not surprising that the modern cell phone is difficult to use.

Development of Phone Services

The telephone grew up as a consumer product, with the design driven by the simple goal of allowing one person to connect to another. In the early days, the service providers increased their revenue most effectively by attracting new customers, so the interactions were designed to be simple and easy to learn, facilitated by human operators. As time went on, people formed the habit of using the phone, and feature-creep set in. First there was the rotary dial, so you had to find out the numerical address of the person you wanted to talk to. Then push-button dialing arrived, and it was possible to add features accessed through the star and hash keys, such as voice mail access and conference calling. Although business phones soon became blindingly complicated, sporting banks of autodial buttons and lots of intricate functions, the phones at home stayed reasonably simple for a long time. ATT was very successful at habituating their customers, using a strategy of keeping local calls free, so that kids were used to making long and frequent calls to their friends before they left home and started to pay for long distance. In a

typical American family, the phone was almost always being used when the kids were at home. Contrast this with Britain, where every second is paid for, and parents limited their spending by forbidding the use of the phone; when the phone rang, it was probably because someone had died.

The phone left its tether behind with cellular services, and competition between providers became much more confused. Sometimes it was based on performance, sometimes on price, and sometimes on features. Complexity jumped up a notch with the *i-mode*[2] service in Japan, which went from zero to 33 million subscribers in only three years. The service offered Internet access on the phone, with interactions that, though not very easy to learn, were mastered by teenagers as well as adults with enough patience; many Japanese people have long commutes in crowded trains, with time to puzzle over the interactions with screens and button pushes, but where it is too embarrassing to talk out loud. This was paralleled by the use of short message service (SMS) in Europe, dubbed "texting," and instigated first in Finland by Nokia. It is amazing to watch the young expert users of phones, whether in Tokyo or Helsinki, typing words deftly with their thumbs on a ten-key numeric pad. They are the elite operators of modern telephones, leaving most of us in a fog of confusion, condemned to simplistic numeric dialing.

There is very exciting potential for a personal communication service that handles voice, data, images, and eventually video. For now, the designs are struggling to leap from the enthusiast phase to the consumer phase, without the intervening professional phase to sort things out. There is confusion at several levels in the service hierarchy, as the technology evolves. The industry feels a bit like the computer business did before the desktop emerged as a standard design approach.

In 2005 we are seeing a competitive collision between PDAs[3] and cell phones, as the PDAs add telephone functionality, and the cell phones include many of the functions of the PDA, with access to the Internet becoming standard for both platforms. The design of the interactions for the PDA has evolved from the PC, adapted to accommodate miniaturization, while the design of the

interactions for the cell phone has evolved from simple calls, adapted to add functions. The PDA is easier to use, but fewer people own them, so the telephone platform is starting to dominate in spite of the challenges posed by the interaction design.

Within the telephone platform there are still widely different standards and layers of complexity. The basic difficulty is that the layered structure takes away the possibility of creative control from a single source. The underlying layer is the infrastructure, but that is fragmented by the contributing technologies; cellular networks, microwaves, satellites and so on supplement landlines of many types and speeds. Next is the handset layer, with the individual instruments containing displays and speakers for output and buttons and microphones for input. There is not yet a standard way of arranging these interactive elements, so the designs vary widely in ease of use and speed of learning. On top of that are the layers of the service providers, both the phone service itself, and the data access services for messaging, email, and all of the Web-based services. Each of these data access layers is hoping to find customers across more than one service provider, so the interactions are at best a compromise between the user interfaces on the various service providers, and at worst completely new and different. The Web access layer also suffers from the scalability problem, as the interaction design is a scaled-down version of a Web-based service that was initially designed for normal, computer-sized screens and keyboards. Only a few of the Web-based services design a special version of their interaction for the phone-based display and control limitations.

All of this complexity makes for phone services with bad interaction design, and there are great opportunities as well as challenges in designing phone services that people can enjoy and learn quickly.


STARBUCKS COFFEE

Designing the *i-mode* service

There is a pedestrian plaza outside Shibuya station in Tokyo. It is flanked on one side by the railway line and on the other by a star-shaped convergence of roads. The surfaces of all of the surrounding buildings are obscured by an endless array of brightly illuminated, mostly animated signs. Five jumbo screens are playing different advertisements and music videos at the same time, with the sound tracks blaring a cacophonous combination that blends into the roar of busses and taxis passing in front of you and the buzz of conversation of people around you. Several thousand people are waiting patiently on the plaza for the traffic lights to change and the traffic to stop. At that moment, the main mass of humanity surges across the roadway in a solid wave heading for the sidewalks on the other side, but there are also some who cut diagonally across toward a different street, moving swiftly and purposefully, like shooting stars. On the station side of the plaza sits a bronze dog, with front legs splayed and hind legs folded, looking attentive and eager in the permanent freeze of statuary. The dog is the meeting point where you can wait for your friends before heading into the narrow streets of Shibuya to eat, shop, or perform your best karaoke song.

■ Shibuya crossing

Photo
Author

As you wait, you notice that most of the people around you are using their cell phones, but only a few are actually talking to someone else. Most of them are holding the phone in front of them, looking at the screen and pressing the buttons—some with fingers of their other hand, and some single-handedly with their thumbs. A man is looking up train times, a girl is checking what's on at a cinema, and two boys are each holding their phones in front of them, playing a game with each other as competitors. The chances are that they are using the *i-mode* service from NTT DoCoMo, giving them access to Internet-based services as well as messaging and normal cell phone use.

More than a quarter of the total population of Japan subscribes to the *i-mode* service, an amazing success story for a service that is only a few years old. How was the service designed to succeed so dramatically? What makes people want it and recommend it to their friends?

Keiichi Enoki and Mari Matsunaga

The entrepreneurial leader of *i-mode*, behind the scenes at NTT DoCoMo, is Keiichi Enoki. He had established his reputation as an outstanding leader within NTT by the nineties and in 1997 was given the task of starting a new mobile phone service by the company president Koji Oboshi, who went on to become chairman. The idea was originally suggested to the president by McKinsey, the business consulting company, and a McKinsey team stayed with the program as external advisors. Oboshi-san took the unusual step of asking Enoki to start a completely new venture, appointing him as general manager of the Corporate Sales Department of a business that did not yet exist, and asking him to find and hire his own team, both from within and outside NTT. In the West we would call this a "spin-out," where the mother company keeps the ownership by providing the venture capital but gives the appointed leader enough freedom to escape the weight of the corporate structure and culture of the parent. This allows the kind of startup behavior that is so fertile for innovation, with a small team of dedicated individuals who are highly motivated to succeed and able to take advantage of the money and technology of the parent, without being encumbered by large size and a complex history.

In those days, the market for mobile phone services in Japan was assumed to be only for business people, but Enoki-san had a vision of a much larger opportunity based on observing the behavior of his own son and daughter and their friends. His daughter Kyoko was a high school student with a passion for email. She was always exchanging email with her friends, even itching to check her messages during family meals. Her father wondered what it was that engaged her so strongly. His son Ryo was in junior high and never needed to refer to the instruction manual when he got a new video game or program for the computer. Enoki wanted to create a service that would be valuable and accessible to everyone rather that just targeting the businessman. He expressed his vision as designing the service so that "even children will use it!"

■ Keiichi Enoki and Mari Matsunaga

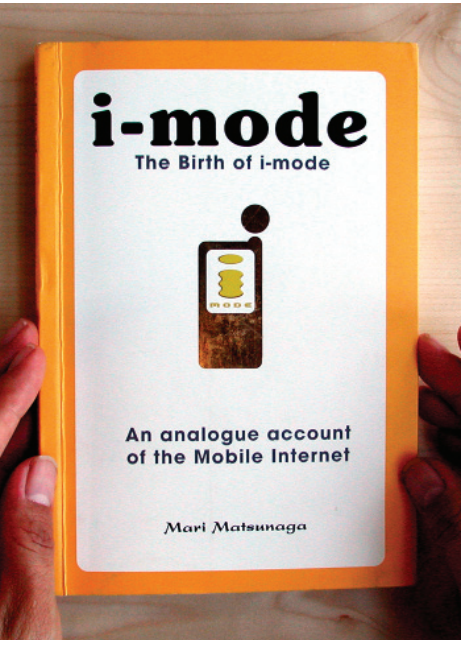
The first task was to put together the perfect team for the new venture. He advertised the available positions inside NTT DoCoMo, and forty people applied. He was looking for individuals with the right background and skills who would respond to new challenges as well as working well under stress. Helped by McKinsey he set up "stress" interviews with twenty-four of the candidates, to test their response to pressure situations, and selected five people with business and technical backgrounds, two of them in their early twenties. This rigorous interviewing process helped Enoki form his ideas about what the new service should be like, as he was forced to answer questions from the applicants, and as he went along found himself more and more confident about his answers.

His vision became clearer: the service should appeal to young people and amateurs as well as people with jobs and commutes. He could see that there would be new opportunities to achieve this if messaging and Internet access could enhance the normal phone service, but it would have to be designed in a way that would appeal to impatient youngsters and technophobic adults. None of the people he had found inside NTT DoCoMo would find it easy to think about the nature of content and services that might have this appeal, so he decided to look outside. That was when he thought of bringing in Mari Matsunaga, who knew how to make magic with very few words in a classified employment ad.

Mari Matsunaga has been dubbed "the mother of *i-mode*" by the Japanese press and was recognized as "Asia's Most Powerful Businesswoman" in 2000 by *Fortune* magazine, for her contribution to the success of the business. She has a combination of panache and drive that has allowed her to break through the gender barrier and achieve popularity and recognition as a leader and entrepreneur. She graduated from Meiji University with a degree in French literature and joined Recruit, the company that owns and runs a multitude of magazines full of classified ads. She served as chief editor of magazines such as *Employment Journal* and *Travail*, and honed the art of communicating meaningful messages with very few words—a skill that would become of crucial importance in the confined space of the screen on an early cell phone. She is a member of Japan's Tax Advisory Council and

appears regularly on TV shows. She has written a delightful book about the development of *i-mode*.[4]

Enoki-san arranged a dinner meeting with her through a mutual friend, and after a few minutes of small talk came straight to the point, asking her directly to join his team to take responsibility for the information content that would appear on the small screen. Mari was shocked by such a direct request. She had no love for mobile phones, thinking of them as an "electronic chain" around the neck of the user and the cause of many interrupted meals and social occasions. She was a notorious innovator, however, and enjoyed new challenges every few years. She had been at Recruit for more than twenty years and was finding it increasingly difficult to find new motivation there. Enoki-san was a persistent suitor, following up the day after their dinner with a card of a Van Gogh painting and the message, "Please work with me." The next time they met, he told her about his children and the inspiration that they gave him for innovation in his new venture. She responded with a suggestion for a part-time assignment that would allow her to contribute without leaving her job at Recruit permanently, but he insisted, "If you decide to join us, I want you to come over to DoCoMo officially and be totally committed to the business." She was fascinated by the design challenge of trying to create a new medium that would appeal to young people within the narrow limits of a tiny screen. The challenge combined with Enoki-san's vision and determination made her decide to join the team and lead the development of content in July 1997.



