Transformation by Design

Planning Design Strategies and Services for the Next Generation Digital Challenges

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Foreword

In the past decade, digital technology has changed the way we connect, run businesses, and deliver public services. With new uncertainties such as climate change, global pandemics, and social problems such as the imbalance of information or the invasion of privacy, the world is in the midst of chaos. In such times, what is important is to not react recklessly to threats and change, but instead to tackle them swiftly and securely by creating a democratic future where the possibilities of people and society blossom.

Fujitsu is transforming itself from an IT company to a digital transformation company and operating as an organization that generates social value. Fujitsu is moving away from delivering solutions that solve problems that lie before us. Instead, the company is committed to delivering transformations, which will at times overwrite the rules in the market or in society, to dramatically change user experience using digital technologies.

Our experiences since COVID-19 forced us to overwrite many existing norms in our lives and work, and these experiences may have been a factor in prompting this transition. Every day before this calamity, we packed into trains, went to designated offices for designated hours, and went home on another overcrowded train. COVID-19 upended that lifestyle. Every employee is now connected online with internal and external stakeholders and communicates and delivers remotely. Such an autonomous workstyle has become the new normal. Many of us today have welcomed these new ways of working. Ironically, it wasn't existing technological solutions that sparked such transformations and changes in norms and routines. Rather, it was a terrible, unwanted guest disguised in the form of a prehistoric infectious agent—a virus.

Such changes in prerequisites and preconceived notions are the imminent transformations in our society that leave lasting effects. Yet we are capable of bringing about this change without relying on another outbreak. Instead, we can turn to the power of design. Design is the avenue to realizing a sustainable society using the power of technology available to us. Design pushes us to envision a hopeful future from an individual and societal perspective and widens possibilities for actualizations without being limited to how society is today. Fujitsu's Human Centric Experience Design (HXD) has been crystallized from all of our design experience. It intelligibly democratizes the power of design and navigates us to scalable digital transformations for our society. Moving forward, I commit that such a structured design approach along with agile approaches will continue to materialize the scalable software and business sense befitting next generation design.

I must emphasize that the purpose of design is not to superficially make over our products or services, nor is design a tool to produce eccentric ideas. Instead, design is a mindset that every individual should adopt to cultivate innovation and contemporary business literacy.

In the twenty-first century, there is an increasing demand for corporations to clearly define and articulate their purpose and role in society. People are interested in and paying attention to which organizations contribute to creating values for them. Corporate leaders also recognize that for companies to accomplish sustainable and long-lasting growth, it is extremely important for them to explicitly present the *why* of their companies and to fulfill their promises and obligations to people and society. We should no longer be trapped in customer needs of the past or old business concepts and routines. The transformational design mindset requires us to steer away from old constraints. It instead guides us to achieve important goals that people and society aspire to. Every organization should constantly foster and promote this design mindset, since it is the ultimate source of power and drive that shapes a better future.

This book was specially designed and edited to include materials that foster the growth of such a transformative design mindset and offer support and guidance for the process. These materials are based on the research outcomes and the philosophy of Fujitsu's strategic partner, Politecnico di Milano's design department, along with Fujitsu's know-how gained from our own practices. We believe this combination will provide you with tangible knowledge on how design has evolved across industries and various fields. My belief is that to bring about transformation at the required speed and scale, it would be vital for the act of design to become an organizational culture that rejects utter dependence on a handful of experts.

Mr. Takahito Tokita, Fujitsu's CEO and CDXO (Chief Digital Transformation Officer), proclaimed on the July 1 CEO bulletin that design is a crucial corporate management resource and must be applied to Fujitsu's strategies and philosophy in every aspect of the business process. We hope you, the reader of this book, will cultivate a design mindset and become a leader of design-driven transformation today, shoulder to shoulder with other transformation leaders who may not be part of the company, and we hope you share this path in realizing a more fulfilling society. By blending together the digital realm with the power of design, we look forward to creating a yet unfathomable but brilliant world.

Tetsuya UDA
Head of Design Center
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Design Thinking and Its Evolution

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As discussed in chapter 1, design has acquired a new meaning and design thinking has received great attention in the past two decades, being increasingly recognized as a source of competitive advantage. However, design thinking does not indicate a single approach. In fact, four different models can be identified and are presented in this chapter with examples of their purpose, methodology, and application. The four models are creative problem solving, sprint execution, creative confidence, and innovation of meaning. Design thinking has been applied by companies and professionals in different ways. After a theoretical overview, this chapter provides a detailed presentation of Fujitsu's unique design thinking approach, Human Centric Experience Design (HXD), and of its impact as a methodology and mindset.

1. The Design Thinking Approach: It's Birth and Rise

Design thinking is an approach to innovation that was born between the end of the 1990s and the early 2000s. It has spread across industries and has been applied for different managerial purposes. Over the last ten years, the level of interest in design thinking has grown exponentially: numerous academic journals dedicated special issues to design thinking, and it became a central topic not only in the professional world but also in the journalistic world. As tangible proof of this growing interest, different kinds of companies started to acquire firms related to the design field between 2011 and 2015. In particular, there has been a boom in the acquisition of design consultancies.

Digital companies like Google, Facebook, and Global Experience understood that user experience was fundamental and that it was key in their businesses. It is possible to observe an increase in interest towards user experience and user interfaces beginning in 2010. All these phenomena are part of a second revolution in the digital world that started in 2010.

There is another reason for the success of design thinking, mostly linked to commoditization of consultancy services. In the past, many consultancy companies put strategic plans in the hands of their clients. These documents offered new directions and outlined new opportunities for their customers, but consultancies were not necessarily helping them to define tangible steps on how to implement these new strategies.

At a certain point, it became obvious this was an incomplete value proposition. The company was needed to support the client's needs. Design represented the perfect answer because, by nature, design prioritizes execution and implementation. Traditional consultancies started to acquire design companies, both to differentiate and to offer more tangible strategic plans to their clients. Such companies were then able to shift their focus from strategy to execution and from vision to value delivery.

With regard to innovation, it is important to discuss one of concepts that contributed most to the evolution of the design field in recent years: design thinking. One of the most common visual metaphors associated with innovation is a light bulb. As a process, however, it is much more complex than turning on a light, and creativity is necessary for generating innovative ideas. In fields like psychology, sociology, and management, creativity is described as the art of generating new ideas. All

Design company acquisitions
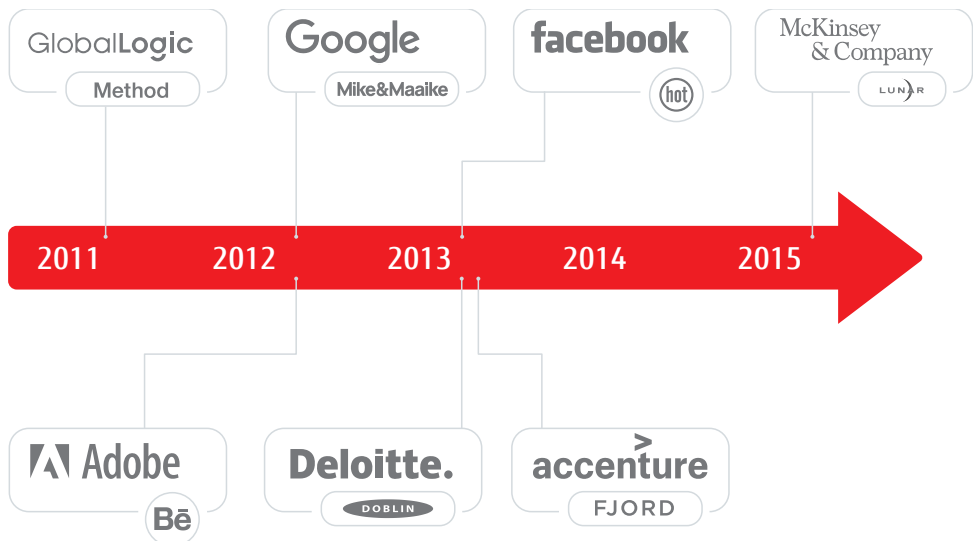
definitions describe managing and pushing creativity as solving problems with new ideas and leveraging innovative perspectives.

