iF DESIGN TREND REPORT 2024

CONSCIOUS ECONOMY

HUMAN DIGITALITY

CO-SOCIETY

MINDSHIFT
REVOLUTION

ECO TRANSITION

GLOCALIZATION

Foreword

It's not news that we live in an era of unprecedented change and transformation. Yet at a time when the worlds of business, creativity, technology, nature and policy are all converging, we must ask—what is the role of design in shaping our future?

For the third year running, iF collaborated with The Future:Project in Frankfurt to create the 2024 iF Design Trend Report. Offering a holistic view of cross-disciplinary design trends, we then place these in relation to key technological and social trends. Our offer to readers is that by understanding and leveraging these latest trends, you can improve the impact of the products, projects and services you design.

A multistage research process, we conducted a broad analysis across diverse industries that combines expert perspective and findings from our iF DESIGN AWARD. With 10,800 entries from 72 countries, the iF DESIGN AWARD 2024 once again provides a rich and profound reflection of how the design world is currently developing, as well as how design is shaping the world. The report highlights key societal themes, alongside specific challenges and commonalities between disciplines. For each observed trend, we have included products and services that exemplify strategies and solutions that are central to today's challenges. This interdisciplinary approach enables designers and industry experts to quickly transfer knowledge and seeks to offer a diverse and comprehensive perspective on the global design landscape.

Experts from across the globe—Austria, Brazil, Denmark, France, Germany, Italy, Japan, Netherlands, Spain, Taiwan, the United Kingdom and the USA—partnered with us throughout the research process, offering insightful perspectives from their diverse design practices. We would like to thank all of our partners for their support.

So whether you read the report from start to finish, browse at random, pick up information here and there, or are just looking for some visual inspiration—we hope to provide you with insightful perspectives and comprehensive detail about the challenges and opportunities associated with these developments.

Please let us know how you enjoy this year's issue.

Sincerely,
Uwe Cremering
CEO
iF International Forum Design GmbH

MENU

Design in transformative times

In our globalized and hyper-networked world, we are in an era of profound change, crises and innovations unlike anything the world has seen before. Designers are faced with a two-fold challenge here. On the one hand, they create products and services with a limited scope. On the other hand, they are increasingly confronted with global challenges that their work needs to take into consideration. Which makes it even more important to have a good orientation. With the iF Design Trend Report, we aim to present an inspiring reference for designers and design enthusiasts that provides insights and spans industries.

The 2024 iF Design Trend Report details the major change processes in society and shows the potentials for designers that these offer. We surveyed selected designers and spoke with numerous experts from the design world.

The report thus offers a broad, statistically evidenced overview of the current dominant trends as well as profound personal insights into design practice. In doing so, it investigates various sectors and design disciplines, from product and communication design to architecture and user experience, highlighting specific challenges as well as the shared characteristics of these sectors and disciplines.

From transformations to design trends

The past iF Design Trend Reports addressed megatrends and their effects on design practice. Megatrends generally describe linear change dynamics and challenges that affect society over decades. In any society, megatrends spur different reactions, new needs and subsequent changes that develop their own, sometimes contrasting dynamics. The 2024 iF Design Report focuses on these changes, which we call transformations.

Transformations are highly relevant for design: As they are not structured as linearly as megatrends, they are more open-ended in terms of the specific shape they take, and they open scopes that are true to life, tangible and shapable. These potentials are already visible—and can be shaped actively.

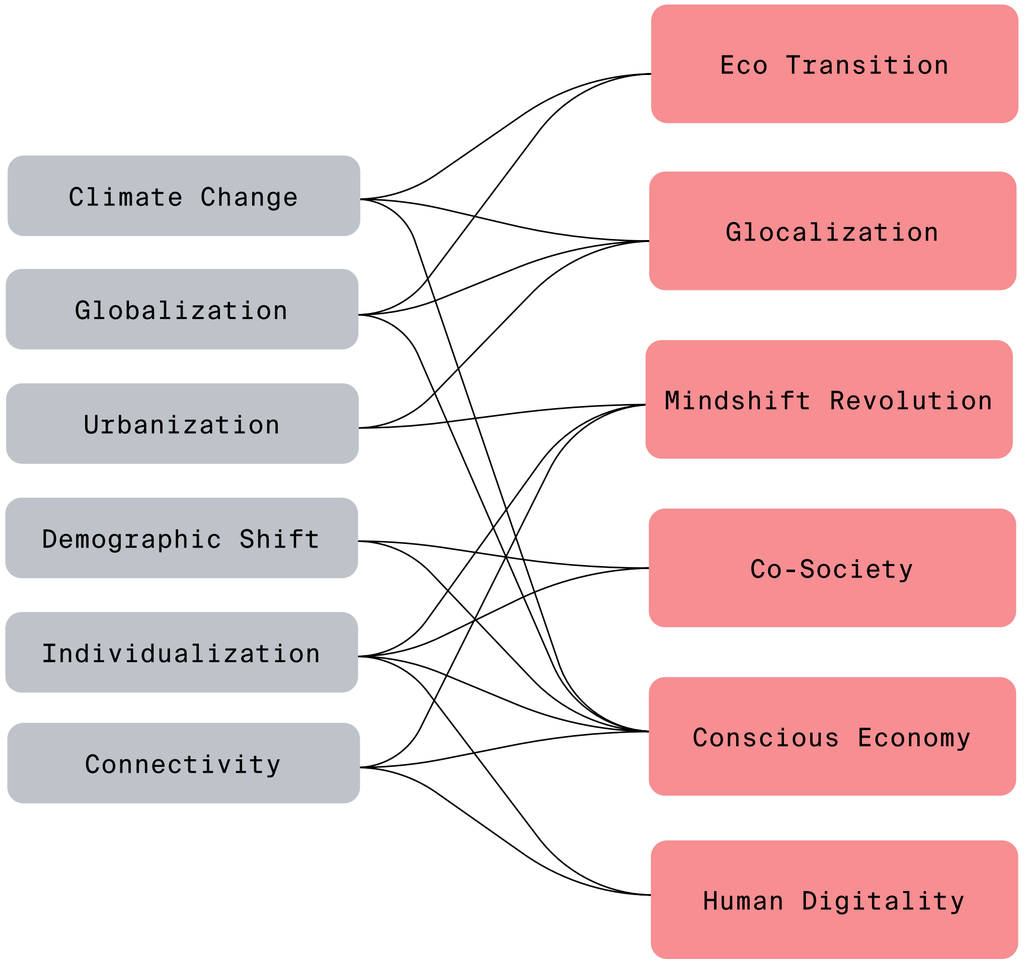
Throughout this report, six transformations will be applied to design-specific questions. The core question is: How can design help drive the transformation to a future that is worth living?

Six transformations make the future of society shapable

While transformations are connected to megatrends with their decades-long effects, they offer a different perspective of these changes. They are focused on the specific societal issues that need to be solved and the human needs connected with these. So while little can be done to change the general direction of a megatrend such as demographic shift or urbanization, these transformations provide a bit of elbowroom in which to address the challenges of the megatrends.