■ *The Birth of i-mode*, by Mari Matsunaga

In her book she describes some of the most significant events in the design of the interactions for the new service. For example, she demanded a display with eight characters across and six lines, to allow the display of a calendar for both weekdays and month views. This was technically challenging both for feasibility and cost, as at that time cell phones had two line displays showing phone numbers and the time of day. She suggested that an *i-mode* button be added to give direct access to the Internet. She also encouraged the inclusion of a shorthand of iconic characters, equivalent to our "emoticons." There are now more than 180 icons as well as the normal characters in the alphabet. Each icon

shows a message—the heart mark, for example, to send a message of love and the smiling icon to show that you are happy. High school students had been using icons on pagers and SMS before the development of *i-mode*, so Mari thought that they would appeal to young people. The difference from the other phone service providers was that they mandated these icons to all the handset vendors.

The *i-mode* dream team was coming together well, but there was still a gap in expertise about the business opportunities for Internet-based services. Enoki-san had originally expected to start with SMS and then gradually migrate to Internet-based services, but the SMS business had grown explosively in Japan, leaving no room for a new service in that market. That meant that they would need to succeed with Internet-based services right from the start and expertise in that area would be essential. Mari Matsunaga had taken Takeshi Natsuno under her wing when he was a student intern at Recruit and knew that he had the right expertise, so she got in touch. He immediately saw the potential and was instantly an enthusiast. He remembers the conversation:

> When I was in a management meeting in my startup in 1997, I suddenly got a phone call from Matsunaga-san. She told me, "Now I will quit my company and I will join NTT DoCoMo."
>
> My response was, "What are you talking about? You are not like the people at NTT. NTT is a symbolic company as traditional, conservative, noncreative telecom people, so why have you decided to do so?"
>
> She replied, "I don't know what kind of things I can do, but it seems to be very, very interesting and fun. I don't know the detail because it's too technical."
>
> I felt that this was very interesting. She told me a little bit about what she was told by the NTT guys, and it was really exciting. If I could combine my ideas about Internet services with the power of the cellular phone, the success possibility would be very high. So after a long talk with Enoki-san, who was, and still is, the leader of this *i-mode* project, I finally decided to join NTT DoCoMo.

Next, Takeshi Natsuno tells the story of the development of the *i-mode* service.

Photo Author

Takeshi Natsuno

Takeshi Natsuno met Mari Matsunaga when he was a student intern at Recruit, while studying political science and economics at Waseda University. He was already facile with computers at that time, inventing ways of compiling mailing lists of Recruit readers and automating the production of address labels. When he graduated he joined Tokyo Gas, a very traditional energy company, and worked in city planning. This taught him about the basic theory of city and infrastructure planning. He was an excellent worker, both diligent and ingeniously innovative, and the company identified him as a potential leader. They sent him to the United States to study at the Wharton Business School in the University of Pennsylvania. "I learned a lot at Wharton about how to apply the Internet to the real business. If I didn't go to Wharton, you don't see *i-mode* right now! I learned a lot about the Internet even before the launch of Yahoo, even before the commercialization of Netscape. What is the business potential of the Internet itself? I don't care about the technological possibility, but more about the business opportunities." When he graduated and returned home, he realized that not many people in Japan understood how to make the Internet useful for real business. This provided an irresistible temptation for his entrepreneurial instincts, so in 1996 he left Tokyo Gas to start up a new Internet business. His idea was to offer free Internet access funded by advertising. This was before Internet service providers (ISPs) became commonplace, and it was too early to succeed, making him willing to try the *i-mode* experiment.




Takeshi Natsuno

We have successfully introduced the Internet way of thinking rather than the telecoms way of thinking to implement this service.

Takeshi Natsuno, April 2002

The *i-mode* Service

■ Examples of *i-mode* phones

top left
First generation

top right
Second generation

bottom left
Third generation

bottom right
Fourth generation

Photos
Author

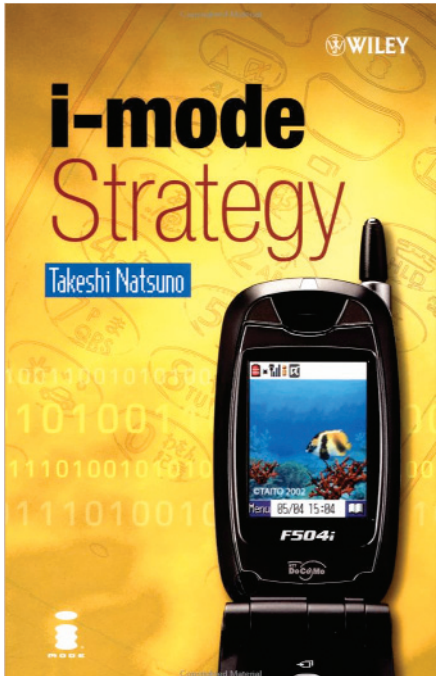
Takeshi Natsuno joined the team and worked through the business issues that were facing the fledgling new division, now separate from the rest of the company and called the "Gateway Business Division." He prepared a business plan, outlining the potential of the concept, emphasizing the importance of choosing the right content to be available from the Internet, and proposing a strategy for attracting potential information providers:

> The history of implementing *i-mode* was not so easy. First we started to recruit talented people, but even with these talented people, still the toughest thing I had to overcome was how to migrate these people to the Internet way of thinking from the legacy way of thinking, because you see before we introduced *i-mode* service, we have been so accustomed to voice business, which is totally telecom business. In the voice business you don't have to worry about the third-party players, because you can just create these handsets, and set up tariff, and sell it to subscribers; that used to be the business. After the introduction of the service to access the content through

the Internet, we need support from the Internet community, otherwise, we couldn't have any kind of content, and in this network service, content is king. Without content, subscribers cannot understand what is the benefit of this *i-mode* service.

To set up a win-win relationship with our content providers, which means third-party guys outside of our community was very, very important, and I started to set up a business model to make them profitable, finally leading to our profitability. My biggest mission was to find third-party content providers. I adjusted our technology to accommodate the third-party guys; I adjusted my business model to accommodate them, and I adjusted our marketing activities to their benefit. That was the essence of the *i-mode* introduction, and the small thing we can do as operators was how to design terminals, handsets, how to make the branding. These things were totally up to us, so we made our heavy, heavy effort how to make phones cute enough, attractive enough to all the ordinary people rather than techy guys. That's why the phones from us are very sophisticated, with rich capabilities to show content; all these things are very important to make our third-party communities happier and happier. That means our subscribers will be happier and happier, and that finally means they will pay more money to us.

Enoki-san initially intended to develop a service that was more like SMS in Europe, as that was already proving to be successful in Japan, so the first business plan was based on using the SMS infrastructure to deliver information as well as messages. This turned out to be limited by scant network resources, as SMS was already booming, so a new approach was needed. In August 1997 the engineers proposed using the Internet. Takeshi was an enthusiastic supporter of this direction, as he saw the possibility of leveraging the huge existing network of information providers. The challenge would be to persuade them to develop scaled-down versions of the information that they provided, redesigned to fit the limitations of the small screens on the cell phones:



■ Cover of *i-mode Strategy* by Takeshi Natsuno

When we started our project in 1997 there was no WAP. I thought that if I can use HTML, that is the best, and only if I cannot use HTML I should find a different standard. Even at that time I got proposals from startups in the United States to use different markup languages, but I thought, "Why do you need that?"

> The very, very important lesson we learned is that a de facto standard is very different from a de jure standard. For the telecom industry, to set up a de jure standard is usual business. De jure standard is to decide something as a standard and then use it. De facto standard is to choose a dominant technology from a set of possible technologies. One technology would dominate and be very popular in comparison to other technologies. That is a de facto standard, so we have to understand the difference. At that time, we were told from other people, "You are using proprietary technology," but the reality was, and now it's proven, that we were something different from the other companies inside the wireless industry, but in the Internet industry, we were the de facto standard, and they were something different. This is comparing the small fish and the big fish, and the big fish and the whales. In reality we were not proprietary.

After the decision to go with HTML was confirmed, Takeshi developed a business model for a balanced collection of content providers. Rather than thinking about the details of the content itself, he set up a content portfolio:

> The meaning of content portfolio is simple. I wanted to set up an image of what the design of the service itself should look like. To have a variety of content does not necessarily mean a simple image, or design of the service to end users, so to have some message as a product, as a service, or design of the service, I started to write up a content portfolio. By having this content portfolio, I can balance which part would be weaker, which part would be stronger, and which part we should persuade more. We cannot create content by ourselves, so managing our content portfolio would give a target for us.

He set up four different categories for the content portfolio, and then the difficult work of persuasion started:

> I set up four different categories, naming first e-commerce as transactive content; second, information-based content; third, database-based content, and fourth, entertainment-based content. As I got agreements from the companies, I listed their name into this content portfolio. By taking one and a half years, I got support from 67 companies and I started *i-mode* service on February 2, 1999. At that time to have 67 content providers was remarkable, but already

A balanced portfolio ■

now I have more than 2,000 official content partners, and more than 50,000 independent content providers, so now nobody will say 67 was enough.

Once the plan for the content portfolio was in place, Natsuno-san became a whirlwind of energy, working to persuade the content providers to commit to the service. He started with the e-commerce companies offering transactions, as he knew that those applications would have a long lead-time. He approached banks, credit card service providers, and security protocol companies. Soon he had ten banks, two airline companies and two e-book stores signed up:

In terms of the ratio of my content providers at the starting point, transaction content was the richest segment. My method to persuade this e-commerce arena was like this. I started with the banking industry, because I knew that the banking industry was the toughest to be persuaded amongst all of the e-commerce guys. After I got agreements with some of the advanced banks, I went after some of the normal e-commerce guys, like the airline industry and brokerage companies, and e-book stores, city stores, and ticket companies.

I said, "Some banks have already decided to introduce our service, so why do you worry so much about security, when they have already agreed?" In my strategy, if you got some support from the most conservative guy, it's much easier to get support from all other guys.

The entertainment category had different interests. For them to get revenue from the end user was the final goal. I got support from Bandai as the first entertainment provider, but it took me almost six months to get other entertainment industry companies interested, as there were only a small number of subscribers at that time. Six months after the launch I started to persuade entertainment guys by saying, "I already have 1 million subscribers. Why are you not doing any business with us?" So the order [of which category you talk to first] is really, really important.

It was easier to find participants in the database and information content areas, as they already provided Internet-based versions of their products. Newspapers, recipe providers, timetables, and yellow pages companies were all willing converts,

as all they had to do was develop algorithms to scale down the content to fit the small screen.

He developed a strategy to offer the potential content providers a guarantee of support, clearly stating that NTT DoCoMo would support their business and would never be competitive:

> I said, "We will focus our efforts on the design of the service, the design of the handset, the design of the user feelings, and the design of the marketing approach." In this way all other people can easily join us. The image of a "concierge" came from discussions with Mari-san and led to the message that we just wanted to make this cellular phone as a very, very nice agent to each person, like a butler. "I just want to make it a satisfactory personal and useful supporting tool for your life." She presented that concept as the image of the concierge.
>
> To realize the really useful and really enjoyable service, the handset design is very important, because the handset can represent your taste. Of course, this is a very technical tool, but at the same time you have to have this tool all the time. That means that you can show your lifestyle by the selection of the handset. What kind of handset you are using and what kind of content you are using reflect some of your life. That's why we are always making a really heavy effort for the tiny details of this handset design. This kind of latch is very important. Feel is very important. The shape, how round it should be, is very important. The little things are very important.