Two trends related to creativity gathered traction:

The rise of the creative class: This is a theory (and a famous book) by Richard Florida, which documents a study about upcoming professions and new creative cultures. In big cities like London, Paris, and Tokyo, different kinds of social factors have supported substantial growth of the creative class. The role of Richard Florida's research was to understand the connection between these new creative cities and the growing class of creatives. He explains that according to some social factors—like the presence of women in various disciplines and the number of universities involved in the arts and humanities—a clear, cause-effect relationship can be drawn: the more investment in these social factors, the more the creative class is encouraged to grow.

The term design thinking was spread by faculties at Stanford University d.school and IDEO, a design firm in Palo Alto, California.

Today, the digital world is spurring the real world toward change. Likewise, design thinking is changing, and four different models have been identified to describe it and document its evolution and integration into varying contexts. It has gone from being a way to create new solutions based on the users' needs, to a tool that enables digital companies to move quickly to prototyping, a model for engaging employees in company processes, and finally a way to create radical new meanings for products and services.

Richard Florida

Open innovation

Open innovation: Economic models of the past have endured a shift. Innovation was once a closed process that took place within the company; companies had an in-house approach to innovation and managed all the necessary resources. Today, companies innovate outside their boundaries. There are different kinds of expertise that both provide innovative ideas and stimulate new processes. Therefore, innovation is linked with external expertise. In such a case, design produces a competitive advantage to support the innovation process.

2. Design Thinking Evolution: Four Different Models

2.1

Design thinking as creative problem solving (CPS)

The first model of design thinking is associated with design thinking as creative problem solving. It is the most widespread and famous interpretation of the design thinking concept. It was first introduced by Tim Brown, in his book *Change by Design*.

Tim Brown stated that design gets associated with consumerism because it is possible to observe growth in the number of products facing a reduced life cycle. In the past, products were created so they could be fixed, but it is now less convenient to repair them than it is to replace them.

However, he suggests that design should be associated with broader paradigms more closely linked with its cultural roots and that are associated with thinking in a holistic way and tackling big societal issues. Design is holistic because it puts users at the center of the problem analysis but looks all around them: from a

design perspective, it is important to take into account the entire ecosystem rather than fragmenting problems into smaller challenges, as classic managerial approaches often do.

Another important definition of design thinking was given by Roger Martin in his book *The Design of the Business*.

He stated that designers are fundamental in companies and in designing business strategies because they are able to combine intuitive thinking with analytical thinking, applying what he called *integrative thinking*. According to Martin, to be successful, managers of tomorrow must combine the two parts of the brain, possibly through adoption of integrative thinking.

The Double Diamond contains the first representation of design thinking and is associated with the creative resolutions of problems. There are four main phases in it: discover, define, develop, and deliver. It is called *Double Diamond* because these phases are represented inside two diamond shapes, two in each of the two figures.

Design thinking models

| 2000 | 2010 | 2020 |

Design Thinking 1.0 as creative problem solving — IDEATING

Design Thinking 2.1 as sprint execution — EXECUTING

Design Thinking 2.2 as creative confidence — ENGAGING

Design Thinking 2.3 as innovation of meaning — ENVISIONING

The Design of the Business

THE CONTEXT OF THE PROBLEM   THE CONTEXT OF THE SOLUTION

Discover   **Define**   **Develop**   **Deliver**
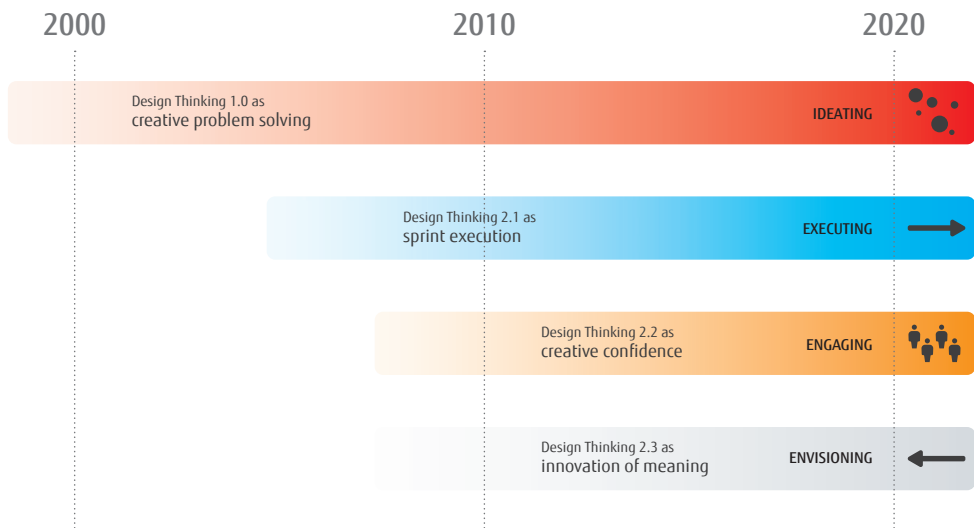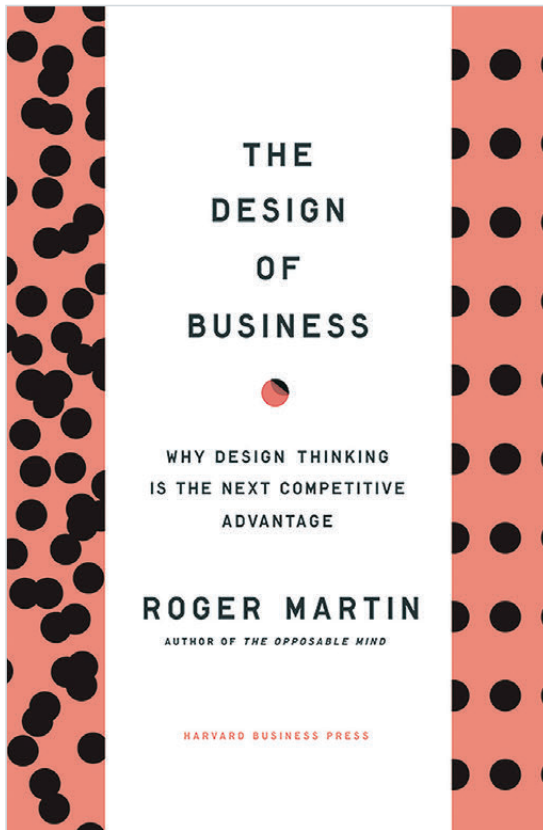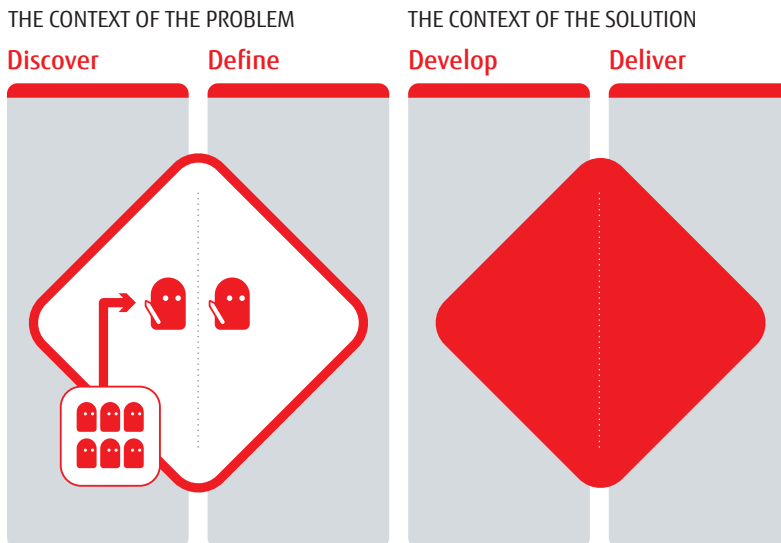
CPS model representation

Legend

Designer

User

The model is intended to show how to solve various complex problems, called *wicked problems*, because they don't have a single obvious solution and often affect entire ecosystems. The second key characteristic of this model is associated with the importance of ideation. In this framework, the thinking activity is driven by the capability to produce a lot of ideas. To solve complex problems, it is important to generate different ideas and to also consider wide ideas. At the beginning, some ideas may seem strange but may prove to have the highest potential to create radical innovations. Furthermore, this process is outside-in, because the creative process starts outside the company, taking users and their needs into account. It is important to begin by exploring the outside world to understand users' hidden preferences, habits, and behaviors.