This year's iF Design Trend Report focuses
on the six major transformations in our society (The Future:Project 2023):

- *Conscious Economy* Design reshaping work
- *Human Digitality* Design humanizing technology
- *Co-Society* Design contributing to the quality of public spaces
- *Mindshift Revolution* Design supporting a new era of wellbeing
- *Glocalization* Design connecting global and local
- *Eco Transition* Design driving the climate transition forward



How to read this report

This is an interactive report that allows readers to navigate it flexibly, to create references between trends and transformations, and to connect information. Info boxes provide a summary of trend definitions, while observations are evidenced by best-practice examples and infographics. On the right side, you will find chapter overviews for quick access to interesting design trends, while the footer makes it easy to navigate between the chapters.

What sets this report apart: Unlike most other trend reports, we look at a broad spectrum of different product categories. This allows us to recognize shared characteristics and the variety of design approaches that offer different solutions for the same societal challenge. Our selection of companies, projects and product examples is based on factual and contextual criteria, without any advertising partnerships.

CONSCIOUS ECONOMY

CONSCIOUS ECONOMY

From performance-oriented society to conscious economy. Workers’ changing needs and the rise of new AI technologies influence the future of work. Designers have the chance to shape this new economy in order to make it more creative, healthy, sustainable and collaborative.

EXECUTIVE SUMMARY

The shift from an economy of output to an economy of purpose means reshaping the work environment. For designers, this means new working conditions and a changing range of services through the development of AI tools. At the same time, though, they are also able to help shape the new work environment in a profound manner.

The Human-Machine Teamplay is becoming increasingly sophisticated. Progress in artificial intelligence is bringing about new, powerful tools that can make work easier.

For designers in particular, this is making it necessary to reevaluate their own, genuinely human skills, which can further strengthen the interplay between humans and machines.

Health as a basic societal value is becoming increasingly important. Shaping work environments, organizational structures, devices, infrastructures and work processes offers a chance for designers to help shape the future of work actively and in a way that promotes health.

The drivers of a new economy

Many megatrends can be seen at the workplace. Digital networking has revolutionized our professional lives and created new ways of working, opportunities for cooperation and business models. Employees and companies have to constantly keep up with the rapid developments. The challenge of always adapting to **new technological opportunities** and keeping up with training also offers the opportunity to make work processes more efficient and to build global networks.

The demographic shift to an aging society brings new challenges to professional life. Companies need to adjust to an ageing workforce and adapt working conditions, which also offers the advantage of benefitting from the experience and knowledge of older employees. As part of this, the health of employees and healthy working conditions are pulled into the foreground. The design of the work environment therefore takes into consideration mental **health** factors such as stress reduction as well as physical working conditions, for example allowing for more diversified movement while working.

All these tendencies come together in the Conscious Economy transformation and necessitate a redesign of the working world. A conscious economy provides answers to the major challenges of our time and shifts the economy of output to an economy of purpose. Designers are affected by this development in two ways: On the one hand, their working conditions and performance profile is changing dramatically through the development of AI tools. On the other hand, they are shaping the work of the future through their projects, for example with the design of working conditions.

Digital Stethoscope

Rethinking the economy

In late-stage capitalism, the economy is undergoing a paradigm shift: It is no longer solely about profits and earnings. Instead, the economy and profitability are being seen increasingly as a way to achieve goals, such as driving a societal shift through sustainable business models. In this conscious economy, the collective desire for work that serves a purpose meets innovative technologies that provide individuals, organizations and all of society with the freedom to completely rethink work and the economy. The role of work is changing: Employees increasingly view their jobs as an integral part of their personal development—and thus also demand working conditions and environments that are sustainably compatible with a healthy lifestyle.

The meaning of work has long been closely coupled with the available technological possibilities. The mass production and oversaturation of many markets that have been made possible by technological innovation have led to material wealth but have also overstressed people and the planet. The latest development in artificial intelligence (AI) has, conversely, made it possible to automate many work steps: Machines can take over boring, monotonous and physically demanding work, significantly accelerating creative processes. It is only these new technological prerequisites that have enabled us humans to question work in its current form. Human-Machine Teamplay refers to the successful combination of human intelligence with the ability of machines to complete tasks more effectively and efficiently.

It is only these new technological prerequisites that have enabled us humans to question work in its current form.

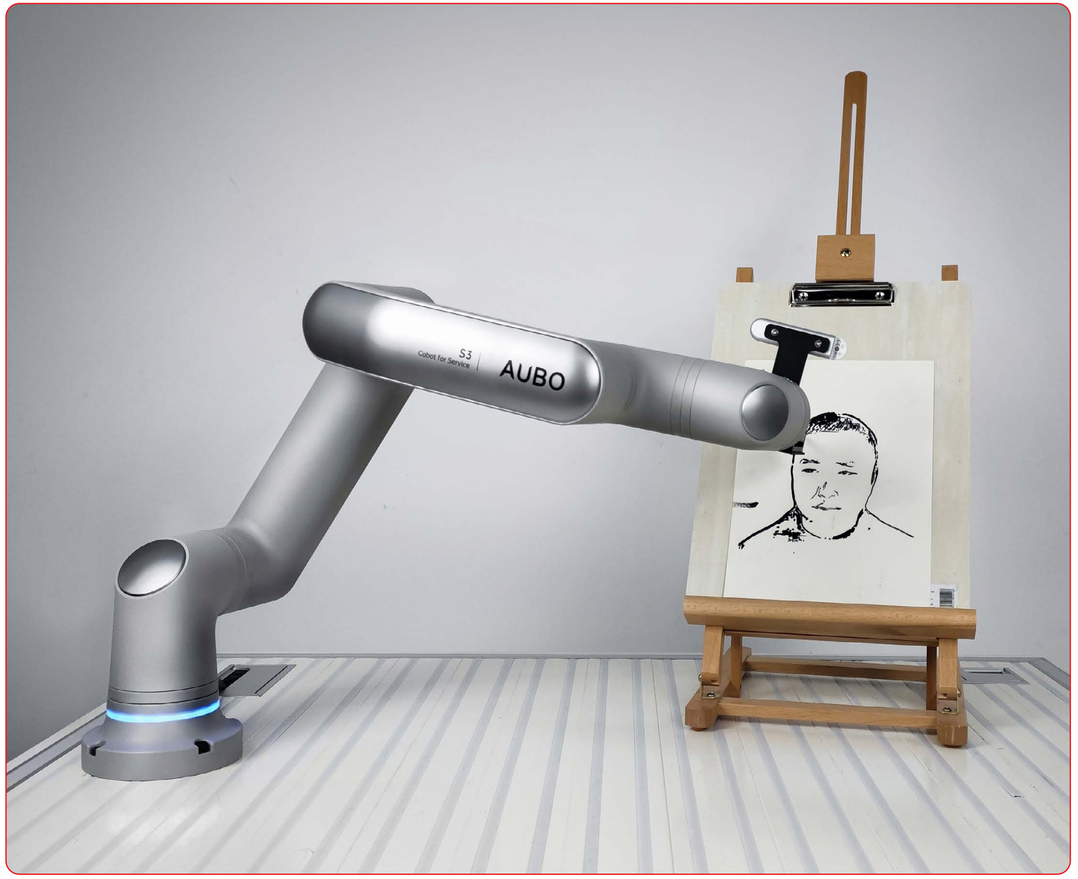
Human-machine teamplay

Productive collaboration leveraging the potential of human and machine intelligence equally

Aided by computers, artificial intelligence and robotics, the successful cooperation of people and technology is becoming increasingly indispensable in many industries. Human-Machine Teamplay comprises more than the concept of the interaction of humans and machines: The goal is a productive interplay that utilizes the potential of humans and artificial intelligence equally.