Natsuno is very clear about the business model, where the handset design is only part of the full value chain. It extends from the handset up to the network service, and only then up to the Internet-based content provider. A single company cannot dominate the whole of the value chain. In the case of the *i-mode* service, they are in the middle, unable to create the content, or to design the handset:

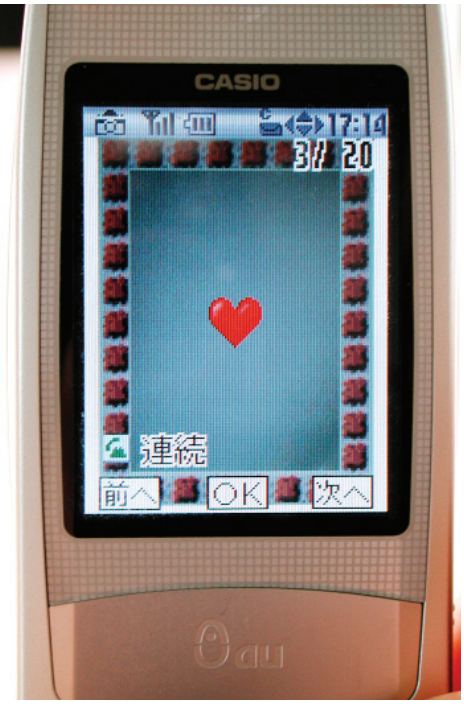
> I cannot jump into the world to download Java applications from the network to the phone, but already one tenth of the Japanese population is doing that. Why? They have user experience to download something from the network already, even before the introduction of the *i-mode* Java phone, so I'm always taking care to

"A useful suporting tool for your life!" ■
Details of early *i-mode* phone ■
Details of later model ■

adjust the speed of evolution of each different layer to form the total value chain.

This extended value chain poses a difficult challenge for the service provider. In order to offer a satisfying interactive experience to the customer, they want to influence the parts of the chain, or layers, that are outside their direct control. The most direct experience for the user is in the user interface of the phone itself, and this is where the *i-mode* service development team made great efforts to influence the design. Natsuno describes their achievements, which were surprisingly successful, considering that they were an unproven new service:

> The user interface of this phone was and is very important. The user interface of the browser and phone should be easy enough for everybody! This is not a PC. Not so many people really read manuals, and even though we have thick manuals with all the phones, and my staff is always working very hard to publish very good manuals, not so many people really read that. The very basic concept of UI development is how to make everything intuitive.
>
> When we first designed *i-mode* phone specifications, we requested our handset vendors to have an *i-mode* button to launch the browser, and four directional keys to navigate in the browser. I don't mandate the circular design for the four keys. Some vendors are using a jog dial, which is fine. I didn't want to limit the creativity of the vendors, so I only provided the minimum specification we should need. All the remaining controls are the same as a simple phone.
>
> Another great feature of *i-mode* was icon-based communication. We developed more than 180 icons, in addition to the normal characters in the alphabet. Each icon shows a message, like the heart mark that always shows you some kind of love message, and the smiling icon shows that you are happy. Even before *i-mode* there was a big boom for high school students to use pagers and short messages over the phone using icons. We thought that without icons we could not get support from very young ladies and young boys and girls, so we took these features into our service. The difference from our competitors was that we mandated these icons to all our handset vendors, so that now 32 million people can communicate with one another using these icons.



- Early model showing *i-mode* button
- Love message

As an additional feature, I wanted to make this browser resemble the browser on a PC, with the possibility to use bookmarks or favorites to jump into your favorite Web site; and also you have a cache function in the browser side. In the user experience, the PC browser was not only for the technical people. The Netscape guys and the Microsoft guys really made a heavy effort to make their browser easy to use, so to take advantage as a follower for the wireless industry side from the PC side was a very natural way. The bookmark function, the cache function, and the URL inputting function were all very necessary functions for this phone.

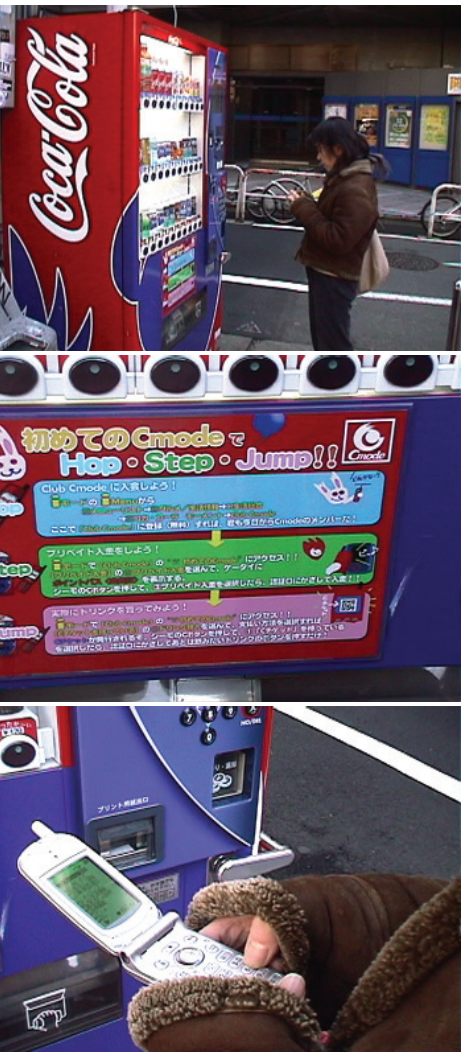
By 2002 Takeshi Natsuno had risen to become managing director of NTT DoCoMo, in charge of *i-mode* strategy. In the first three years of operation, the *i-mode* service grew to more than 33 million subscribers, with 12 million of them being Java phone users. This means that a quarter of the Japanese population was using the service, with one tenth of the population using Java programs on the phone. During the 2001–2002 fiscal year, *i-mode* earned close to $6 billion in revenue. He sums up the reason for this amazing success:

When I first introduced *i-mode* phones, the capability of the phone was just to browse the Web and to send and receive e-mail. With the second generation you started to download color graphics, ringing tones from the network. With the third generation, thanks to Java capability, you can customize the function of your phone to your needs. People customize their phones as karaoke machines: they see the script here and sing a song to practice.

Many people ask me why *i-mode* is so successful and the others are not. We have successfully introduced the Internet way of thinking rather than the telecoms way of thinking to implement this service, and this can be a great message for all the operators in the world and all the industry players in the wireless industry in the world.

i-mode game ■
Playing downloaded ringing tones ■

A Cautionary Tale of a Soft Drink



- The drink machine, accessible by *i-mode*
- Instructions with an out-of-date address
- Searching for the new address

Chiho Sasaki, an interaction designer and human factors researcher at IDEO Tokyo, had heard about the possibility of using an *i-mode* phone to interact with a vending machine and make a purchase. Without knowing about the upcoming interview with Takeshi Natsuno, she decided to make a test, to find out if the interaction was well designed. On a chilly November morning in 2002, she set out to find a Coca-Cola machine that was offering the *i-mode* service. Chiho took a video camera to record the event, and Kaoru Ishihara came as the observation subject. Kaoru seemed the perfect person, because as office manager, she was responsible for the operation of the computer equipment and was very technologically savvy. Here's what happened:

Minute 1

Kaoru reads the instructions on the front of the Coca-Cola machine, which give a Web site address for the *i-mode* access to Coca-Cola vending machines. She thumbs in the address using her numeric pad to enter the characters.

Minute 2

Unfortunately the address printed on the machine is out of date. Kaoru spends five minutes searching for the new address. She finds it and goes to the site.

Minute 5

When you enter the site, you need to make it a favorite in "my-menu," so that's what Kaoru does. She's shivering a bit in spite of the warm coat and scarf.

Minute 10

The software promises to send a reply message by email, enclosing a barcode for customer identification, which the Coca-Cola machine will be able to read.

Minute 13

Kaoru waits for the email, but there is no sign of it. Then she remembers that she has her junk mail filter on, which could be rejecting it. She goes into her preferences set up and turns off the junk mail filter. No, there's still no sign of the email!

Minute 15

She calls Coca-Cola customer service, using one cell phone to make the call and another to check the email. The customer service agent sends a message, but it is the address of a link site, not the barcode.

Minute 17

The link site asks her to enter her name, address, home address, phone number, *i-mode* address, and birthday. She completes the form.

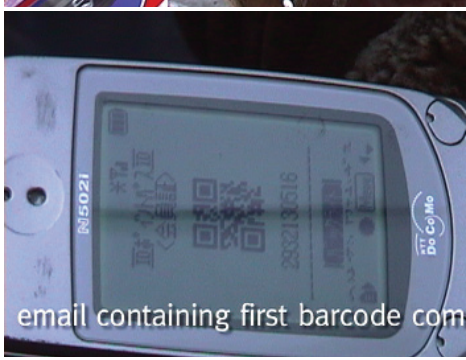
Minute 21

An email containing a barcode comes through; the excitement warms her up a little! She presses the button on the machine for *i-mode* purchase. The display on the machine asks for a cash deposit to cover the purchase. Then she is asked to put the cell phone up against a window on the machine so that it can read the barcode. Nothing happens! It requests backlight on the cell phone. She turns on the backlight, and it reads the barcode!

Minute 30

She tries again. The machine recognizes the bar code, accepts cash deposit, tells balance, allows purchase and offers receipt. Lights flash. She chooses a hot drink!

This cautionary tale shows a fatal disconnect between the designers of the Coca-Cola *i-mode* service and their customers. Not even the most patient person is willing to wait so long for interactions, even in setup mode. How ironic to be asked to use coins to pay for the account!



Ten minutes have passed
You have to laugh
Calling customer service
The first barcode arrives

- Cash deposit needed
- Backlight for phone display requested
- A drink is delivered
- Drink up!

The story illustrates vividly the point that Takeshi Natsuno makes about the telephone service provider only being part of the value chain. NTT DoCoMo has enough influence with their handset vendors to be able to get a single button to access the Internet, but they have very little influence on their content providers. Most telephone service providers around the world are not in a strong enough position to even be able to influence the handset designs, so the chances of implementing a unique interaction design advantage are even less.