In the **discover** phase, insights are gathered. We have to approach the user context, zooming into the life of users, observing and shadowing them, with the goal to extract relevant information and uncover patterns. This is what makes the process outside-in; insights are brought inside the company from outside to fuel innovation.

In the **define** phase, insights are leveraged to generate new frames. The objective is to envision new alternatives to solve the problem and to define new innovation trajectories.

In the **develop** phase, ideas are generated. More specifically, the objective is to produce new ideas according to the previously defined trajectories. It is a diverging activity because many ideas are necessary to be generated to address the problem. Quantity holds the key to uniqueness and diversity.

In the **deliver** phase, prototypes are created to test the chosen solution. The objective is to receive feedback from users about what was produced during this creative process.

This process is iterative. Following the entire path once won't necessarily yield the final solution that will be implemented. At the end of the first round, it is necessary to use the feedback obtained during the *deliver* phase as new insights that will fuel the *discover* phase of a second round. The objective is to arrive at a final product that can be taken to the market. It is important to address the problem creatively, and only when this process has been exploited to the fullest, is it recommended to focus on the design of the solution.

Here below there is a summary of the principles of Design Thinking as Creative Problem Solving:

Aim	Solve problems
Thinking	Ideating
Direction	Outside-in (users at the beginning of the process)

As already mentioned, the process begins with observing users to gather data, which can take the form of field notes, interview transcripts, photographs, videos, audio, and so on. To produce valuable insights, it is important to organize the obtained data effectively. Such organization may reflect different factors:

Space: the physical place or places

Actors: the people involved

Activities: a set of related acts people do

Objects: the physical things that are present

Acts: single actions that people perform

Events: a set of related activities that people carry out

Time: the sequencing that take place over time

Goals: the things people are trying to accomplish

Feelings: the emotions felt and expressed

To summarize, there are some proper ingredients that characterize CPS:

Abductive reasoning: Inside Design Thinking there is an integration of both intuitive thinking (knowing without reasoning) and analytical thinking (qualitative methodologies that are approached through deductive and inductive logical thinking to arrive at the conclusion). In this way, teams have the possibility to generate a large number of ideas.

Divergence and Convergence: Applying design thinking requires a flexible approach. It is necessary to diverge from both existing solutions and the given problem. Without a propensity to diverge, it will be impossible to innovate, while the ability to converge is necessary to reach a conclusion.

Diverging/ Converging

(Boland and Collopy, 2004; Drews, 2009; Sato et al., 2010)

Human Centered Design

(Brown, 2008; Holloway 2009; Ward et al., 2009)

Learning by Doing

(Boland and Collopy, 2004; Lockwood, 2009; Rylander, 2009)

Optimistic Mentality

(Brown, 2008; Fraser, 2009; Gloppen, 2009)

Holistic Approach

(Dunne and Martin, 2006; Fraser, 2009; Sato, 2009)

Trial and Error Approach

(Brown, 2008; Fraser, 2009; Holloway, 2009)

Play with Ambiguity

(Boland and Collopy, 2004; Dew, 2007)

Visualization

(Carr et al., 2010; Drews, 2009; Ward et al., 2009)

Learning by doing: It is necessary to transform ideas into tangible prototypes – making them - in order to materially see the user reaction and learn how to improve the solution.

Optimistic mentality: It is needed in order to avoid getting stuck in the face of difficulties; when dealing with complex design challenges, it is important to not lose momentum, and to remain focused on the end-goal, which is reaching innovative solutions.

Visualization: Communicating through images is often more effective than using words and our minds tend to process images faster. Visualization is not just related to drawing or creating beautiful/artistic visual outputs: more in general, it means using a visual code to get straight to the point and, as such, it also encompasses the use of photographs, notes and simple schemes.

Play with ambiguity: In Design Thinking, problems aren't well-defined, but they are blurred and without clear borders. Ambiguity can't be eliminated, it is rather something that practitioners must learn to deal with and play with that.

Trial and error approach: There isn't a linear path in Design Thinking. Along the process there will be different trials and different related errors. The objective is to learn from such mistakes. A common best practice is "fail fast to succeed sooner": this means that it is normal and even necessary to experience initial failures and learn from them in order to be faster in achieving positive results.

Holistic approach: It is necessary to look at problems in their entirety and understand their complexity.

2.2

Design thinking as sprint execution

Sprint execution refers to a model of design thinking that approaches a problem in a very confined timeframe (hence, sprint), and the name relates not only to the definition of new ideas but also to their development (execution). This is where the shift from conception (typical of design thinking as creative problem solving) to implementation takes place.

This second model is mostly applied in digital environments, for example in the creation of mobile and web apps and digital devices. The term was coined by Jake Knapp, a partner of GV (formerly Google Ventures).

In his book *Sprint*, Knapp theorizes that five days is enough time to ideate and test new digital products

Sprint

and describes how to do it. The model is composed of three main activities: map and decide, build, and measure.

Map and decide is a converging activity. Matters of the interface or interaction model are decided during this phase by mapping different kinds of behavioral information. Then this information is clustered and used to better define the solution and its specifications.

Build refers to the action of making ideas tangible for testing. It is important to avoid dwelling on abstract ideas; the focus should be on turning concepts into concrete product functionalities.

Measure is connected to the action of exposing ideas to the market to obtain data and measure results. In this phase, some KPIs are defined to clearly measure outcomes.

Here is a summary of the principles of design thinking as sprint execution:

Aim	Deliver products
Thinking	Building
Direction	Inside-out (users at the end)

In this second model of design thinking, the learning process takes place through the creation of a minimum viable product (MVP). An MVP is a way to test business

Sprint execution model representation

Map/Decide   Build   Measure   Learn/Decide   Build   Measure

Legend

Designer

User

Expert
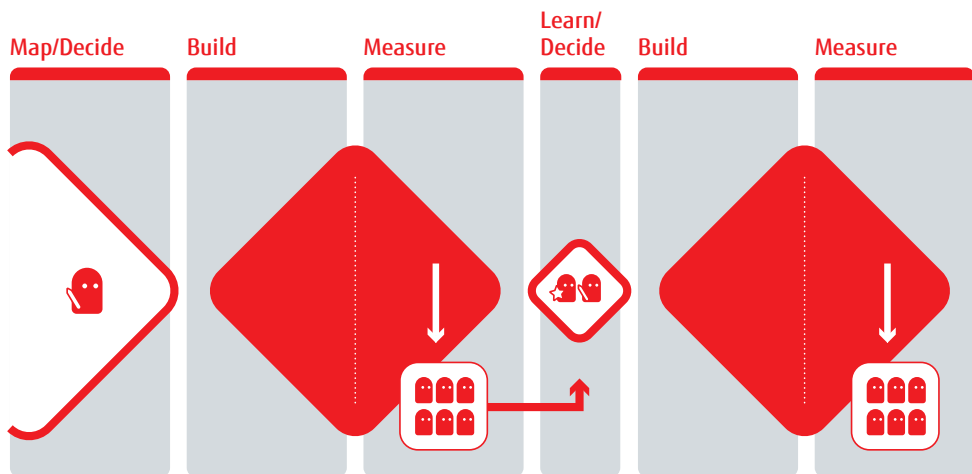
hypotheses and represents a rough hypothesis of what the final product could be.