Human-Machine Teamplay is already being used successfully in healthcare: Artificial intelligence has outstanding analytical abilities, is able to screen large amounts of data quickly and to make experts aware of specific abnormalities, which they can then examine more thoroughly and contextualize with medical and patient-specific background knowledge.

Productive and processing machines are also gaining importance as team players: Especially in dangerous work contexts, remote-controlled machines are able to carry out tasks without endangering the safety of the employees.



Collaborative Robots

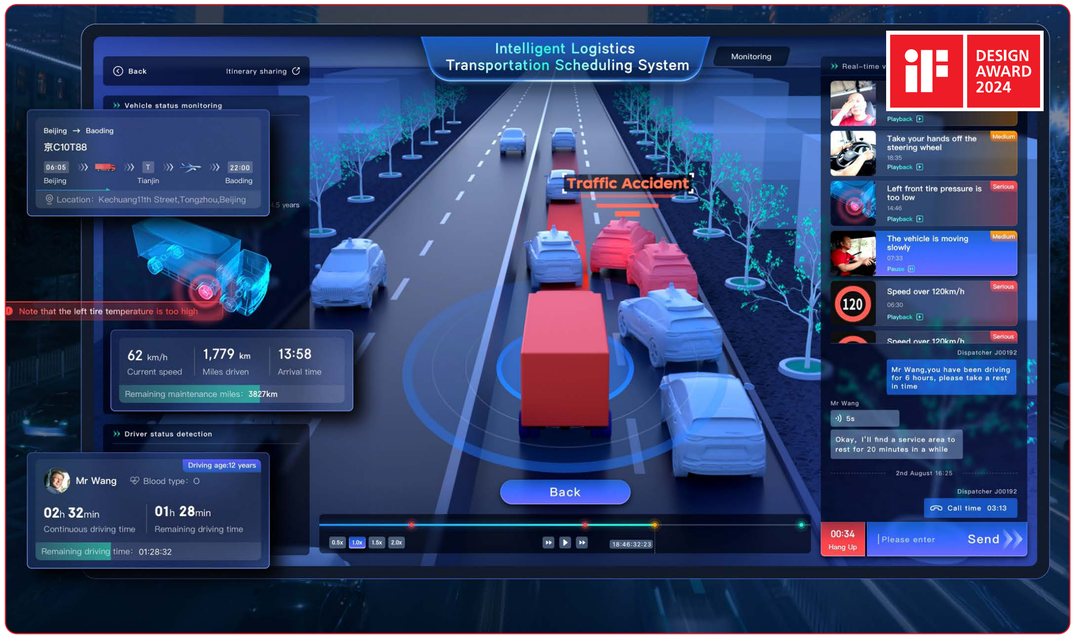
BEST PRACTICES

01 Digital Stethoscope
The CORE 500™ Digital Stethoscope by Eko Health caters to clinicians, integrating high-fidelity audio, a full-color display with disease indications and a 3-lead ECG. The AI technology can flag abnormalities in seconds at the point of care. With the simple press of a button, sounds can be recorded via the Eko app and shared wirelessly within seconds with specialists.

02 Digital Dialysis Assistant
NITO is a Digital Dialysis Assistant designed for nurses, doctors and patients navigating the dialysis journey. Addressing challenges in hospital dialysis machines, NITO offers clear information presentation and intuitive guidance precisely when needed. With a focus on simplicity, it transforms the dialysis process.

01 02

BEST PRACTICES



03 04

03 Transportation Scheduling System

Introducing the Intelligent Transportation Scheduling System, an advanced solution leveraging big data, intelligent algorithms and digital twins. The system autonomously generates multi-modal transportation solutions, reconstructing logistics methods. Utilizing technologies like 5G and IoT, it enables multi-terminal connectivity, intelligently identifies abnormal events, triggers alarms and employs multi-channel reminders for timely risk resolution. Committed to low-carbon and efficient logistics, the system aims to create a dual-engine transportation service.

04 Vessel Suport System

EcoAdvisor (EA) is a smart decision support system for vessels. Utilizing onboard sensors, it monitors internal and external parameters, providing proactive advice for efficient and sustainable ship operation. The solution follows a circular process: a) identifies emission reduction opportunities through sensors, b) analyzes data for optimal efficiency and safety, c) provides live feedback on savings, enhancing crew awareness, and d) bridges communication between crew, managers and charterers through comprehensive reporting.

Artificial and human intelligence are becoming intertwined

For knowledge workers in particular, it will soon be a question of to what extent they will be pushed out of their original professional profiles. For now, though, the strengths of human and artificial intelligence intertwine well.

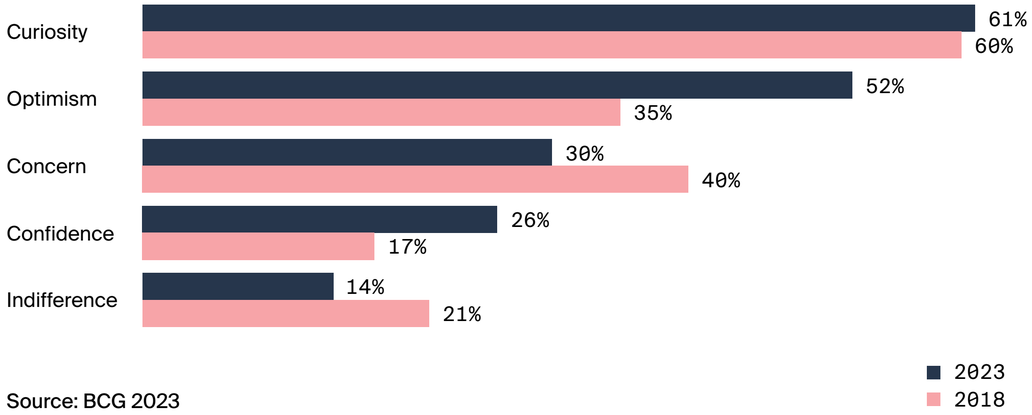
While AI is able to sort the content that is fed into it very efficiently and according to specifications, it often lacks the ability to understand the content and to contextualize information. Contextualization and classification by content are specifically human abilities, as are critical scrutiny of data and information, intuitive decision-making, ethical judgment and a sense of aesthetics. The key to working successfully with artificial intelligence is also the human assessment of which consequences a decision will have for the wellbeing of individuals or societies.