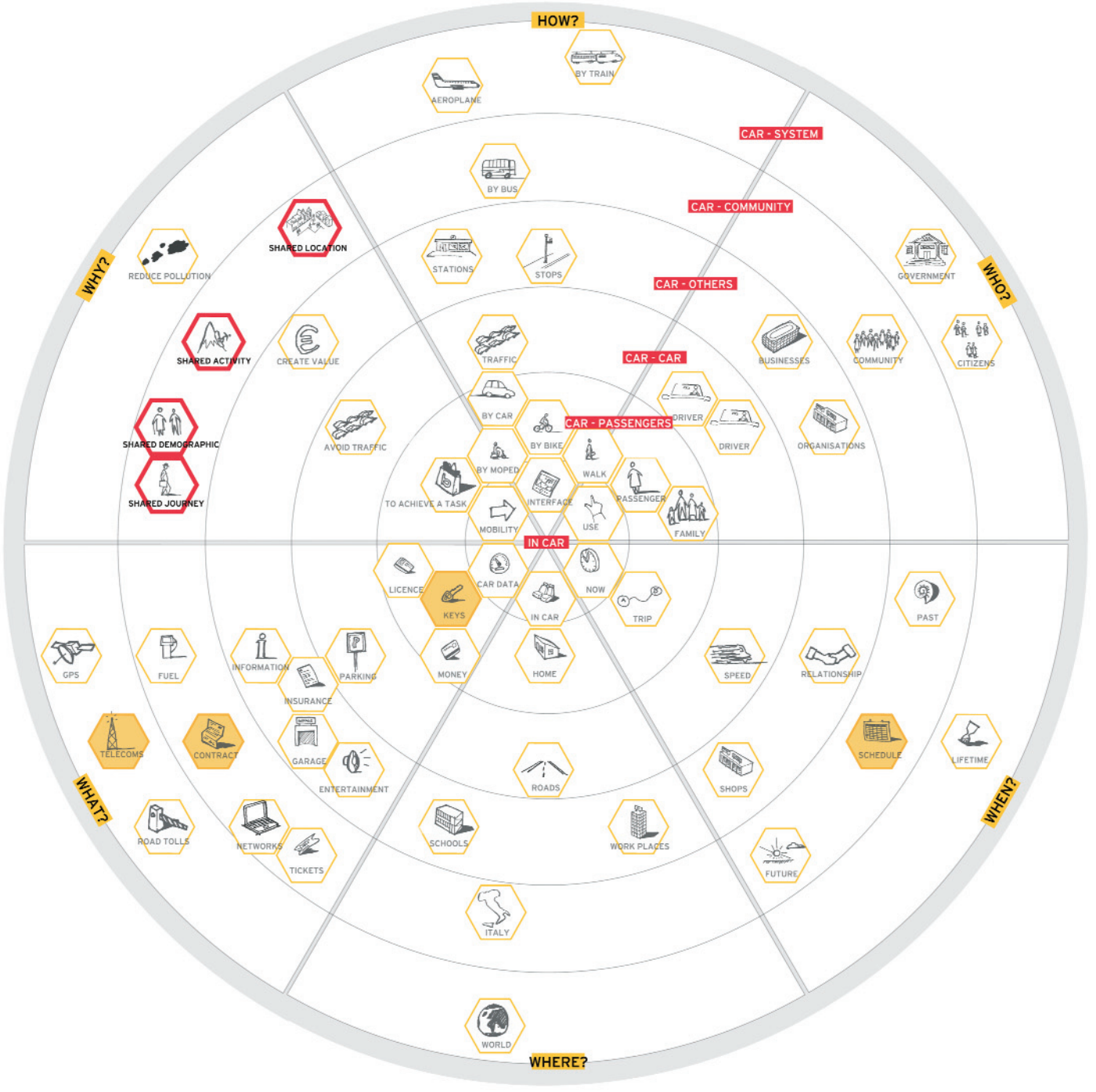
The challenges of designing services are mostly about this sort of complexity, where no single organization has direct influence over the entire experience. The best hope for avoiding design failures is that everybody in the various development communities starts to use a process that looks at what people want and need as a first priority.

Next, we meet three young designers who have set out to make the design of services their specialty, by founding a service design consulting firm called Live | Work.

Photo Author

Chris Downs, Ben Reason, and Lavrans Løvlie (*left to right*) of Live|Work

Live|Work is a service innovation and design company based in London. Chris Downs, Lavrans Løvlie, and Ben Reason are the founders and principals. Chris says, "We are children of the Web. Before our generation, interaction designers were dealing with interfaces. We started making Web sites in 1994, so we have our heads wired to think about networks. When you deepen an interaction beyond an interface and think about the network, you eventually end up at the service." Ben had been working as an interaction designer at Razorfish and Oyster in London and Chris and Lavrans were designing Web sites, but they were all so involved with the technical and business aspects of the design solutions that they realized they were designing the whole service. Chris met Lavrans when they were studying for their master's in the interaction design program at the Royal College of Art in London and decided that they shared an interest in designing services, so in the summer of 2001 they boldly set out to form a new kind of design consulting company. They spent long evenings and weekends talking about what service design could and should be and defined a point of view that they could tell people about in conference presentations, teaching in design programs, and on their Web site. They put together some case studies, and started working with Orange, the UK-based cell phone service, and in Italy with Fiat and Telecom Italia, through the Interaction Design Institute Ivrea.[5] A new design discipline was being formed and finding voice. By designing from a service instead of a product perspective, they are promoting use over consumption.


HOW?
BY TRAIN
AEROPLANE
CAR - SYSTEM
BY BUS
CAR - COMMUNITY
SHARED LOCATION
WHY?
REDUCE POLLUTION
STATIONS
STOPS
GOVERNMENT
WHO?
CAR - OTHERS
SHARED ACTIVITY
CREATE VALUE
TRAFFIC
BUSINESSES
COMMUNITY
CITIZENS
CAR - CAR
BY CAR
DRIVER
SHARED DEMOGRAPHIC
AVOID TRAFFIC
BY BIKE
DRIVER
ORGANISATIONS
CAR - PASSENGERS
BY MOPED
WALK
SHARED JOURNEY
TO ACHIEVE A TASK
INTERFACE
PASSENGER
MOBILITY
USE
FAMILY
IN CAR
LICENCE
CAR DATA
NOW
KEYS
IN CAR
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SCHEDULE
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WHAT?
ROAD TOLLS
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WHEN?
ITALY
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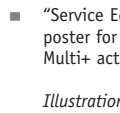
WHERE?

Live|Work

Starting Live|Work



"Service Ecology" poster for Fiat Multi+ actors

Illustration
Live|Work

When the three founders of Live|Work talk about designing services,[6] they exude an infectious enthusiasm. They think of services as things that people use rather than own, and from that idea they are building a new consulting practice. There is a strong idealism underlying their point of view, as they want to promote use over consumption, and hope to shift the desire for consumption toward the desire for use. To achieve this shift, they believe that government and consumer businesses will have to create future services that surpass the quality and desirability of the products that people own today.

Chris Downs tells the story of putting the company together:

> We started in the summer of 2001. I knew that there was something in these two guys that meant that if the three of us got together something special might happen. We decided that our common interest was designing services. Coming from Web and interaction backgrounds, we were working a lot with new business startups and dot-com companies. We knew that we'd been designing services for

IF A COMMUNITY SHARES A CAR
IN A PARTICULAR LOCATION
THEN WHAT ACCESS MECHANISM
DO THEY USE TO GET INTO THE CAR?

IF A COMMUNITY SHARE CARS
BASED AROUND A ROUTE
THEN WHAT INFORMATION IS
USED TO SHEDULE THE JOURNEY?

IF A COMMUNITY SHARES MOBILITY
INFORMATION & COMMUNICATION
THEN WHAT IS THE NATURE THIS
FUTURE MOBILITY NETWORK?

IF A COMMUNITY SHARE MOBILITY
BASED AROUND A DEMOGRAPHIC
THEN WHAT RULES MANAGE THE
COMMUNITY REALTIONSHIPS?

the last few of years, but we hadn't really been talking about it. So we said we need to be a "service design" company.

Designing services is something we felt we were already doing, but we didn't have a name for it. No one was saying we were designing services. It was sometimes called a customer experience, but we thought it was slightly deeper than that. Customer experience might only be part of the whole service story. The concept of full service takes into account all the stakeholders, thinking about what the back-end system is having to do, what the motivations of the staff are, and the motivations of the competitors. The customer experience is part of that.

Lavrans Løvlie admits that they were very surprised that they could not find any other service design companies out there to learn from, so they had to spend their first few months trying to decide what services could be in a design context:

We needed to have a language to speak about services in a native way; we realized that we wanted to have a connection to the academic community, so that we could test our thinking rigorously; and we needed some big clients that would buy service design projects.

■ "Service Ecology" poster for Fiat Multi+ relationships

Illustration Live|Work

Four touch-point examples *overleaf*

We've been building service design from a series of different academic disciplines. We've looked at academic theory about how value-nets operate; we've been drawing on anthropological work from human-computer interaction, and we've taken everything we could from interaction design, and put all this together in what we call "service design."

Ben Reason is keenly aware that services themselves are nothing new, and that in some sense they have been designed as long as they have existed:

Services have been around for a long time. There's a branch of science and ecology that's talking about Gaia systems as services. People have been starting to understand natural systems as services that are provided to the species that live on the earth's surface. Rivers and seas provide cleaning services for water, the atmosphere provides fresh oxygen services. These things work in a very service-like way in that they're ongoing, and there is a very symbiotic relationship between species.

4 Touchpoints: Multi+Access

IF the Multipla becomes a community vehicle,

THEN users need to be able to personalise their access devices.

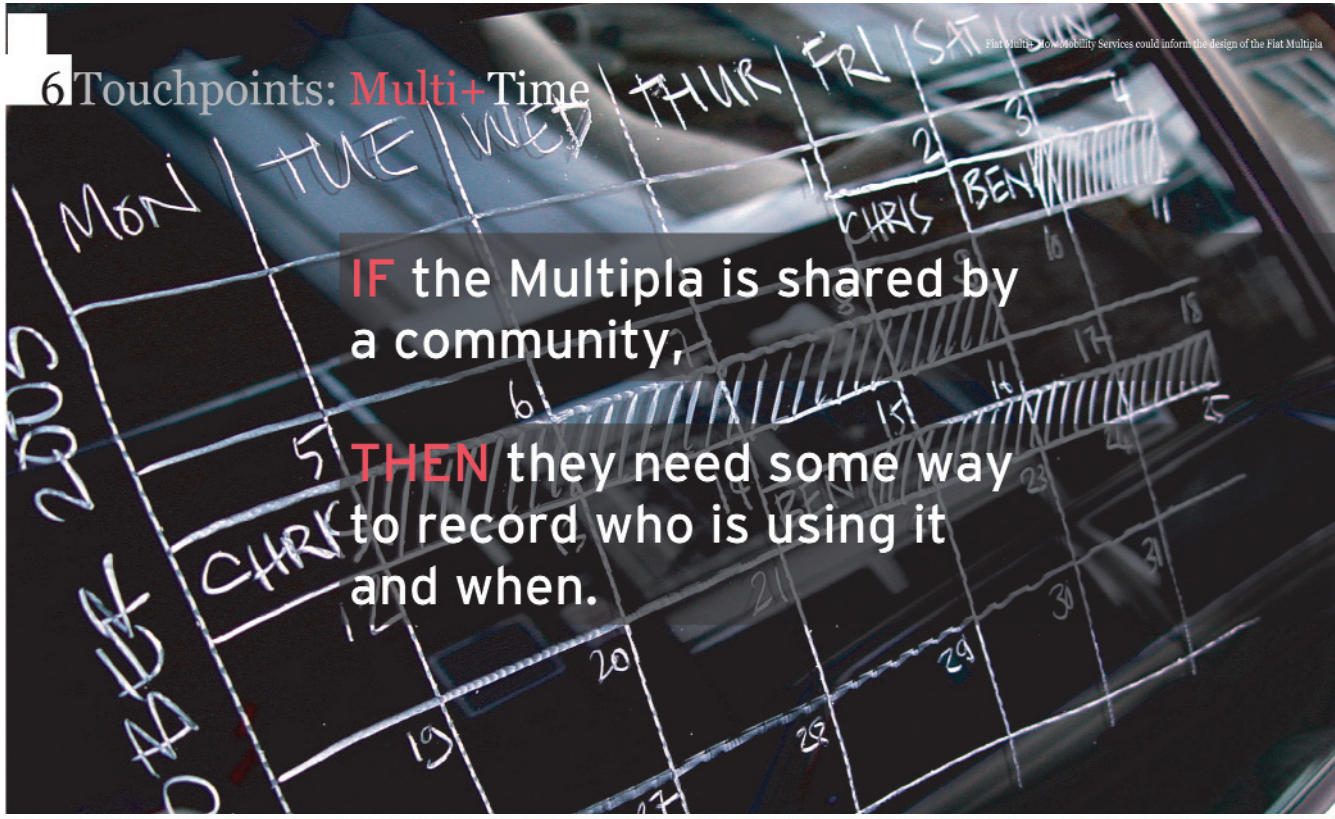
Fiat Multi+ How Mobility Services could inform the design of the Fiat Multipla

5 Touchpoints: Multi+Rules

IF the Multipla is used as a service vehicle

THEN there needs to be a mechanism for recording rules.