Let's look at an example from the fast food sector: an MVP would be a classic burger, bread and meat only. This simple version of the burger can be used to understand if people might like this kind of product. Once the basic assumption has been tested, it is possible to create the final product. In our example, the final product would be a full burger menu with salad, cheese, and a wide selection of ingredients.

Adopting an MVP approach makes it possible to test the basic assumption of a new solution in an easier way, thus preventing the loss of both time and money. When applying this model, it is important to collaborate with experts from different departments in the company with expertise on digital products. They can offer valuable knowledge to support the development of new solutions.

2.3

Design thinking as creative confidence

The third model associated with design thinking is creative confidence and it is related to organizations. It mainly focuses on a shift from organization to people. Until twenty years ago, an organization was regarded as a sort of complex and highly-engineered machine. All companies were based on processes. If the company needed to pursue an innovation effort, innovation processes would be activated. Nowadays, design thinking is used to put less attention on the process and more on the people. This is because people are considered the new, real value for organizations. It is necessary to invest in talented

management and in nourishing the minds of people. Otherwise, modern organizations are doomed to fail.

Until recently, companies and individuals assumed that creativity and innovation were a prerogative of creative minds. The reality is that everyone has a creative contribution to offer, but the challenge is making it reach the surface and making it valuable for organizations.

It is necessary to empathize with people so they feel free to express themselves and they can open up their creative selves. The name of this model, creative confidence, derives from this concept. Confidence means having trust in one's own capabilities, possibilities, and mind. The process described in this model has a particularly important social component and is composed of four phases:

Creative Confidence

Creative confidence model representation

Engage Co-design Involve Co-Develop

Legend

Designer

User (employee)

Expert (internal stakeholder)

Engage, which is one of the most important keywords in modern managerial theories, refers to the challenge of offering some sort of reward to people who create something new for the organization. The likelihood of people achieving this reward depends highly on their motivation and how comfortable they feel in the organization environment, but also their relationships with other colleagues and with the mission of the organization. There are different levers to engage employees' creativity. Engagement is about finding new ways to make people part of the innovation process and to increase their creative confidence.

Co-design entails the creation of moments in which people can share different ideas and different solutions to be developed in response to a challenge.

Involve concerns the details of the solutions identified in the previous phase.

Co-develop refers to closing the loop of the process and executing what has been agreed upon.

Here is a summary of the principles of design thinking as creative confidence:

Aim	Nurture mindset
Thinking	Engaging
Direction	Co-design and co-develop

2.4
Design thinking as innovation of meaning

The fourth model entails a shift from a solution-oriented approach to a direction-oriented approach. Today, the world is full of many ideas, and companies are confronted with the problem of picking the right idea. The creator of this last model is Roberto Verganti. He states that the core of the design activity is related to creating new meanings for products and services.

Design-Driven Innovation

ROBERTO VERGANTI

DESIGN-DRIVEN
INNOVATION

Changing the Rules of Competition by Radically Innovating What Things Mean

HARVARD BUSINESS PRESS
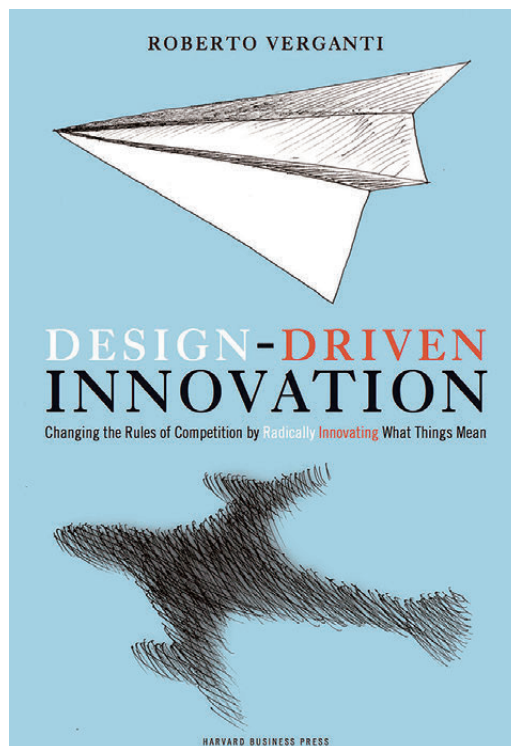
Meaning is why we buy products. In this model, what changes is not the *how*, because it is not a new way to design the solution. Instead, change occurs at the level of the *why*, the deep reason that brought the solution into existence.

The process of meaning innovation is very different from creative problem solving. While CPS adopts an outside-in process and starts from the user, meaning innovation follows the opposite path, an inside-out process based on the idea of giving people something that they don't expect. The process starts inside the company, with the company trying to understand if there are emerging socio-cultural models.

Here is a summary of the principles of design thinking as innovation of meaning:

Aim	Envision directions
Thinking	Criticizing
Direction	Inside-out (users at the end)

Envision   Criticize   Probe   Talk

Innovation of meaning model representation

Legend

🔴 Designer

🔴 User (employee)

🔴 Expert (internal stakeholder)

🔴 Expert (outsider)
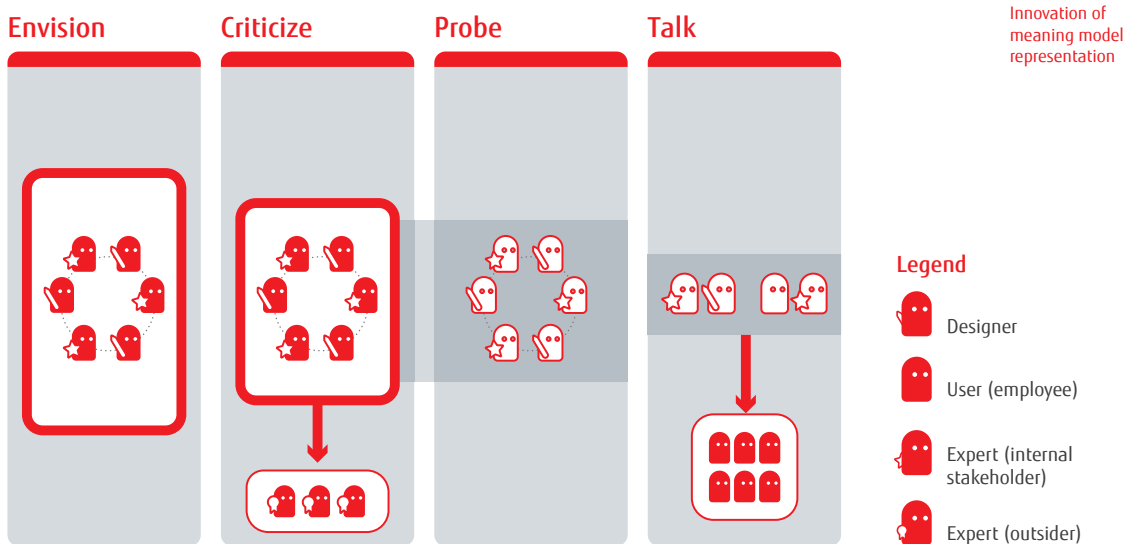
Example:

Design thinking as creative problem solving

In the 1990s, Oil of Olay was the best-known skincare brand of Procter & Gamble (P&G). But the brand was struggling, perceived to be old fashioned and no longer relevant. P&G needed to dominate skincare to be a credible player in the beauty business. They decided to adopt a new approach: design thinking. The company started to run user observation sessions to better understand the needs of their customers. From those observations, they understood that they could not just focus on the issue of wrinkles alone and discovered that women had other concerns for their skin. They then started offering new products to meet the newly identified needs.

Example:

Design thinking as sprint execution

LEGO is a company that has made design sprints a core part of their approach. At one point, LEGO's leadership even decided to stop the entire production process to invest time to appoint and train design sprint experts. The adoption of the model felt empowering and produced immediate results. Coordinating people for the sprint requires more effort than preparation for the sprint itself. It is fundamental to first create sprint briefs. LEGO created what they called the air traffic control tower, a group of five creative directors overseeing the process. They identified problems that needed solving, wrote the sprint briefs (using a one-pager template), and occasionally dropped in during sprints to make sure the team was on the right track. In the first week of the so-called Pause, LEGO was running ten design sprints, and the numbers kept growing because of the participating employees' high excitement and motivation. This has made it possible for LEGO to design and prototype many new concepts that have come to be implemented while reducing risk and minimum invested time.