Employees will learn to make their prompts effective and to interact with an AI in a targeted manner using speech (or other descriptive) commands. A type of intuition can be developed through continual use of the tools in order to:

- *Assess the limits* of the capabilities of the AI properly
- *Make the commands* in such a way that the AI will deliver suitable results
- *Develop an understanding* of how AI "thinks"
- *Give the AI enough information* about the user in order to develop a specific, personalized profile based on this
- *Find a systematic way* to work with the AI so that the personalized AI can also be shared with colleagues and stand-ins

The top five sentiments about AI's impact on work in 2023 & 2018

Optimism is rising and concern is falling.



Source: BCG 2023

CONSCIOUS ECONOMY

The quality of the results when using AI Companions in the design process depends on having a clearly formulated task for the targeted use of the tool. You might want to compare it with writing an unmistakable briefing.

As a user, I essentially need to learn to formulate my wishes very precisely or the results will be random. To any extent, one needs to check and test the results of AI in the bright light of deep expertise.

STEPHAN HÜHNE

SENIOR INDUSTRIAL DESIGN MANAGER, SIEMENS AG, GERMANY

The future of AI natives

New technologies are influencing our social structures and individual abilities in our daily lives and professional spheres. For AI to become an asset in the workplace, targeted reskilling and upskilling will be necessary. At the same time, though, the rise of AI leads to skills being lost because they are now carried out by AI. If employees do not have the necessary skills to use AI confidently, there is a risk of losing jobs, of becoming too dependent on AI tools or misjudging the capabilities of the AI. Training in the use of AI will likely change many professions significantly, opening up new roles and skills profiles for workers. For example, AI can be used to create photorealistic images, though this requires the ability to put aesthetic concepts into words and to conceptualize these strategically.

When a new technology is accepted in our daily lives, individuals from various social and biographical situations have divergent starting conditions for using the new technology. There is a difference between whether the user learned to use the technology with the background knowledge of previously acquired skills or in an environment that has already been equipped with this new technology. Like digital natives, future AI natives will have intuitive and creative approaches to the new technological opportunities, though they will also develop certain dependencies.

AI will make new and individual forms of education and training possible, but it will also raise questions about the comparability and suitability of this training in recruiting processes, which will in turn require new AI developments in HR (Karampelas 2023). Find out more about **AI in Coaching and Education**

Top 10 skills of 2023

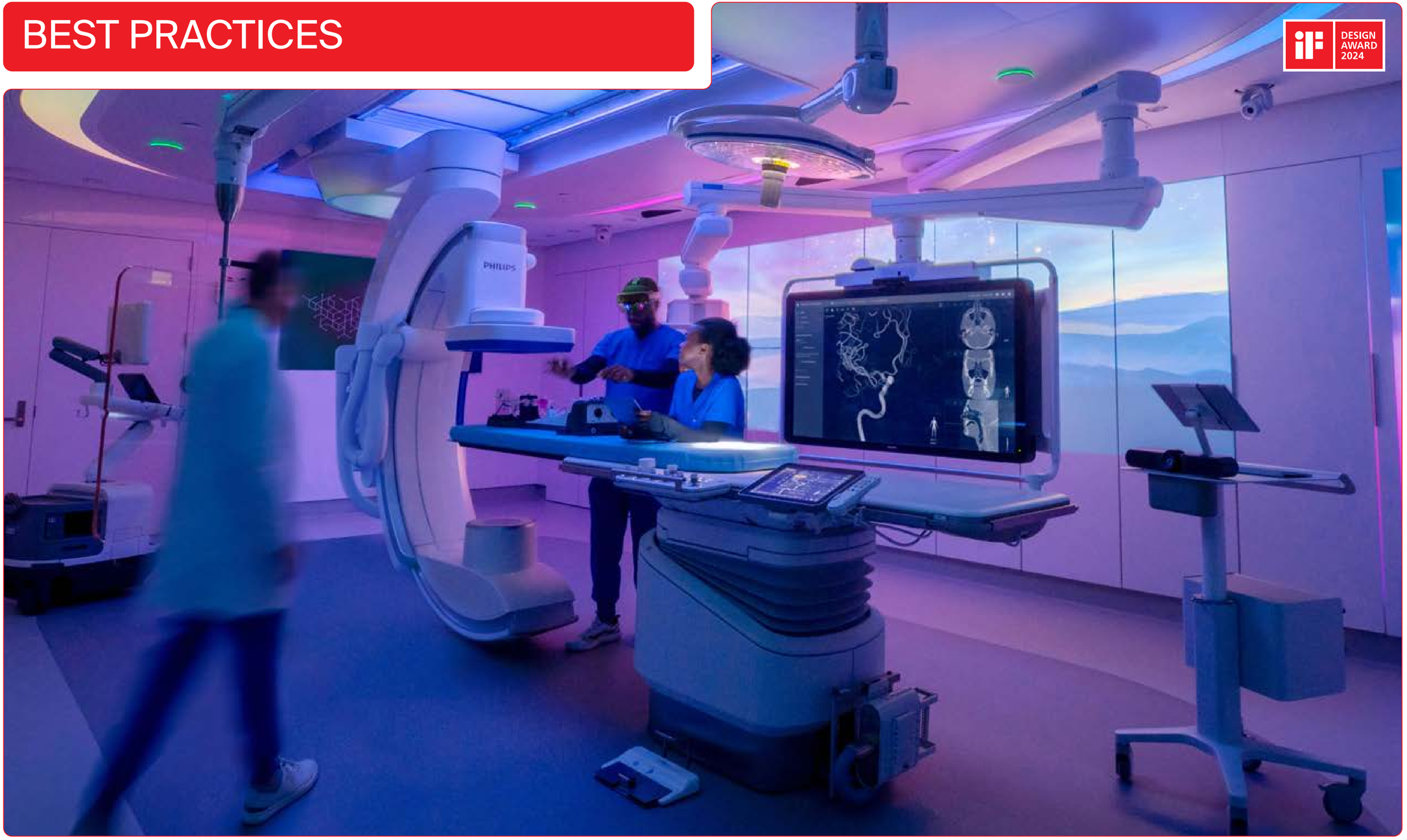
The skills judged to be most important to workers at the time of the survey

1. ANALYTICAL THINKING
2. CREATIVE THINKING
3. RESILIENCE, FLEXIBILITY & AGILITY
4. MOTIVATION & SELF-AWARENESS
5. CURIOSITY & LIFELONG LEARNING
6. TECHNOLOGICAL LITERACY
7. DEPENDABILITY & ATTENTION TO DETAIL
8. EMPATHY & ACTIVE LISTENING
9. LEADERSHIP & SOCIAL INFLUENCE
10. QUALITY CONTROL

Cognitive skills · Self-efficacy · Management skills · Technological skills · Working with others

Source: World Economic Forum, Future of Jobs Report 2023

BEST PRACTICES



01 Surgical Futures X Lab

The Surgical Futures X Lab is a cutting-edge simulation facility, bringing together stakeholders from across Philips and the healthcare industry to advance technological innovations in image-guided therapy, procedural assistance robotics, hands-free augmented reality and artificial intelligence automation. The overarching objective is to enhance the speed to market for innovative medical technology, potentially revolutionizing patient care by optimizing clinician workflows.