6 Touchpoints: Multi+Time



IF the Multipla is shared by a community,

THEN they need some way to record who is using it and when.

7 Touchpoints: Multi+Syncronisation

IF the Multipla is to become part of a larger system,

THEN it needs to syncronise with other modes of transport.

I don't think we know much about sustainability in relation to designing products, so I think it would be presumptuous to say that we do for services, but there is a school of thought about services for sustainability. For example, we picked up an economic argument about the responsibility of the provider from *Natural Capitalism*,[7] the book by Paul Hawken, Amory Lovins, and Hunter Lovins. We've been exploring the design edge of that argument and finding out how complex it is, but there's definitely something in terms of the flow value, as a model, in contrast to the consumption of things and waste of things.

Designing Services

When you browse the Live|Work Web site, you notice a link to "View the Glossary." Click on it and you find this introduction:

> Service Design is a new mix of existing practices, new terms, current values, and evolved methods and skills founded in the traditional design disciplines. As part of our research, we take part in defining this practice. Here are some of the words we use a lot at the moment . . .

As of May 2004, there were eight terms in the glossary, four of which are concepts about designing services; the other four are keys to the processes employed by Live|Work. The definitions of the terms are included below, supported by comments from the interview with Chris, Lavrans, and Ben.

■ Live|Work Web site

1. Service design

> Service design is the design of intangible experiences that reach people through many different touch-points, and that happen over time.

The value you receive from a service is usually intangible. Try touching your banking service or showing it to other people. Lavrans explains that his ultimate goal is to try to design those intangible things. He feels that the challenge is demanding enough to take a lifetime of effort. Chris responds:

> Yeah, you've defined that challenge pretty well, in that you can't express yourself through your bank account, but you can express yourself through the choice of car you drive. Services are developed. Services are run and operated throughout the world, but they're not often designed. They're not crafted to the same level of expertise that products, interactions, and interfaces are. As designers, we know how to inscribe cultural meaning into objects and interfaces, but we don't know how do inscribe cultural meaning into a service. I'm proud of owning a Rolex watch, but I'm not proud of having a bank account.

2. Service ecologies

> A service ecology is a process we use to establish a systemic view of the service and the context it will operate in. We map service ecologies in order to map the actors affected by a service and the relationships between them, reveal new opportunities and inspire ideas, and to establish the overall service concept. Ultimately, we strive to create sustainable service ecologies, where the actors involved exchange value in ways that are mutually beneficial over time.

The idea of ecology implies a complex system but also has connotations of sustainability. Lavrans explains:

> We all understand we can't produce and use and throw away more and more things—it's just obvious! Services in themselves, since they are not about ownership of stuff but about paying for a value you receive, should be more sustainable. We think service ecology is a good name because like a natural ecology, you can't ever completely analyze it. It's just impossible to count how many leaves are on a tree, but we can try to make some sensible choices about how we can put all these things together.

The complexity of service ecology is well illustrated by a cell phone service, where there are many interdependent providers: the handset manufacturer, the mobile phone operator, and the third-party service providers offering online services. Chris expands on the banking example:

> Service ecology thinking acknowledges multiple partners over time, in a way that a product doesn't. Like ecology, a service relies on value

exchanges between actors in a network. There's a value exchange between a customer and a bank. Understanding that there has to be an equal amount of value in trust, emotion, and intrinsic value in a relationship if it's going to be sustainable. If all I ever give the bank is money, the only thing they'll ever give me back is money, and I therefore assume that banks are only interested in money. If we can find a way of helping people exchange more than money with their banks, they might get something more back.

3. Touch-points

Service touch-points are the tangibles that make up the total experience of using a service. Touch-points can take many forms, from advertising to personal cards, Web interactions, mobile phone and PC interfaces, bills, retail shops, call centers, and customer representatives. When we design services, we consider all touch-points in totality and craft them in order to create a clear and consistent unified customer experience.

The time dimension helps the designer to map and understand the potential touch-points in a service. It helps to think of the analogy of a journey through the service experience and, as Ben explains, the important moments within the journey:

We have an interesting metaphor of on-ramps and off-ramps to services, so you're not talking about the main road of content flowing through, but how people access it, how they leave it, what they do with it when they're finished with it. It's only when you build up enough touch-points around the service that it starts to feel multidimensional.

Chris thinks of these on-ramps and off-ramps as the transitions between the touch-points within the service:

Every service has a bill. Every service has an interface. But the way you transition in between those things is where the brand of the service can live; in-between experiences can be designed. As interaction designers, we might design a calendar on a mobile phone. As service designers, we provide the calendar on a mobile phone as one of the touch-points, but we also think about how the customer became aware that the calendar could exist on a mobile phone. We also think about the signing up process, the process of them first

entering their details, and then think about billing and receiving a bill for that service.

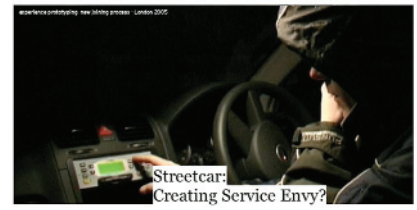
4. Service envy

We can think of products as serving two basic needs: to perform the function they are engineered to do, and to confirm and communicate the owner's set of values. The second function is crucial. Products help us identify ourselves through a complex product and brand language. If we want to make people desire services more than products, then services will also have to communicate these values, and we have to create services that help people tell one another who they are. Our major challenge is to enable people to express who they are through the use of services instead of through ownership of things. We must create service envy.

Chris believes that the ability to create service envy should be the ultimate goal for the service designer:

How do you design a service that people can use, not only obtain the functional benefit of the service, but use the expressive value? How can I express something about my character through the services that I subscribe to? For example, being able to say in the pub, "I fly Virgin!" means something.

live|work



5. Evidencing

We often start mapping assumptions about a future service and animate these ideas as tangible evidence; both negative and aspirational futures are embodied as designed touch-points. We focus as much on the effects of possible designs as the design of the service itself. Therefore, evidence can often be a newspaper article describing the results of the service, and other third parties' response to an innovation. This type of "archaeology of the future" enables us to make early qualitative judgments about the implications of a design. Evidencing can be done as a workshop or as more focused production of touch-points. Ultimately it allows customers and collaborators to "play back" their own assumptions as concrete experiences rather than abstract evaluations.

live|work

Service envy ■
Evidencing ■

Experiences can be enacted, but the communication works much better if the actors are using props that form evidence in

the mind of the onlooker. Chris talks about "faking it," by which he means that quick and informal techniques can be used to create the evidence:

> Faking is a state of mind, and it's something we use right across the process. We might fake an advert or we might fake a piece of CCTV footage of somebody using a service as evidence that this service already exists. Faking and evidence are things that we use together quite a lot. We fake bills as evidence that a service exists.

6. Experience prototyping

> How can we prototype the experience of using services that are intangible, may take place over a lifetime and have multiple touch-points, media, and modes? We look at prototypes of a service experience as an equivalent to the way a product or architectural model prototypes the object. We design multiple service touch-points, set the scene, the place and the time of a service experience, and establish a way for participants to suspend their disbelief, in the way that theater is able to temporarily transport an audience. We use experience prototypes to do rapid service prototyping, involving customers, experts, and clients in developing and refining services.

The goal of experience prototyping is to get a very intimate and subjective idea about what the experience of using a service could be. The prototype is experienced over time, and over the network touch-points. Ben emphasizes speed and economy in the techniques that are chosen:

> We came across a great phrase in Italy—"rapido, piccolo, economico"—which is an Italian description of entrepreneurial process. This description matches our ideas for experience prototyping: doing things very fast and as cheaply as possible, like using eBay, as well as small-scale things that you can do immediately; not putting off a project because you don't have a certain piece of equipment that you think you need. For example, when we were working on a project in Italy, we couldn't get the Italian voice interaction prototyping tool that we'd been promised to work, so we ended up using answer phones and pretending we were machines.

7. Service experience models

For product designers, the model is invaluable as a way to develop, refine, share, and present their designs. Service models represent intangible experiences, and need to employ formats to convey the experience and the functions of the service in an immediate way. They allow us to evaluate the viability of the services qualitatively, as well as sharing the concepts with potential users, colleagues and decision makers. The service models, supported by a business case, will often be the material needed to decide whether a service should go into development, or whether it needs further development, or even shelving.

The concepts of evidencing, faking, and experience modeling all come together in a service experience model. This is the way in which a proposal for the design of a new service can be described, evaluated, and improved through iterative development. Chris emphasizes the techniques that reduce the scale of effort needed to create a convincing model:

Making services, or faking services, needs a lot of touch-points to be delivered over time, so we have to find a really quick way to build the service experience model, and faking is much quicker than trying to design. If you try and fake a bill, it will take you a lot less time than it would if you tried to design a bill. As a designer, you would be quite precious about the details, but if you're making a forgery, you're more focused on getting the content right and getting it out. So as part of the "rapido, piccolo, economico" process we think about faking stuff, and it really frees us as designers. We don't care so much about the details—we just get it out.

If you set something up as a mock-up or proposal and put it in front of somebody, you're inviting a particular kind of comment. The interaction is already established around the idea that this is a mock-up. If you can fake something so that people believe just enough that it's real, the conversation is about the experience of the object. If I brought to you now a model of a mobile phone that's quite clearly a model, you'd start to tell me that there's a problem with the weight of it, there's a problem with some of the form. If I were to show you a list of SMS messages to and from my thirteen-year-old niece using this mobile phone, we would be more likely to start

> talking about the value of mobile telephony; we wouldn't care so much about the details in the object.