Example:

Design thinking as creative confidence

PepsiCo is one of the companies most recognized for effective use of design thinking. Indra Nooyi, former PepsiCo's CEO, and Mauro Porcini, chief design officer at PepsiCo, conducted several experiments to adopt design in the company and use it as competitive leverage. One of their greatest successes is the adoption of the creative confidence method. At first, when employees heard about design, they associated the term with some necessary changes in the color of the boxes. Nooyi and Porcini began a series of initiatives within the company to make employees express themselves and raise their design awareness. At the end of the process, they were able to create a shared corporate culture where design was a strategic lever to be used and where everyone recognized its value.

Example:

Design thinking as innovation of meaning

Philips Design entered the market of medical devices, not with a primary focus on technology but instead on design thinking and leveraging the innovation of meaning model. Many different medical imaging exams are employed to perform diagnoses. Children are a challenging type of patient because they may struggle with the rules surrounding medical procedures. For instance, they may not understand that they should not move during examinations, or they may be unable to sit still. This can make the delivery of care more difficult and time consuming. To solve this problem, Philips Design created different kinds of environments where children spend time before tests or exams. In such environments, children have the opportunity to relax and watch cartoons or play with stuffed animals, so that they might adopt the right mindset and be better able to follow instructions they're given later.

This case implies a shift of meaning that can be summarized as follows:

From the use of a medical imaging system to achieve precise images through *the power of the device*

To the use of a medical imaging system to achieve precise images through *a relaxing environment for patients and staff*

3. Meaning as a Source of Competitive Advantage

The meaning that products hold is related to the reason why people buy and love certain products. Meaning innovation offers companies the possibility of introducing new types of innovations, not only related to how, as the majority of firms did in the past. When companies deal with meaning innovation, they are dealing with a higher level of innovation.

To communicate the new meaning, it is important to change the language of the solution. In this sense, designers are vehicles of new languages.

A typical approach to finding new solutions is staying close to users to grasp both visible and hidden or latent needs and desires. On the contrary, meaning innovation does not start close to the user; it starts from a deep observation of new and emerging socio-cultural models and the entire society.

To produce an innovation of meaning, it is necessary to look at long-term trends and phenomena with a broader perspective. Looking at current user behaviors isn't enough: a firm must adopt a vision about possible breakthroughs that may emerge in the future. To grasp those possible changes, it is also necessary to collaborate with external actors that can behave like *interpreters* of the evolution of future scenarios.

Nintendo's use of intuition serves as one example. Nintendo was able to make a radical change based on some weak signals that were occurring at a socio-cultural level. At a societal level, a new problem was emerging: teenagers were leading more sedentary lives and facing health issues as a result of the significant amount of time they were spending in front of screens. These changes were already being recognized in some research studies, but they were not really being addressed. This is when Nintendo saw the need and opportunity to provoke a radical change in this area. The design of the Nintendo Wii made it possible for the player to move from a passive role to the role of an active protagonist, thus creating a radical change in the model that was inherent to the world of video games.

To propose a new meaning for a product using this approach—the goal of which is to delight customers and provide something unexpected—the company must first understand the product's current meaning in the industry of interest and what is changing in terms of socio-cultural models. This gives the company an emotional edge in the solution, a relationship between the customer and the product.

The following are drivers worth examining to better understand favorable conditions for meaning innovation:

People: Look for misalignment between what people ask for and what companies are offering within a certain industry, or if there are no adequate solutions that are consistent with people's lifestyles. It is important to ask "Are lifestyles changing? Are customers unaffectionate toward products in a particular industry, despite continuous innovations?"

Competition: Look for product differentiation failures, where all competitors offer the same performances or functionalities and share the same solution language. It is important to ask "When was the last time a new meaning emerged in this industry? For how long has the industry been competing on the same performance parameters?" Whenever it is possible to document that an industry is stuck on the same concepts, it is a good moment to create new meaning.

Technology: Look for new, emerging technology that is still simply substituting an old one and that may have improved performance but has not been fully exploited yet. It is important to ask "Is a new technology emerging?"

Organization: Look for an organization that has lost its purpose or offers too many different meanings. It is important to ask "What is the meaning of this product? How long ago was the meaning explicitly questioned? Have new, key people joined the organization?"

4. Fujitsu Human Centric Experience Design (HXD): The Fujitsu Approach

As a global information communications technology (ICT) company, Fujitsu has continuously striven to provide technology (or tech) products, services, and solutions that serve people's needs and improve their experience as end-users in society or the workplace. The company is purposefully evolving into a digital transformation company in response to changes in society, ensuring there is a human-centered philosophy underpinning all design processes and methodologies.

In this section, we discuss Fujitsu's unique approach, Human Centric Experience Design (HXD), which is linked

to the lineage of design thinking examined in this chapter and to Fujitsu's own design philosophy.

4.1
Fujitsu design philosophy

The scope, reach, and importance of design has greatly expanded to influence many aspects of our workstyles and home life. Part of this influence is linked to the increase in availability of and exposure to digital technology. The

Fujitsu design philosophy

Realize a Human Centric Intelligent Society by
shaping between people, society, and ICT into a harmonized experience,
together with our customers and society.

Innovate Frontiers

We create new experiential value that goes beyond customers' expectation and expands the potential of ICT.

Co-create Tomorrow

We listen to our customers and society, and together, we shape a shared vision.

Empower People

We respect diversity and understand each individual's expectation to create optimal solutions.

Fujitsu design philosophy has been adapted to reflect the exponential growth and prevalence of digital products and services. A consistent and essential foundation of the philosophy is the desire to realize the vision of a Human Centric Intelligent Society—that is, the vision that shapes a harmonized experience between people, society, and ICT.

The philosophy is built around three pillars:

> **1. Innovate frontiers:** Create new experiential value through design that goes beyond customers' and users' expectations and expands the potential of technology

> **2. Co-create tomorrow:** Listen to customers and society to shape a shared vision making effective use of technology

> **3. Empower people**: Create the best solutions by respecting the diverse wants and needs of many people with the aim of expanding the potential for everyone

Behind the philosophy is a code of conduct that places the individual at the center of a Human Centric Intelligent Society, which works towards happiness and well-being. It comprises the core of the design process and methodology as well as the source of its concrete design activity. In the era of digital transformation, this philosophy plays a more important role than ever. It has informed the development of a dedicated design approach: Fujitsu's Human Centric Experience Design.

4.2

Introducing Fujitsu Human Centric Experience Design (HXD) and its context

Fujitsu has a history of innovation, of successfully bringing new products and services to the market and designing solutions for specific customer organizations. The latter is increasingly important, as the growth of digital technology has had a number of interesting effects. It has seen the increased democratization of access to data-driven, connected, automated technologies.

These digital technologies, in addition to being scalable, are often highly configurable as well—i.e., they can be sized and built around specific requirements for a particular usage and organizational context. This opens up the role of design as a critical method for ensuring this emerging technology is developed and applied in a way that the benefits are more likely to be achieved. Benefits are typically achieved in part by ensuring the product or tool is successfully adopted by the target users

or consumers and used with ease. Adoption and ease of use is much more likely to be achieved when taking into account the needs of the user, citizen or consumer—in essence, when taking a human-centered design approach.

Fujitsu has a heritage in human-centered design that can be traced back to early computing in the 1980s and large IT infrastructure projects in late 1990s. This uncommon heritage for a human-centered approach has now been harnessed for the digital age and consolidated into a common language captured as Human Centric Experience Design (HXD). This has happened in three key ways.