BEST PRACTICES

02 Educational Robot Arm

The Educational Modular Robot Arm HUENIT features AI and a versatile camera system. Designed for seamless integration of AI, 3D, laser and robotics, it employs a 64-bit RISK-V processor and AI accelerators in its AI camera module. This enables real-time capabilities like image recognition, object detection, line tracking and voice recognition. With an electromagnet-based module replacement system, HUENIT streamlines tasks and can effectively handle the workload equivalent to 2–3 conventional robot arms. It can utilize its automatic tool change for continuous production of laser-engraved products or drawings using pen holders.

AI tools for designers

The designer's job description is changing rapidly as a result of the new technological possibilities. On the one hand, this increases the pressure: Customers expect better results in a shorter timeframe, and they assume that the designers are always up-to-date with the latest developments and tools.

On the other hand, the opportunities that arise for designers are immense. Ideas can be visualized and alternated more quickly, and they can be communicated with customers more easily thanks to a higher rendering quality.

The use of AI in the creative industry is particularly promising in the following areas, however:

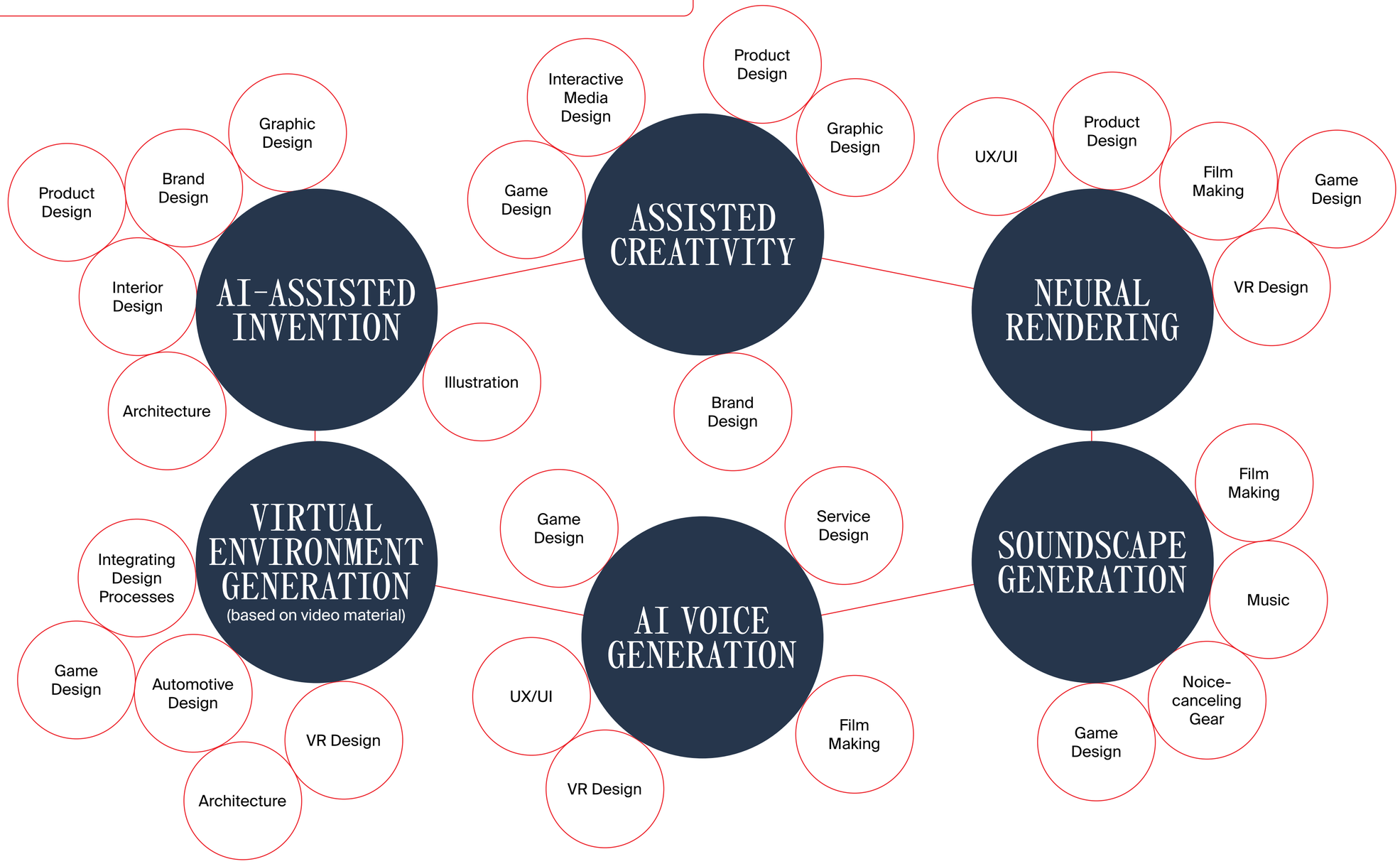
- *Consulting role with a stakeholder perspective* AI can be fed information about individual stakeholders and can make an appraisal of designs based on this, or can take on a consulting role.
- *Generative design tools* This software allows designers to generate design options based on set parameters and objectives. It accelerates the design process and assists with generating ideas.
- *Moodboard and inspiration apps* Apps such as Pinterest or Behance help designers gather inspiration and to create moodboards to support the creative process. Combined with generative AI, these platforms are able to quickly put together moodboards that fit the parameters of the design tasks perfectly.
- *Tools for image and style analysis* These tools analyze images, colors and styles to identify trends and help designers develop creative concepts.
- *Artificial intelligence in image processing* AI tools that help with photo editing and enhancement save time and assist designers to create visually appealing content.
- *Project management and time management tools* These tools take over the processing of projects, freeing up designers' time to utilize their core skills.

AI tools continually evolve, drawing from existing online knowledge. New things don't come out of them, but adapted things do. AI can help to quickly gather a lot of insight into different steps of the design process, which helps the designer navigate in the right direction.

Thomas Paulen
FORMER CEO, VANBERLO, NETHERLANDS

You can find more information on the role of AI in a collaborative design process in the chapter on **Co-Society**

Tool overview



Tool overview: What can it do? What belongs to whom?

AI-assisted Invention AI can be used as part of the design process, for example, in a consulting capacity or to generate design variants or prototypes. At present, however, there are still many open questions about the copyright and patent possibilities of the designs and developments generated by AI. In 2021, a patent was issued for the first time to an AI system in South Africa; other countries have declined such applications until now.