8. Service blueprinting

> In our definition, a service blueprint describes a service in enough detail to implement and maintain it. The blueprint is used by business process managers, designers, and software engineers during development and works as a guide to service managers that operate services on a day-to-day basis. The blueprint informs service managers about the features and quality of the service, ranging from the flow of use to technical infrastructure and brand management.

The blueprint is the implementation phase of the Live|Work process. Lavrans explains that this is the time to reconnect to the other design disciplines:

> The further you go towards actual market launch, the more you use classical design disciplines, like the details of the form, usability testing, all those things that have to be in place for it actually to come out and be useful and wonderful.

The examples of designs already completed by Live|Work and in the public arena show evidence that they are off to a good start in establishing a service design agency. They have successfully articulated a language and process for the task, made strong ties to academia by teaching at the Interaction Design Institute Ivrea (IDII), and are working for a growing list of clients, as well as the examples shown here from Fiat. The "ShareWay" project shown in the six illustrations that follow was developed as part of their teaching program at IDII.

Fran Samalionis has pioneered the practice of service design at IDEO, both in San Francisco and London. She has collaborated closely with Live|Work on projects and helped them establish their point of view. Next she expands on the service design process, and describes a case study of designing a service for an online bank.[8]

SHAREWAY
ovunque | sempre | sicuramente

THE SERVICE STAKEHOLDERS ECOLOGIES PROTOTYPING POSTERS

Valentina Novello & Peggy Thoeny - Interaction Design Institute Ivrea (2003)

The SERVICE

SHAREWAY is a free and safe ride-sharing service offered to citizens by local authorities, with the help of other citizens willing to be useful. It provides people living in rural areas or small cities with a new form of mobilitiy.
SHAREWAY is designed to compliment the public transportation system and to offer an attractive alternative to personal vehicles.

The goal is to make local travel easier and more flexible for citizens, both those who want a lift and drivers who suffer from current traffic congestion problems, giving and getting rides in total security.
Therefore, we established strictly followed rules respecting privacy: to subscribe to the service both drivers and passengers have to register, filling the form with their personal data, and have a mobile phone.

This service provides the subscribers with a membership card and a blinking light. Drivers will display the light on their dashboard so that it is visible from the outside, showing their availability to give a ride. Passengers who wish to get a ride will wear the it.

When driver and passenger meet, they will show their cards to each other and will call the service free number to register the ride, dialing on their mobile phones the id numbers written on each card.

SHAREWAY
ovunque | sempre | sicuramente

THE SERVICE STAKEHOLDERS ECOLOGIES PROTOTYPING POSTERS

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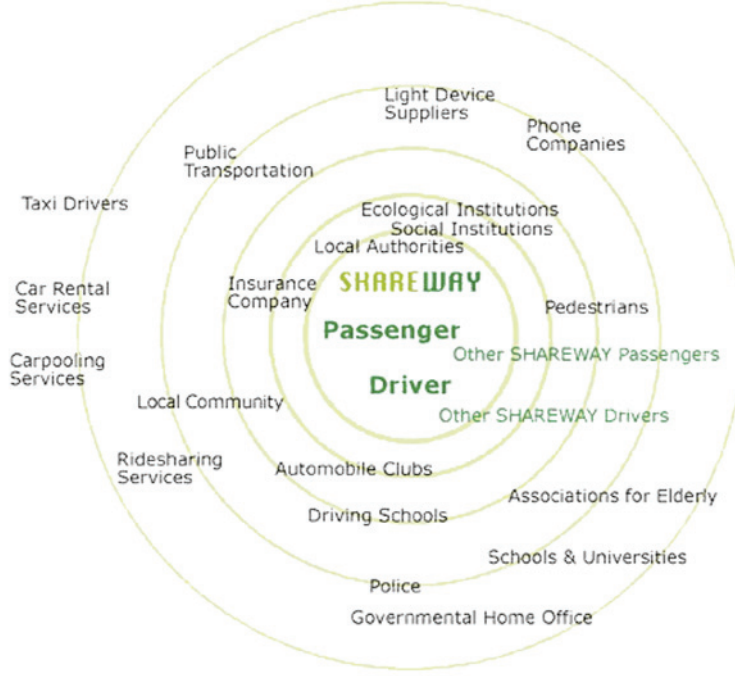

Valentina Novello & Peggy Thoeny - Interaction Design Institute Ivrea (2003)

POSTERS

I go wherever I want.

What about a coffee downtown?

Hitchhiking? No, thanks.

Buses on strike?
Sudden invitation?
Awful weather?

Going to work?
Now it's fun!

SHAREWAY
ovunque | sempre | sicuramente

THE SERVICE STAKEHOLDERS ECOLOGIES PROTOTYPING POSTERS

Valentina Novello & Peggy Thoeny - Interaction Design Institute Ivrea (2003)

POSTERS

I go wherever I want.

What about a coffee downtown?

Hitchhiking? No, thanks.

Buses on strike?
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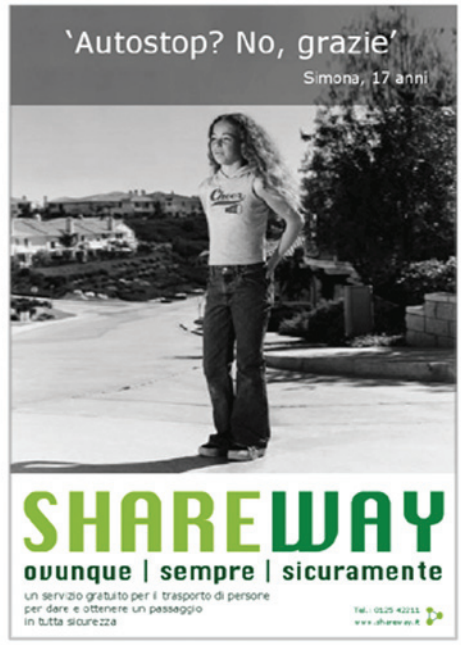

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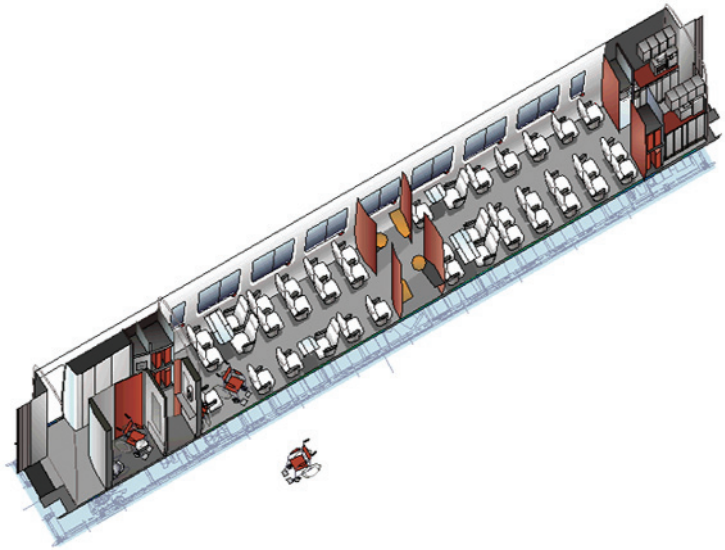
Photo Author

Fran Samalionis

Fran Samalionis is a leader of the Service Design and Innovation practice at IDEO. She argues that IDEO has earned permission to innovate in service design, as the next step in a history of combining skills and resources. "We started in product design by bringing engineering and industrial design together, with a focus on people. Then we introduced interaction design, which adds the dimension of time. Relatively recently we added the design of environments to our capabilities, with the dimension of space. Now it makes sense that IDEO can innovate in the design of services, because we understand how to create tangible contexts for intangibles, in different channels, that people interact with over time. Our philosophy is to keep our 'head in the clouds and feet on the ground'—the clouds helping us with original and innovative thinking and the ground ensuring our ability to implement the results." Fran joined IDEO in 1996 as a human factors specialist and has worked in both London and San Francisco. Her background was in astronomy and electronics, and she has a master's degree in ergonomics from University College London. When she graduated, she worked with Philips Semiconductors as a product manager for application specific integrated circuits. While at IDEO San Francisco, Fran managed the development of customer experiences for several startups, and a project to help the San Francisco Museum of Modern Art welcome its visitors. Fran has led projects with Egg, an online financial services provider, and numerous telecommunications companies in Europe. She has worked on the human factors of the design of game controllers, medical products, and of a self-propelled underwater camera.


acela
2006
acela



Fran Samalionis

Some customers are so used to an existing product, it does not even cross their mind to ask for a new solution.

Dorothy Leonard,[9] Harvard Business School

Service Innovation

■ Amtrak Acela exterior, café car, and axonometric of first-class car

Photos Courtesy of Amtrak

Fran Samalionis likes to collaborate with Live | Work on service design projects whenever she can and has been a mentor to Chris, Lavrans, and Ben as they have developed their ideas. She sees the need for innovation in services being driven by competition, market dynamics, regulatory issues, technology developments, and social issues:

> One of the things that a lot of companies tend to forget is that, whether they're focusing on a business driver or a technology driver or a customer driver, they need to bring the other dimensions along with them; the market is littered with failures that illustrate that point. For example, interactive television failed because the developers forgot that television is a very "sit back" interaction, rather than a "sit forward" interaction.
>
> Another example was the introduction of offset mortgages. This is a relatively new service in UK banking, combining financial services products such as mortgages, loans, and savings accounts, so that you can offset the interest rates across those products; the mortgage

> interest rate applies to your savings account and to your credit card. You can also choose not to receive interest on your savings account in order to take that interest off your mortgage. It's a brilliant business idea, but completely unintuitive to customers. A lot of banks are using massive advertising campaigns to educate customers on what it could mean for them, but they are talking about interest rates, which is confusing, and there is no emotional connection for people.

Fran is an enthusiastic proponent of empathic human factors research techniques as an integral component of every project:

> Customers have got far more demanding than they ever were. They're tuned in to the experience economy and being always on, everywhere, and personalization. And yet on some level researchers have lost the ability to get them to articulate what it is they need. Traditional market research has been overused, and they are unable to tell you anything new; they just regurgitate the last marketing campaign.

She explains the value of using these research techniques for designing services and uses a diagram to explain the relationship between empathic research and traditional market research in the context of "subjects," "truth," and "inspiration." Market research uses large numbers of subjects, or participants, in order to reveal statistically viable truth, but it is unlikely to yield inspiration. Empathic research methods, on the other hand, if skillfully used, can yield much inspiration from small numbers of subjects. Whether the inspirations are true or not depends on the quality of judgment of the researchers.

Process

> You start with observations—customer observations and other stakeholders in the service ecology as well. From those observations you develop insights and then craft the insights into a framework. The framework bounds the problem for you, reducing the complexity, and from that framework you can start to generate lots of ideas. You

don't just leave those ideas floating in the ether, but ground them very quickly into prototypes, of many different levels and fidelities. Through iterative prototyping, you work toward the most effective solution.