Firstly, the approach has been compressed and accelerated. Organizations expect digital development to be agile and incremental and to include elements of trial and error. Secondly, the role of early-stage design has been opened up to include non-design experts. This is particularly evident when employing a culture of co-creation that demands a more diverse design team. Thirdly, Fujitsu has adapted this approach for all geographies outside of Japan. HXD uses many visual tools to provide a common language that bridges cultural differences. These three developments have seen HXD become a vital tool for addressing diverse business and societal challenges around the world. This versatility across geographies, cultures, industries, and sectors is vital as the role of digital technologies is increasingly essential in all aspects of life.

4.3

Five phases of Fujitsu HXD (the process)

Let's take a closer look at the Fujitsu HXD core value and process as well as its uniqueness. The core value of HXD is to enable the rapid development of a human-centric solution linked to an overall strategy (customer business or societal) that delivers transformational value to customers, end users, or citizens.

It is delivered through **five main phases:**

> **Mindshift:** Establish a common design space in which all parties can create new value using diverse and creative thinking in order to be open to new possibilities.

> **Vision:** Align the immediate design target area or business challenge with the overall business or organizational goal in order to focus effort around a strategic imperative.

> **Proof of Concept (PoC):** This is a quick and pragmatic manifestation of an outline concept that demonstrates the emerging solution is feasible and meets the vision.

Proof of Business (PoB): This is a rapid and practical means of testing and confirming that an early stage solution meets success criteria and works in the field.

Scale: After being verified by the PoC and PoB, the designed solution is converted into concrete business-as-usual products and services that achieve the ambition of the vision and delivers transformation value.

Many businesses and organizations recognize the need for digital transformation but have struggled to successfully achieve the wide-scale transformational impact they desire. Considering the pace of change in society, markets, and industries, emergence of an approach that can allow organizations to work quickly (thereby mitigating volatility) towards a key purpose (thereby avoiding misdirected investment) and that is focused on harnessing the value of digital technologies (thereby ensuring competitiveness) is to be welcomed. Furthermore, placing humans at the center of the design purpose ensures that the needs of workers, customers, and citizens are met and longer-term benefits are derived more reliably.

4.4
Mindset and method components

A carefully crafted combination of mindset and methods determine the quality of the outcome derived from each HXD phase. This section deconstructs the combination of elements that underpin each phase.

Four behaviors
act as a
foundation

👁 *Watch closely*

👂 *Listen carefully*

✋ *Use our hands*

🚶 *Learn quickly*

Mindset:
Eight attitudes and four main behaviors
Fujitsu HXD is first about mindset. Why? Because it represents the core beliefs and thoughts that influence the way individuals perceive and address a given challenge; how they deal with potential constraints, unknowns, or setbacks; and how they appreciate and connect the insights and ideas that emerge. Therefore, it is important that a shared mindset is embraced by everyone involved and that it allows project members to be open-minded and focused at the same time.

Fujitsu's mindset is motivated by creating future-focused, design-led possibilities. It stems from an important set of attitudes and behaviors that shape the state of mind required to design purposefully with a human-centered focus.

The mindset is rooted in eight attitudes:

Optimistic: We see opportunities in the future and create positive images of the future. We embrace ambiguity to help us ask new questions and imagine different possibilities.

Visionary: We imagine the future beyond what we see and what we know, trusting our intuition and what we sense.

Exploratory: We wonder about things around us and how they may connect with each other in new ways. We search for new insights and opportunities. We try things out. The willingness to test by prototyping is important. This gives us the means to learn quickly and refine our ideas to create more effective solutions.

Receptive: We perceive and we integrate new perspectives and insights. We need to be prepared to understand that new insights can inform a new purpose.

Creative: We believe in our creative potential, i.e. that we create our own answers and solutions to achieve what we want, rather than leaving it to others; and we move from vision to realization. We also believe that we are able to create novel solutions from the unpredictable and irregular.
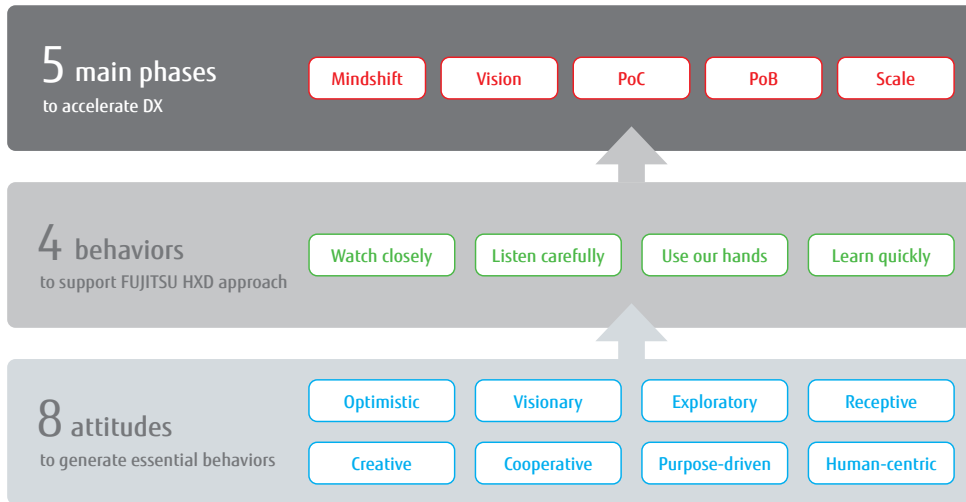
Cooperative: We work with others towards a shared goal with the confidence that it benefits us all.

Purpose driven: We articulate why we want to search for new answers and why it is important to us.

Human-centric: We empathize with the needs of other human beings and we use these insights to create

solutions. Sometimes these needs are not articulated or are hidden, which is why observation and listening for hidden meanings is essential. We believe that technology should serve human beings in a positive and responsible manner; we actively use our human potential as part of the process.

These attitudes are then expressed by **four main behaviors** that are essential in all HXD projects: Watch closely, Listen carefully, Use of our hands, Learn Quickly.

Core HXD components

5 main phases to accelerate DX	Mindshift	Vision	PoC	PoB	Scale

4 behaviors to support FUJITSU HXD approach	Watch closely	Listen carefully	Use our hands	Learn quickly

8 attitudes to generate essential behaviors	Optimistic	Visionary	Exploratory	Receptive
	Creative	Cooperative	Purpose-driven	Human-centric

To establish a foundational mindset, it is useful now to identify essential and distinctive elements that Fujitsu has incorporated into the HXD approach. Design thinking in its generic form has been widely adopted across businesses, but to support the pursuit of more strategic outcomes that are integral to successful digital transformation, it is necessary to calibrate the design approach differently in order to more confidently deliver strategic value. These distinctive elements reflect a more transformational focus and Fujitsu's own primary focus on designing technology-based solutions. The use of a refined design approach like HXD helps ensure technology solutions meet business objectives and user and end customer requirements. The distinctive elements are presented here as three highlights:

Highlight 1:
Designing with purpose
Adopting and integrating new digital solutions at corporate or public scale isn't just about the technology. Digital solutions are an enabler for new business models, public services or working processes, and new users' behaviors and experiences. For companies and public institutions, that means a tricky decision-making and implementation process. It involves keeping pace with

new technology trends, making financial investments that benefit the bottom line often only in the medium-term, integrating new solutions successfully within a legacy technology landscape, redesigning and integrating new processes, reskilling and communicating successfully with the various groups of people that are impacted, and last but not least, ensuring compliance with applicable laws and regulations. For ICT and digital transformation partners like Fujitsu, it means designing and delivering digital solutions that are unique to every organization.

Through the use of HXD, Fujitsu's aim is that customers make technology investments they won't regret in the future and that they take the transformation and innovation leap with reduced risk and increased confidence. The HXD process supports this ambition in critically distinctive ways.

Firstly, there is a systematic and ongoing reframing of the important business issue being addressed, not only from the perspective of the users or impacted stakeholders as in mainstream design thinking methods, but also critically within the context of the wider company strategy. This mitigates against designing a solution that only serves a singular tactical project purpose and helps ensure longer term benefits.