➔ especially useful for: Architecture, Interior Design, Product Design, Brand Design, Graphic Design

AI-assisted Creativity AI-assisted Creativity Generative Adversarial Networks (GANs) are artificial neural networks used in the research and application of machine learning, especially in deep learning. First introduced in 2014 by Ian Goodfellow and his team (ref. Goodfellow et al. 2014), GANs comprise two parts: a generator and a discriminator. These two networks contest with each other, hence the name “adversarial.” The generator attempts to create better reproductions while the discriminator learns to recognize these reproductions. This process causes both networks to continually improve their output. GANs can be used in design to assist in creative processes, for example in image generation, style transfers, image-to-image translation and to create deepfakes.

➔ especially useful for: Game Design, Interior Design, Product Design, Brand Design, Graphic Design, Interactive Media Design, Illustration, UX, UI

Neural Rendering Neural networks can also be used to create 3D datasets. The basis for this can be photos as well as blueprints or sketches, which are then rendered in 3D. Neural rendering can also be used to process existing 3D datasets.

➔ especially useful for: Game Design, Filmmaking, Interior Design, Product Design, Interactive Media Design, VR Design, Automotive Design

Soundscape Generation As sound AI becomes more sophisticated, it is able to generate more realistic sounds to accompany virtual objects. The sound of glasses clinking together or chairs being pushed across a floor, for example, could be generated to go with a coffeeshop scene.

➔ especially useful for: Game Design, Filmmaking, Music-making, VR Design

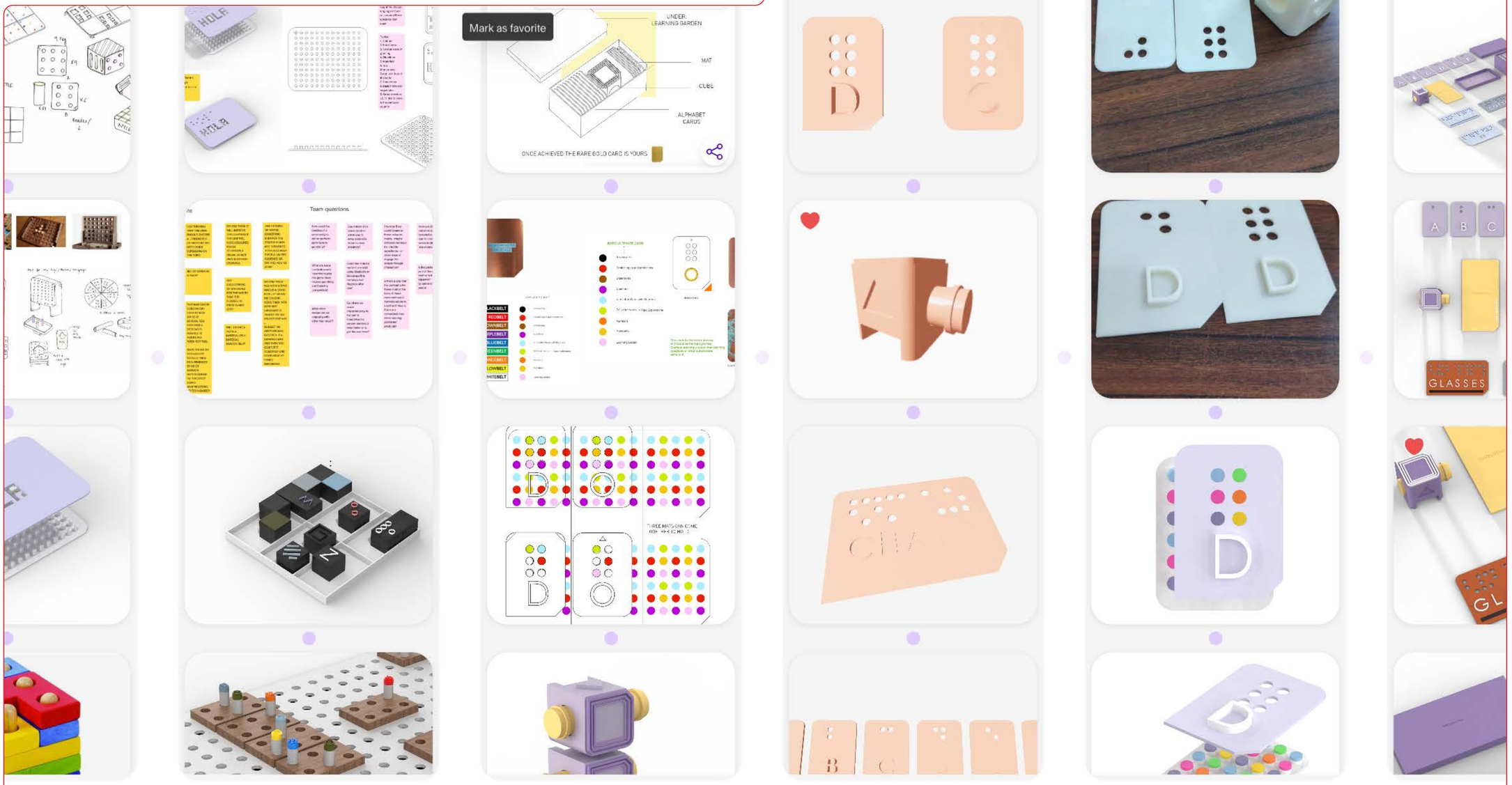
AI Voice Generation Already now, there are many providers that adapt written text into spoken formats using AI text. This makes it much easier to create background voices for movies as well as to edit real recordings—for example if two people are talking at the same time.

➔ especially useful for: Service Design, Filmmaking, Game Design, UX / UI

AI-based Virtual Landscape Generation AI can be used to generate entire virtual landscapes or rooms, for example by feeding them video material. This makes it easy to reconstruct realistic rooms virtually or to generate fictional rooms.

➔ especially useful for: Urban Design, Game Design, Automotive Design, VR Design, Architecture