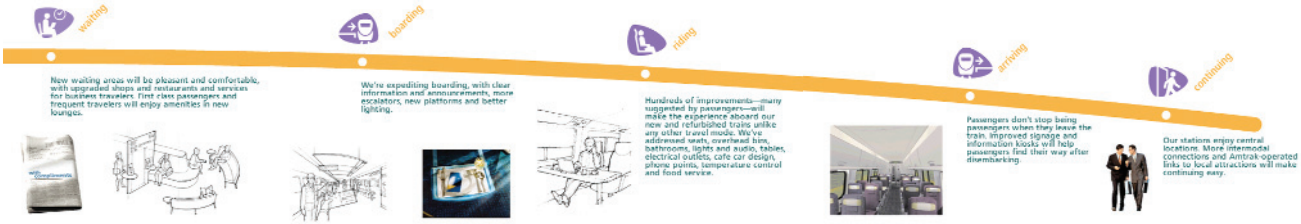
In service design it's not just getting in tune with the customer. We have to consider all the other different stakeholders in the mix. That probably includes the business perspective, brand perspective, technology, operations, and the relationship between the business and competition. It may also include some viewpoints of stakeholders who are less obviously part of the service on first analysis but turn out to be very important, for example industry commentators. We use the same empathic techniques to understand customers and to understand those different perspectives.

We are looking for insights from these observations. An example of a business insight could be the "J curve" on a financial product, its profitability over time, and what the business needs from the underlying product behind the service. In technology, it could be the map of available technologies and a systems approach: how the technologies will interact with each other, what they can support, what they can't support, and how you can make movement between channels seamless. On a customer perspective, it could be their behavior around money or what motivates them. You need to pull all these different insights together into a framework to reduce the complexity and bound the problem.

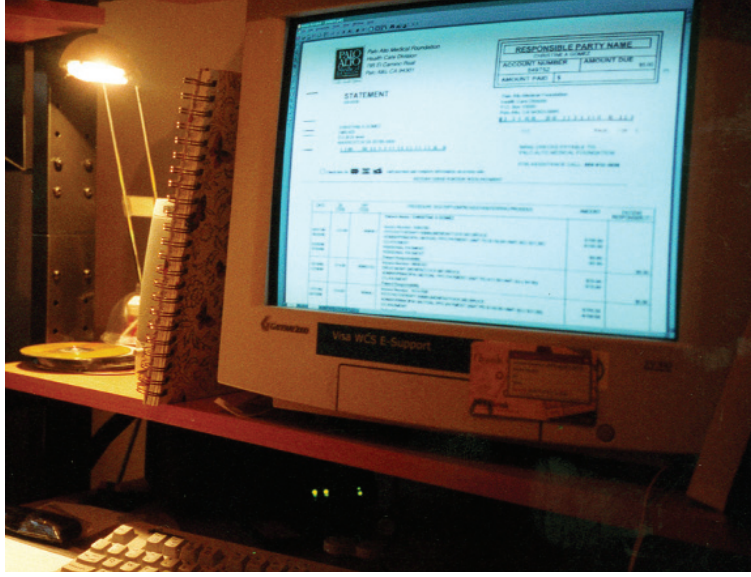
One of the frameworks that we found most useful in service design is a customer journey. That journey starts from, say, becoming aware of the proposition, and then moving on to engage with it, and then potentially moving on to join it. There's some value that the consumer gets from the proposition, like feeling smart, and eventually they may move on to advocacy. This can potentially become a virtuous circle.

The framework of a customer journey helps you think about the experiences and touch-points that exist before and after the most obvious parts of a service. This is applied to the design of the Amtrak Acela[10] train service, where the most obvious part of the service was literally a journey, but the design team identified a surprising number of additional steps on the total customer journey, as shown overleaf.

Steps	*Physical Aspects*	*Digital Aspects*
1. Learning	Advertising, Travel Agent, Word of Mouth	On-line, Phone info., Intranet
2. Planning	Station Staff, Travel Agent, Brochure, Phone	On-line, Phone info.
3. Starting	Other form of transportation	Radio – up to the minute info.
4. Entering	Station Architecture	Signage
5. Ticketing	Ticket Office, Travel Agent	On-line, Phone info., kiosks
6. Waiting	Waiting Room, Station Facilities	Signage, On-line services
7. Boarding	Doors and Luggage Storage	Auto Doors, Dynamic signage
8. Riding	Seats, Meal Services	Info., Media, Comms
9. Arriving	Station Architecture	Signage
10. Continuing	Other form of transportation	-

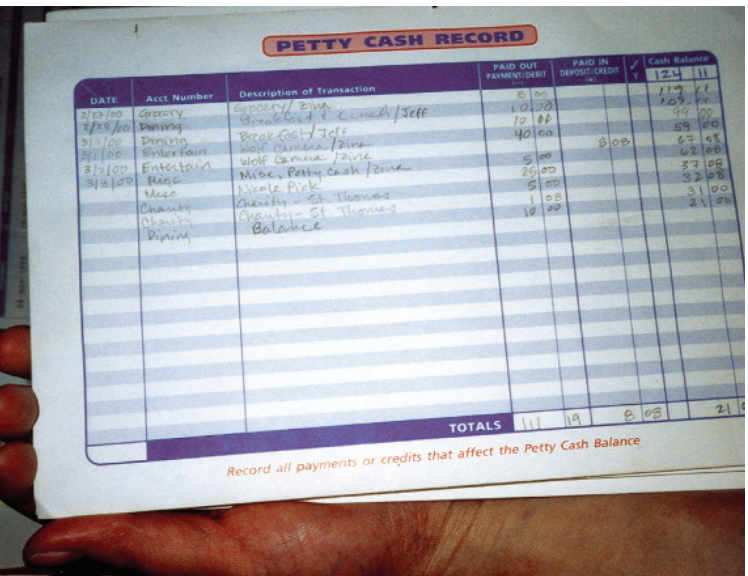


The chart opposite summarizes the overlapping of the physical and digital touch-points for designing the service. Notice that the traditional idea of designing a train, both interior and exterior, only applies to the boarding and riding steps in the journey, and the opportunity to enhance the experience with digital technology applies to all of them, albeit in an unknown form for starting and continuing.


RESPONSIBLE PARTY NAME
STATEMENT
Visa WCS E-Support


bloomingdales | by mail


MARYLAND


PETTY CASH RECORD
DATE
Acct Number
Description of Transaction
PAID OUT PAYMENT/DEBIT
PAID IN DEPOSIT/CREDIT
Cash Balance
TOTALS
Record all payments or credits that affect the Petty Cash Balance

A Case Study: Juniper Online Bank

When Fran Samalionis was in San Francisco in 1998, she was project leader for a "Customer Service Strategy" for a startup company called Juniper Financial. She tells the story of this project to illustrate the service design process:

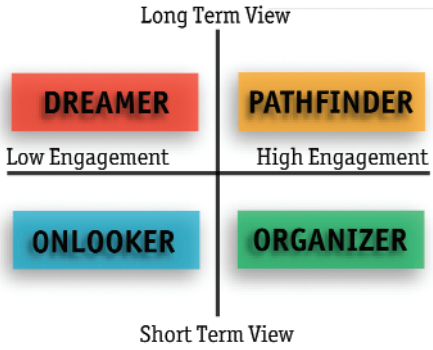
> Juniper was an online bank. A bunch of guys that had come out of Bank One[11] had decided that they wanted to do a startup. When they came to us, they were running around trying to solve every conceivable customer problem. What they really needed was some clarity and a point of view about what they could offer as a service provider. We took them through our process, moving from observations to insights to frameworks, and then through to prototyping.
>
> We started with a broad range of observations, picking a fairly diverse range of people in America, across different coasts, different ethnic backgrounds, and different incomes, because we were looking for different attitudes to money.
>
> One technique was to trace a bill through a home. This was interesting because at that time in the US, people were still using checkbooks to pay their bills, unlike the UK, where everything is set up for payment by direct debit. Using a checkbook meant that people had to be in tune with their bill cycle, otherwise they would be horrendously late paying their bills. People used different mechanisms. Some would move the bill around the home. It lands on the doorstep, it sits by the door for a while, then it moves into the kitchen, onto a little pile. From the kitchen the pile moves into the bedroom and sits there for a while. Eventually, when it gets a certain size, it moves into the study, where somebody can sit down and go through the ritualistic task of writing checks and paying their bills.
>
> Some people would create a space on a shelf that was a certain size, and when the bills filled up that space, they knew that it was time to sit down and pay them. They were using their environment to gently remind them to pay their bills. This kind of observation became very interesting when we were looking for insights to inspire a proposition for Juniper.

■ Observations of Zina, a well-organized person who already uses online banking. She says, "I like to find efficient ways to do things."

Photos
Courtesy of IDEO

These observations helped the team to understand the physicality of the behaviors associated with finances and banking. The next level up was to search for insights into attitudes about money in a more general sense. They found some people who had a very holistic perspective, both in attributes and over time. Some were very goal-oriented but not interested in managing money. Some would micromanage every aspect of their finances, and others only thought about what they could spend it on. Fran describes the four-quadrant framework that they developed to categorize these attitudes:

> We started to develop those insights into a framework, and at some point that framework successfully summarized the psychographics of the consumers. The dimensions of the two-by-two matrix were based on a vertical axis describing the view that the user had about their finances, with a long-term view at the top and a short-term view below. The horizontal axis defined how engaged they liked to be with managing their money, with low engagement on the left and high engagement on the right.
>
> In the top right hand corner, you've got somebody who is highly engaged and takes a long-term perspective on money. These were the holistic people; we called them the "pathfinders." Below them, in the bottom right, were the highly engaged micromanagers, and they became know as "organizers." Next-door to them, in the bottom left, were the people who were just thinking about what they could use their money for, and they became "onlookers" in terms of managing their money. Above them you've got these people who were not particularly engaged but had a long-term view; these are the "dreamers"; money for them was just a means to an end—it was all about the dream. That framework became very powerful as a decision tool within Juniper. It gave them a perspective on who their prospective customers might be and what their behaviors and needs might be. We could also look at the competition and analyze which type of customers they were going after and how they were addressing these customer needs.
>
> In overlaying the competition onto this framework, you could start to see that hardly anybody was chasing the customers in the "dreamer" segment, but selling the dream in financial services used to be massively overused and had been dead for a long time! In the



■ Framework of attitudes about banking

"pathfinders" segment, there are one or two competitors like Fidelity, who offer a holistic perspective that those customers want. There were also some banks offering services in the bottom right "organizers" corner, geared up for things like credit card surfing, for people who were always micromanaging and looking for the best rate.

The "onlooker" quadrant was quite crowded, but what we'd learnt about onlookers made us believe that most of the competition in that quadrant weren't really addressing the needs of the customers appropriately. They had confused lack of engagement with finances with an inability to understand finances, so they had tried to develop services with "dumbing-down" of finances. Actually, onlookers are not engaged because they are engaged in other things: they are far more into their family, or their career, and money is just something that sits in the background. Once we understood not just who those customers were but also what the competition was offering them, it was very easy for Juniper to say, "Okay, right, we don't want to sell the dream, we're not geared up to help pathfinders. We're a startup online bank; we're not really interested in organizers because they don't stay around long enough to make a viable business. That leaves us quite naturally sitting in this onlooker space. Although onlookers with a low engagement may be difficult to persuade to come to Juniper, once they're there, they will also stay around for a while."