Secondly, leadership of the design activity is provided by a customer business sponsor that represents the wider business, not just the unit that supposedly owns the project. The design team is further supplemented with senior decision makers from across business lines and functions. Each brings intelligence from their own area of the business, which is augmented with industry-wide research often brought from external parties that can bring objectivity and more diverse considerations to bear. The collective insights inform business success criteria that will be used to assess the business feasibility of emerging solutions. This, in effect, signals the Proof of Concept phase.

Highlight 2:
Co-design by default

Co-design in practice means that Fujitsu design and create new concepts with and on behalf of customers, navigating through the stages of the HXD process as one team. The team will also be enriched with partners and specialist experts who can bring additional insights and value to serve the defined purpose.

In the same way that the ability to apply, configure, and even develop powerful technology has become accessible to non-technologists, so it is that design has become an activity no longer exclusive to the professional designer. The benefits of a more open and accessible application of design means that much larger communities can be involved in the design process, adding their own unique insights and skills and leading to more rounded, human-centered solutions. However, this underlines the importance of having a reliable design framework and philosophy to provide guidance and structure to those who do not have professional training to underpin their practice. In addition, with many projects making use of agile teaming that sees people brought together for a specific, time-bound purpose, it is important that there is a common framework to help navigate the project. Likewise, where groups of people come together from different organizations to form a purpose-driven design team as called for by co-creation, they need a reliable and effective method to ensure successful outcomes are achieved.

Many aspects of the HXD toolset are made available to the team, particularly within the context of vision creation and early-stage concept development. This has helped to make collaboration with customers a unique, purposeful, and valuable engagement. In turn, the use of HXD in co-creation activities has brought new insight and learning, which has helped to ensure the approach has continued to be refined and updated, not just to address the growth in the use of design for digital transformation but also for reliable use across cultures, geographies, industries, and sectors. Accumulation of experience and knowledge act as a feedback loop to inform the continued development of tools and visualization techniques, which are essential ingredients to ensure the creativity and skills of the design team can be harnessed purposefully. When adopted by many people across the organization, it helps to successfully realize digital transformation with customers at scale.

A deeper look at co-creation, its role and benefits in the digital era is described in section 4.5.

Fujitsu Ideas Cards for inspiration

Sound Seeing Bird

Paperless-Meeting

Virtual-Office
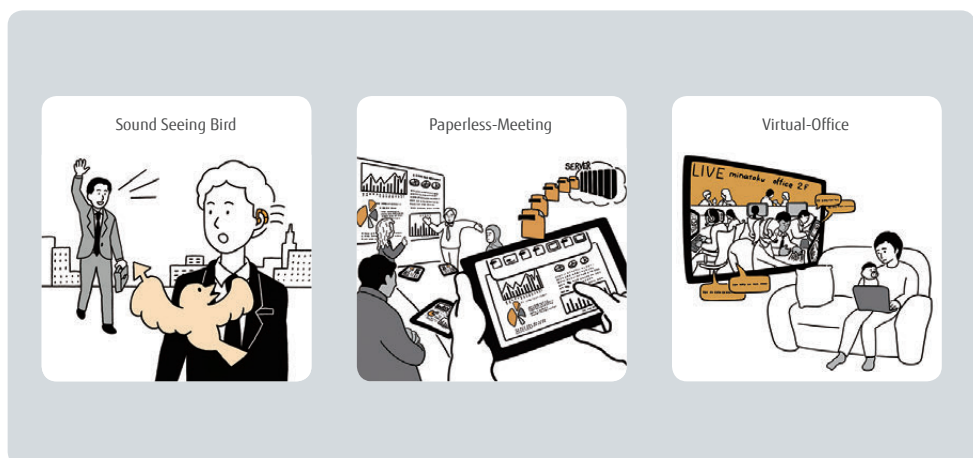
Highlight 3:

Designing for digital transformation (DX)

Fujitsu is a service-oriented technology company with the expertise to leverage technology in order to create better value for people, whether in the context of business or society. It means that when using HXD, technology and the exploration of its potential naturally play an important role when designing new concepts with customers and partners. The added value brought by technology will be explored and integrated by taking into account two criteria: how it serves the set purpose, and how it creates a better experience and outcome for the human beings involved. When these considerations are combined with the possibilities made available through the use of digital technologies, then the design project is able to deliver more transformational outcomes.

To help people involved in the design process more easily, and to quickly understand and connect digital technology potential with human needs, Fujitsu uses bespoke tools in each phase of HXD to accelerate the design process while harnessing the possibilities that digital technologies can provide. For example, these possibilities are captured in specially created ideas cards. Each card features a potential technology solution within the context of a specific human activity or experience. An intuitive, distinctive visual style provides inspiration to the co-design team to help accelerate the ideation process. These Fujitsu Idea Cards, now amounting to approximately eight hundred items, have been continuously extended and updated based on learnings from numerous projects and an emerging range of new technologies. They are particularly effective in helping to quickly alert non-technologist members of the design team to the possibilities that technology can provide.

Field research and user testing require less generic tooling than typical design thinking approaches. HXD tools and templates are used to understand context (an environment in which a user may be operating), business processes (manual and automated), and experience (the worker, citizen, or customer expectations). Each of these aspects also require additional enquiry data, such as frequency and volume. The gathering, the understanding, and ultimately the insight derived from this information are particularly critical at Vision and Proof of Concept phases. The unique nature of these tools or instruments are particularly important to inform the design of digital solutions, where sometimes processes and experiences are not easy to observe (e.g., automation, data-related activity).

Other examples of an approach adapted specifically for technology based co-design includes the use of physical and virtual spaces created for the primary purpose of best supporting a diverse and informal team around a common digital transformation–based purpose. The

physical spaces include the use of intuitive touchscreen technology that are very effective in supporting visualization of ideas and concepts as well helping the design teams to work at pace. The same principle has been adopted for online working, whereby a design team composed of participants from many countries meet in an immersive virtual environment where each appear as an avatar. The extensive use of visualization tools (ideas cards, inspiration images, whiteboards, sticky notes, and video) in a virtual space encourages a more democratic working environment in which design team members can contribute in a style that best suits them.

4.5

Integrating co-creation into Fujitsu HXD

This section sets out the importance of co-creation and explains why Fujitsu integrates co-creation as part of its Fujitsu HXD process.

Many design-based projects are commissioned by a client to a designer or designing body, whether that is an internal capability within an organization or an external agency. The client will typically work closely with the agent in specifying requirements and, as we have seen, discuss strategic intent and overall organization vision. This is clearly important if a design project stands any chance of transformational impact. The extent to which it occurs within the context of overall organizational goals typically informs both the relevance of the project and the likelihood of success.

We also see that at different stages of the design process, other actors in the process are involved in the development of the solution, whether that is providing content and context in the research phase or later when emerging solutions are tested by customers and users. We can see that involvement of stakeholders in the design process has always been important.

Co-creation, though, takes this involvement to the next level and opens up new possibilities that help make design even more powerful in crafting strategic change and transformation. This is particularly true in the development of digital solutions. No longer is technology development the domain only of the programmer, coder, or network engineer. The user or consumer involved somewhere in the design process, working together with technologists, alongside people who really understand the business context in which the solution is planned for use, is likely to lead to far more rounded solutions. Where this joint involvement operates as an informal but trusted partnership throughout the design stages, we can consider this a foundation for successful co-creation. When most effective, the foundation has three essential factors that work in combination: diversity, connections, and insight.

Diversity

Human creativity is usually bound by the limits of an individual's imagination. These limits are extended by the ideas and thoughts of others which then help to stretch creative thinking into new areas. There can be benefits where groups of people from similar backgrounds and skills work together, but the possibilities expand when new groups of people with more diverse characteristics come together for a common purpose. Diversity can be achieved as a result of groups with a mix of background, geography, professional skills, personality, and so on.