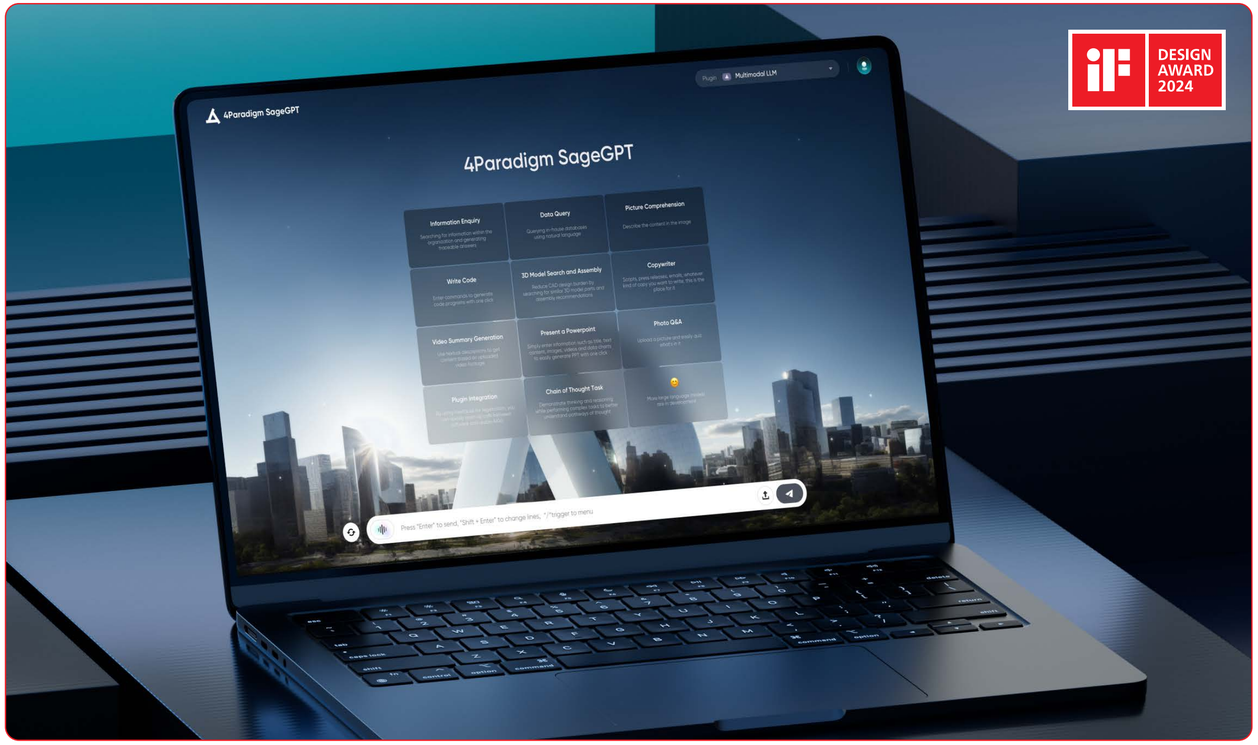
BEST PRACTICES

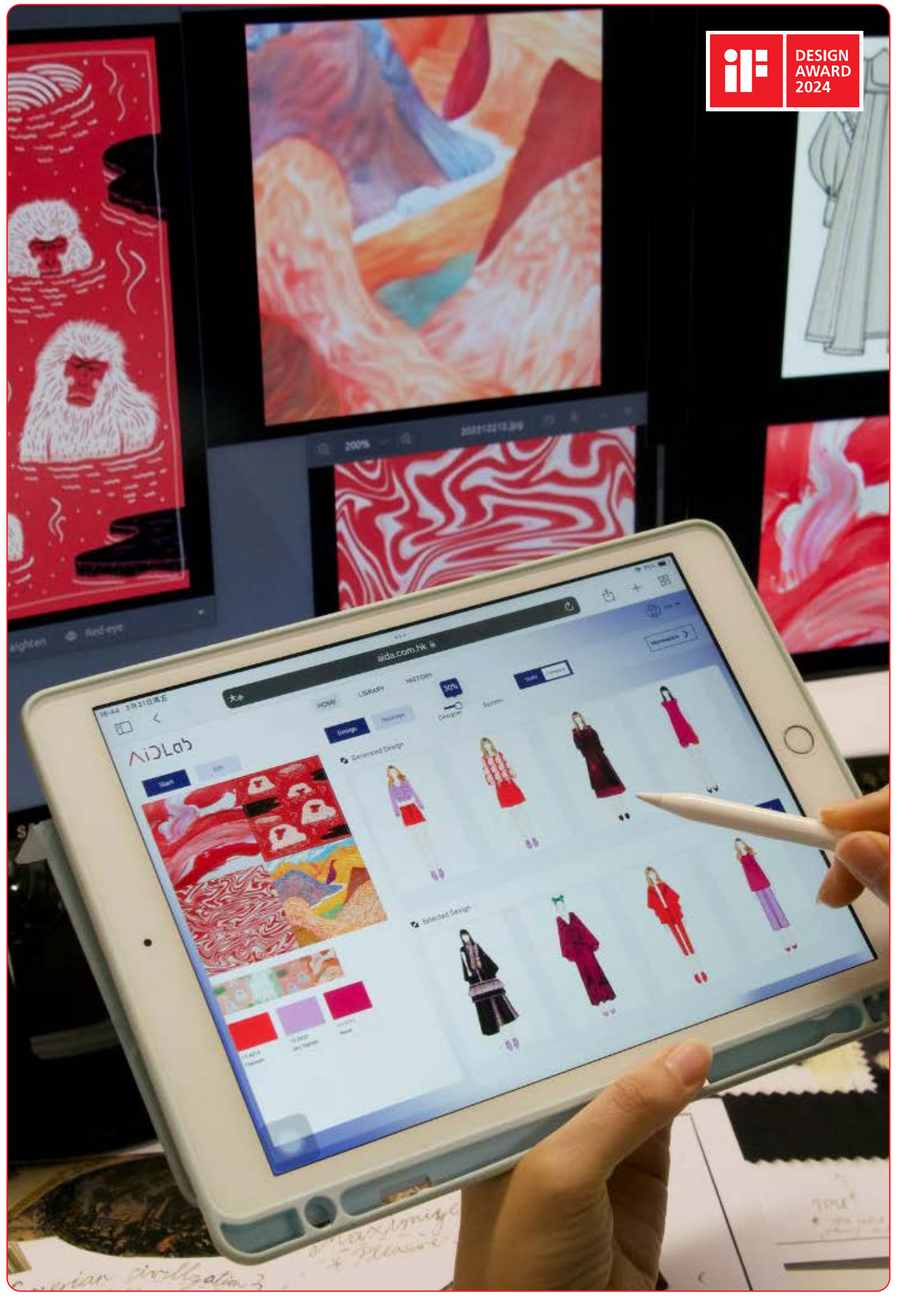


01 Naya Design Software

Naya transforms the design process, enhancing accessibility for teams and stakeholders. Its intuitive features and broad integrations facilitate seamless interaction with 3D models, videos, slide decks, digital whiteboards and various assets. Navigating complex projects and tracking key milestones become simpler with Naya. Users appreciate its ability to break down complicated projects, maintain organization and measure progress effectively.

BEST PRACTICES





02 Development Platform

4Paradigm SageGPT is a transformative development platform reshaping enterprise software with generative AI to enhance user experience and development efficiency. Utilizing large language model technology and natural language interaction, it liberates users from traditional software interface constraints. The thought chain technology dissects goals, breaking down complex instructions into simple, comprehensible operations, significantly improving work efficiency and overall experience.

03 Design Assistant for Fashion

The AI-based Design Assistant for Fashion (AiDA) stands out as a pioneering “designer-led AI system.” Unlike conventional fashion design software, AiDA is not just a drawing tool; it empowers designers to collaborate with AI in generating original fashion collections every 10 seconds. By inputting their inspiration, fabric print patterns, colors and sketches, designers seamlessly explore a myriad of design possibilities. AiDA’s output sparks further inspiration, enabling designers to efficiently modify and refine their original designs in the creative process.

02 03

Is creativity really a purely human characteristic?