The analysis worked brilliantly as a decision-making tool and also as a starting point for design. We could understand not just what an "onlooker" was like and what their needs and behaviors were, but we could also understand them in contrast to other the needs and behaviors of other types of customer.

When we started prototyping the Web touch-points for Juniper, we knew that onlookers aren't engaged in managing their finances, so we wanted to give them the ability to dip in and out of the site—to just dip in, get the right information, and then get out again. The other thing we knew was that the Web at the time felt literally like a web of information; you could disappear quite quickly into it, moving from hyperlink to hyperlink. We knew that that was not appropriate for "onlookers." We wanted to give them a sense of place. Transacting, banking online, was still very new, and there was a lot of nervousness around the virtualness of the bank, so anything that could give onlookers a sense of place was really valuable.

Fran Samalionis working on a framework ■

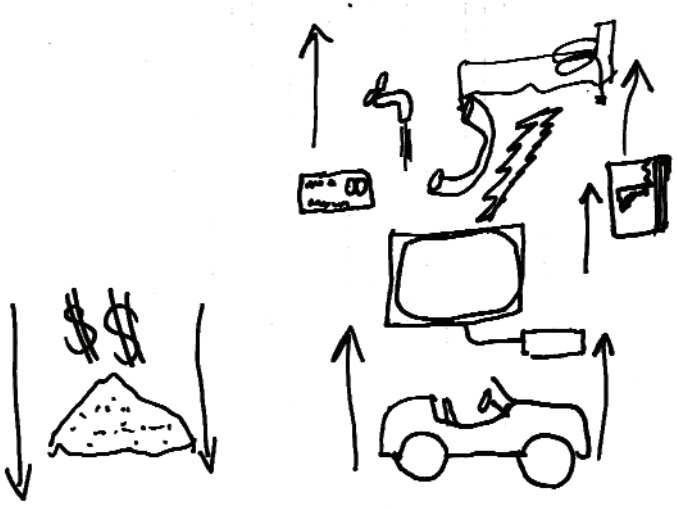
Long-term view

DREAMER

PATHFINDER

Low engagement

High engagement



ONLOOKER

ORGANIZER

Short-term view

A method that was very helpful in establishing this framework during the research phase was to ask the participants to draw their money. Two members of the team had already spent time with them in their homes identifying different aspects of their lives that they associated with their financial situations, and asking them to sit down and make a drawing of their money helped to bring out their feelings at a more emotional level. As they started to draw, they talked about themselves in a more open way, and it became much clearer what they would want from a bank. Fran describes some examples:

> One "pathfinder" drew her family in a shelter, and that shelter sat on a coin, but the face of the coin was the whole globe, so you can see her holistic global perspective. For one "organizer" it was all about the money; she drew a bubble above her head with dollar signs in it, and she was holding an empty wallet, indicating that she remembered the complete picture and had no need for cash. One "dreamer" drew an island paradise, which was his ultimate money dream. An "onlooker" drew a pile of gold coming in and all the stuff that he could spend his money on going out; there were all these icons of the things that he would spend his money on, like a car, and a TV, and so on.
>
> When we looked at what people were drawing, there was a good face validity with the psychographic matrix that we had developed. It was not necessarily statistically significant, but it became very easy for us to take somebody's drawing and to understand, "Oh, yeah, no, they're a pathfinder," or "They're an onlooker." We had about thirty or forty people at Juniper draw their own money, and they became very intrigued by our diagnosis in terms of what quadrant they sat in.

■ Framework populated by drawings of money

The research gave the team a good understanding of the kind of Web experience that would be most appropriate for "onlookers." They designed a navigational structure so that some parts of the navigation were persistent throughout the whole experience and then built the rest of the page. There was a column on the left containing a list of all of your accounts, with the amount in each. The design team called this a dashboard, because you could get a reading of the full financial picture at a single glance. You could interrogate any item in the list, and the

Bill Jones sign off

- Message Center
- Paycenter -132.00
- Profile

House Checking ∞		2,000.00
Checking		3,000.00
IN	05/14/00	256.00
OUT	05/14/00	512.00
Mastercard		-753.00
House Deposit (SA)		6,000.00
IN	05/14/00	1000.00
OUT	05/14/00	
College CD		10,640.00
8.62% 12/12/00		
Boat CD		6,120.00

Message Center

Saving for your child's education

SPECIAL REPORT

Tax incentives and rising fees are spurring a new trend among parents. Saving for your child's education from their first birthday. Click to see how america is saving

- Reduce your %APR
  Click for more info
- MCI bills go electronic
  Click to sign up
- MCI bills go electronic
  Click to read more

Notifications Services

Today	2:15 pm :	ATM/Debit Card "House Checking" is reported Lost/Stolen. Click to replace.
Monday	4:45 pm :	Your PG&E bill is due. Click to Pay this Bill.
Monday	1:45 pm :	Your Checking Account "House Checking" balance is below $500.00 OK
Friday	4:40 pm :	Your Checking Account "House Checking" balance is approaching $500.00 OK
Wednesday	4:40 pm :	"College CD" account (CD) has completed its term. Click to extend, or transfer.
05/12/00	9:00 am :	Your Checking Account "House Checking" balance is approaching $500.00 OK
05/10/00	11:00 am :	Your Checkbook "Checking" is running low. Click to Reorder.

Bill Jones sign off

- Message Center
- Paycenter -132.00
- Profile

House Checking ∞		2,000.00
Checking		3,000.00
IN	05/14/00	256.00
OUT	05/14/00	512.00
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House Deposit (SA)		6,000.00
IN	05/14/00	1000.00
OUT	05/14/00	
College CD		10,640.00
8.62% 12/12/00		
Boat CD		6,120.00

Checking

Services

Current Statement: September 00

Page 1 of 7

Total out	512.00
Total in	256.00
Initial balance	2,208.58
Current Balance	1500.00

Date	Description	Credit	Debit
4/12/00	Check # 00556132		12.28
6/12/00	Check # 00556132	85.21	
7/12/00	Check # 00556132		12.28
7/12/00	Check # 00556132	85.21	
7/12/00	Check # 00556132	85.21	
7/12/00	Check # 00556132	85.21	
8/12/00	Check # 00556132		12.28
9/12/00	Check # 00556132	85.21	
9/12/00	Check # 00556132	85.21	
9/12/00	Check # 00556132	85.21	
9/12/00	Check # 00556132	85.21	
10/12/00	Check # 00556132	85.21	

main area of the screen would give you all of the details about that item. The link between the dashboard and the details, in the same overall visual space, made you feel that you were in the same place all the time. Everything was served up to you in the same frame. Most of the time, you just wanted to dip into the Web channel to understand, "Am I on track, what's my account balance?" If you did want some more detail, it was offered to you in the same space.

The designers started with sketch paper prototypes, developing ideas for the interactions with the dashboard, and how different frames might appear and what sort of information structure needed to be in those frames. Soon they wanted to try some experience prototypes, so they moved onto the screen. In this case they leaped straight into the design of HTML pages, using Macromedia Dreamweaver to simulate a Web experience. This had the important advantage that they could take assets developed during the experience prototyping and deliver them to Juniper for use in constructing the site. As the design moved forward they built up a library of interaction assets and were able to quickly prototype different configurations and transitions, forming experiential examples of the whole interaction.

■ Sketch designs using Macromedia Dreamweaver

Fran describes the solution to the problem that "onlookers" had with paying their bills on time and the dangers of cross-selling:

> One of the things we knew about "onlookers" was that, because they're not particularly engaged in finances, they're often late in paying their bills. What we wanted to do was find a way to help them, much like we saw in the observations, when people would stack their bills as a gentle reminder to pay them; we wanted to create that same gentle reminder online. We created a message center, where we could send little alerts about how things were progressing or transacting on their accounts. They could configure those alerts, as different people had different ways of staying in rhythm with their bill cycle. The message center was a good place for this to happen, as it was coordinated in one place, although they could also receive alerts on their phone or through their email.
>
> We started to understand how Juniper could benefit from "cross-selling." There are many places where it's inappropriate to cross-sell a

JUNIPER BANK

a Div. of Columbus Bank & Trust Co.

Home | Our Products | Customer Service | Help

Bill Pay Center | Your Accounts | Tools and Calculators | Secure Login

Call us 1.888.232.0780

Email this site to a friend.

Now You Have a Champion.

Product Innovator
Susie

"Juniper gives me more freedom. If I can't stay tied to my desk, why should I expect our customers to."

Features

- Wireless Access
- Deposits & Withdrawals
- Customized Alerts
- Privacy Champion
- How to Use Juniper
- The Juniper Story

Banking

- The Credit Card
- Checking, Savings, CDs
- Online Bill Pay
- Loans and Insurance
- Affiliates & Partners

Hello.

H&R BLOCK

1. Apply

☐ Checking ☐ Credit Card
☐ Savings ☐ CDs
☐ Online Bill Pay

Apply Now!

2. Register

→ Applied through mail or phone? Setup Online Access now.

→ Register Joint Account

3. Login

Username

Password

Secure Login

Forgotten Password?

FDIC | ATM

JUNIPER BANK

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Home | Our Products | Customer Service | Help

Bill Pay Center | Your Accounts | Tools and Calculators | Secure Login

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Tools and Calculators

Tools

- ATM Locator
- Mail Boxes Etc. Locator
- UPS Locator and Tracking
- Forms Center
- Go Shopping

Calculators

- Credit Card
- Savings
- Equity Loans
- Mortgage
- Auto Financing
- Insurance
- Budgeting

Juniper has provided a growing set of tools and calculators to help you manage your finances and your financial future.

Tools

Simply enter your street address, city, or zip code to find an ATM, Mail Boxes Etc., or UPS location nearest you. Or access Juniper's e-Wallet for online comparison shopping and easy online purchasing.

Calculators

Juniper offers a collection of easy-to-use calculators to help answer your financial questions about paying off or consolidating debt, saving for college or a home, determining the right insurance for your needs, and many more. Select the category of interest at left and choose from a list of available calculators.

customer from one product into another. For example, if they had a query about their account, or even a complaint about their account, trying to cross-sell them after you've resolved that query is dangerous and probably damaging. All the good will you've created during the phone call is lost if you add a sales message at the end. But the message center, where Juniper is being helpful with alerts, and where customers are used to receiving information about their accounts, became the perfect place to position cross-sell.

Another touch-point in the design of the online service was about the information for the customer's personal profile. Everyone is nervous about the intimate information that is held in a virtual bank, but "onlookers" are not just nervous, they are inclined to forget their password or which answer they gave to those personal questions that are needed for verification. The design made that information immediately visible from the same dashboard, protected by being in a secure part of the site that only customers had access to, so that they could click on "profile" to see all of that information and have a chance to change it. This proved to be reassuring to customers and strengthened their relationship with Juniper.

Final Web site

- *Top* Homepage
- *Bottom* Tools and calculators

The design team also recommended the radical proposition of getting rid of charges for late payments. They accepted that "onlookers" would be late payers, but also that these same people would be attracted to a service that forgave their lateness. The design helped to mitigate the risk by providing the reminders, but constructed the business risk model to account for a proportion of late payers. Juniper went on to introduce no over-limit fees and a low late-payment fee. This brought in a lot of customers in the group that Juniper[12] was targeting.