New connections

Working with new people throws up the opportunity to create connections that previously might not have been considered. There is much to be learned from making non-intuitive connections. In design thinking, sometimes analogies are used to break the existing paradigm. Co-creation whereby people with experience from different businesses, sectors, and industries are connected is a more effective and authentic way of opening up the design space to new possibilities. This doesn't happen by accident and is achieved by successfully considering more oblique connections that will help inform a more transformative project.

Insight

Successful design is informed by making sense from observations and information gathered from a range of different sources. Typically, this is understood to be insight linked to people involved in some way with the design target. For example, we might consider drawing insight from data and information gathered relating to consumers involved in a particular buying process, or workers involved in producing a particular product or service. However, there is an additional source of insight that is often overlooked. This source is the design team itself. A diverse team will be able to draw on many elements of their collective experience to help derive some new understanding and insight of the design project at the heart of their collaboration.

It is a truism that asking the same people the same question is likely to lead to the same answers. Therefore, when we bring these three elements together in a premeditated way, we can break this cycle of unimaginative certainty and create surprising possibilities.

4.6
Fujitsu's path towards Human Centric Experience Design

Fujitsu has long sought to define products that are easy-to-understand and comfortable to use from the user's perspective, developing human-centric designs as technology has evolved. At first, design centered on the operability of products and hardware and later extended to other aspects, including software. The style of designing products and spaces to develop services has changed to more comprehensively consider people, goods, the environment, and technology. This evolution, leading ultimately to HXD, is delineated here.

Establish ergonomic and GUI design (1980s)

Since the early days of the general public's use of information devices, Fujitsu has ergonomically designed them to be optimal for use by everyone, not just the few. This is the starting point for thoroughly pursuing ease of use from the user's point of view. In late 1980s, ergonomics was incorporated into the then popular concept of graphical user interfaces (GUI), and GUI-specific guidelines were developed. As can be seen in the development of design methods and processes, UI design activities are a central theme in the technical field, and a human-centered approach to making them easier to understand and use is firmly established.

How Fujitsu's design has evolved

the late 2010s	Reinforcement of design that envisages the future toward DX
2010s	Providing value to customers and expanding and evolving co-creation designs
the late 1990s	From Universal Design to Inclusive Design
1990s	Establish ergonomic and GUI design

From universal to inclusive design, and becoming service oriented (late 1990s to 2000s)

In late 1990s, universal design was introduced. This was to curb the widening digital divide caused by the spread of the Internet; with universal design, everyone could benefit equally and products and services could meet the standardized accessibility code, which had been advanced in Europe and the United States.

By collaborating with diverse users to design products, Fujitsu is able to discover fundamental issues. These activities have subsequently been translated into specific design methods in the area of *inclusive design* and *participatory design*. This method has led towards a design thinking approach used today.

Designing
ease of use for
everyone

The spread and commoditization of mobile phones and connected devices in the late 2000s presented a major change, and Fujitsu saw the need to create vision-oriented designs that generated visual ambitions focused on the future. This acts as Fujitsu's proverbial North Star, guiding technology development and providing information in the context of more comprehensive service design, rather than specifically considering the needs of users, businesses, and society purely from an ICT perspective.

Evolution of user experience design and value of co-creation (2010s and later)

Prior to this period, product design and UI/GUI design predominated the design focus. With the arrival of increasing investment in IT and the emergence of more powerful digital technologies, focus shifted to unlocking the more transformational value of IT. This required an understanding of more upstream considerations in order to design services and products within the context of a strategic vision. This value would be realized through the widespread adoption of sympathetically designed, user-centered solutions. This design discipline is commonly referred to across the industry as user experience (UX). It was formulated at the same time the design thinking method came to the fore. Practicing UX design and design thinking in the development of digital technologies has become the basis of a unique approach—that is, Fujitsu HXD.

The increased use of co-creation to help understand user needs required purpose-built design spaces in which to work together creatively. This has led to the establishment of a series of open innovation facilities built around Tokyo. These environments accelerated many collaborative projects with customers, partners, and consumers. It has also provided a breeding ground for the development of many tools and methods for empathy, inspiration, and idea generation. During this period, design practices were introduced to larger groups of people across Fujitsu and customer organizations.

The Fujitsu HXD approach has matured and evolved, embracing the design field's new trends as they emerged and evaluating their relevance and effectiveness through continuous field application with customers. Today, Fujitsu applies and combines design trends, methods, and techniques that best reinforce our ability to support customers in the context of Fujitsu's digital transformation growth agenda, and our role in society.

Purpose-built design spaces to work creatively

Key Takeaways

1. The Design Thinking Approach: Its Birth and Rise

Design Thinking is an innovation approach that was **born between the end of the 1990s and the early 2000s.** It has spread across industries and has been applied for different kinds of managerial purposes.

In order to have innovative ideas creativity is needed and, as a process, it is much more complex than turning on a light bulb. All the definitions about creativity mention how **managing creativity / pushing creativity is about solving a problem through new ideas and leveraging innovative perspectives.**

2. Design Thinking Evolution: Four Different Models

Today, we can identify **four different perspectives** of design thinking:

Creative Problem Solving (CPS): It is mainly adopted for the creation of new ideas that start from the observation of users and their needs. The double diamond contains the first representation of design thinking and is associated with the creative resolutions of problems. There are four main phases: **discover, define, develop and deliver.** CPS is associated with ideating, and the process is iterative.

Sprint Execution: This model approaches the problem in a very confined time frame (sprint) and is not only related to the definition of new ideas but also to their development (execution). This model is mostly applied in **digital environments.** The learning process takes place through the creation of **a Minimum Viable Product (MVP).** It represents a rough hypothesis of what the final product could be.

Creative Confidence: It mainly focuses on **a shift from organization to people.** It is mainly adopted to creatively engage employees inside the company's processes and enable them to actively contribute. Everyone has a creative contribution to offer, but the challenge is making it reach the surface and making it valuable for organization. It is necessary to empathize with people so that they feel free to express themselves and they can open up their creative selves.

Innovation of Meaning: It is mainly adopted to create radical new meanings in products and services. Meanings are new reasons why to buy products. In this model **what change is not the "how", but what change is the "reason why",** the deep reason that brought the solution into existence. **The process of Innovation of Meaning starts inside the boundaries of the company,** trying to understand if there are emerging socio-cultural models.

3. Meaning as a Source of Competitive Advantage

In order to communicate the new meaning, it is important to **change the solution language:** it is in fact the only way to convey a new meaning.

While a typical approach is to understand users in order to grasp their needs and desires, meaning innovation starts from emerging social-cultural models.

Collaboration with external actors who can act as interpreters of the future is necessary to identify those possible changes.

Four conditions should be studied to see whether meaning innovation can take place: People, competition, technology, and organization.

4. Fujitsu Human Centric Experience Design (HXD): The Fujitsu Approach

Fujitsu Human Centric Experience Design (HXD) is a Fujitsu's unique approach to tackle digital transformation challenges.

Fujitsu Design Philosophy reflects three **values: Innovative Frontiers, Co-create tomorrow, and Empower people,** which lie as a consistent and essential foundation stone.

Fujitsu has a heritage in Human Centered Design that can be traced backed to early computing in 1980s and large IT infrastructure projects in late 1990s.

The core value of HXD is to enable the rapid development of solution derived from human centricity linked to an overall strategy (customer business or societal) delivering transformational value to customers, end users or citizens through **five stages phases: Mindshift, Vision, Proof of Concept (PoC), Proof of Business (PoB), and Scale.**

Mindset is the most essential part of HXD which support all activities in the process. It is rooted into **eight attitudes: Optimistic, Visionary, Exploratory, Receptive, Creator, Cooperative, Purpose-driven, and Human-centric.**

These attitudes are expressed by **four behaviors: Watch closely, Listen carefully, Use our hands, and Learn quickly.**

Integrating **co-creation** element makes HXD even powerful. The three elements required for successful co-creation are **Diversity, New Connections and Insight.**

Fujitsu uses technology to create better values for people, both in business contexts and in society. They leverage HXD which has established and evolved overtime along with digital technology development that is deeply rooted at Human Centered Design.