We often hear the argument that AI uses existing data sets to generate alternatives. The argument states that new ideas are not generated by AI, they are useful at most to develop alternatives or further develop existing developments. At the same time, new studies show that ChatGPT and such are on a par with the average creative level of humans and outpace them in terms of speed and quantity (Haase/Hanel 2023). Whether AI is on a par with humans or can be in the future depends a great deal on how we define creativity. As long as we equate creativity with the level of surprise that a result might elicit in us, then the programs available already now could be considered to be creative, regardless of whether their results are derivatives of patterns that are already present in the datasets on which the program was trained. The truly great human creative accomplishments in design and science cannot yet be delegated to artificial intelligence.

Conversely, the question arises of how creative many of the tasks in the creative industry and design really are. Wherever the objective is to vary existing patterns and typologies, for example in storytelling or stock photography, AI produces surprising results or is able to inspire human creativity in the Human-Machine Teamplay.

Where new creations require untransparent emergence phenomena, emotional dimensions and sensuality, namely the endless horizons (Baecker 2007) of neurology and psychology, human creativity remains untouchable. As a designer, one might question whether one's own work has been used to train AI. This can be investigated using Have I Been Trained. Unfortunately, there is no way to have your work removed from an existing dataset. But you can opt out of future training by adding your images or domains to the website's Do Not Train Registry. Any organization that respects these opt-outs will then remove the links to your images from the dataset before they train a new model.

AI supports various stages of the design process, notably in conceptualization, yet human input remains vital for final refinement. However, there is potential for AI to evolve from being just an executor to also serving as a consultant for creative decision-making.

Bern Donadeu
FOUNDER & DESIGN DIRECTOR, NACAR DESIGN AGENCY, SPAIN

AI in the trades — Tradition meets high-tech

The use of artificial intelligence in a work setting is often associated with knowledge work. The trade professions also benefit from AI tools, though. Unlike knowledge work, the distribution of skills between humans and machines is clearly evident in the trade professions: specialist expertise remains with the humans, processing is outsourced, routine tasks are delegated, waiting times are reduced by automatic notifications, which cushions high workloads and a lack of specialist workers.

High-tech is used more and more frequently in operations:

- *Image-processing technologies* Image-processing technologies aid with creating nesting plans to use resources optimally and can be utilized to improve quality control.

- *Smart warehousing* Smart warehousing ensures an overview of inventories, an efficient use of resources and automatic reordering of materials.

- *Predictive maintenance* Artificial intelligence can also be used for predictive maintenance to provide early notification of when wear parts need to be replaced. Predictive maintenance increases work safety while also helping to avoid machinery downtimes and the costs resulting from this.

- *Forecasting* AI is also used increasingly often as a forecasting tool to assess future needs and potential revenue using past sales figures combined with other data. Bakeries and other food businesses in particular benefit from this as their customers' purchasing patterns are highly tied to the weather and specific holidays.

While AI won't be able to replace the human touch and creativity needed in craftsmanship, it can well make the process more efficient, precise and tailored to market demands.

Ana Relvão
CO-FOUNDER, RELVÃOKELLERMANN, GERMANY

Robots are helpful co-workers

Beyond AI, high tech can also lend a helping hand on another level. More and more, robots are also being used to take over tasks that take a lot of time, are not particularly challenging or are physically difficult. The advantage: They can also be used around the clock or outside of standard working hours. This ensures a continual presence or the ability to carry out work when there are as few people on site as possible. For cleaning and maintenance work, this has particularly great potential.

While robots generally take over work processes completely, cobots (collaborative robots) are used to complement the work of humans. One example of this is the BionicCobot made by the automation technology manufacturer Festo. The BionicCobot, which is similar to the human arm in its anatomical design, carries out its tasks with flexible, precise movements. According to Festo, this precision and flexibility allows the cobot to work together with humans directly and safely. It can hand the human workers parts to be installed, can take over the handling of sensitive objects, can pick pieces out of containers and can handle hazardous substances that would be dangerous for humans to touch. The cobot is trained and controlled by its human coworkers on site. Working with a cobot helps optimize processes, making these faster and more efficient.

Cobots are a solution to numerous challenges that technical enterprises are increasingly faced with, such as an ageing staff, a lack of specialist workers and heightened work safety requirements.

Source: SAHA Robotik

BEST PRACTICES

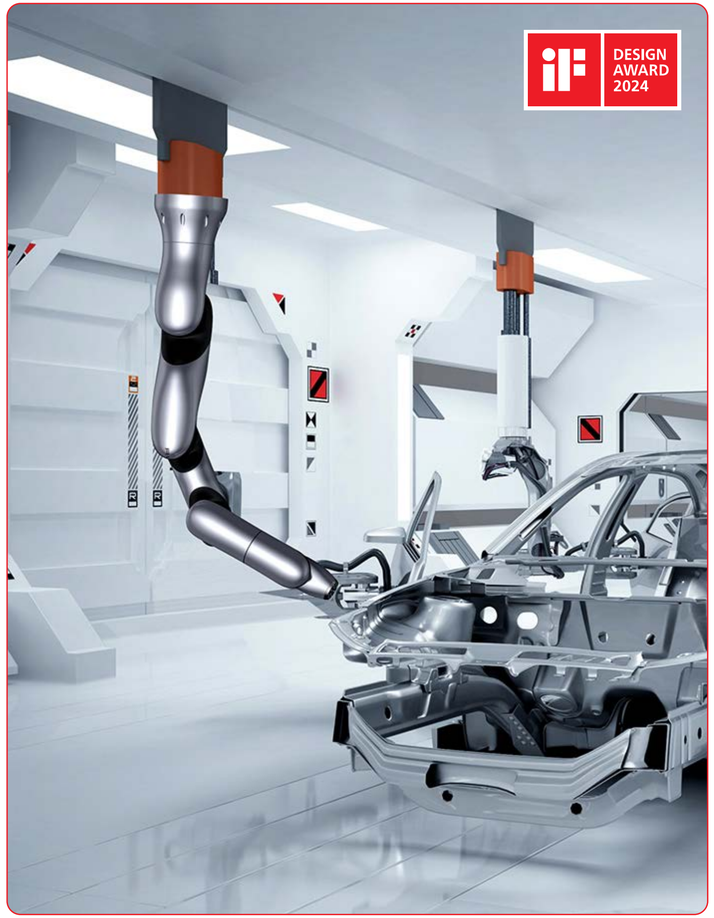
01 02
03

01 Massage Therapy Robot
Introducing Regulus II, a service-oriented massage therapy robot integrating AI and intelligent control algorithms. Offering high-precision body shape and massage point analysis, it tailors personalized therapy plans for users. Featuring a seven-axis robotic arm, advanced force sensors and innovative active force control algorithms, Regulus II delivers soft, smart and precise massage techniques for an enhanced user experience.
Video

02 Humanoid Robot
Tesla has unveiled the second generation of its humanoid robot, Optimus 2. The new models showcase smoother movements, increased speed and enhanced dexterity in their fingers. This refinement allows them to delicately lift objects, such as an egg, without causing damage.
Video

03 Soft Robot Hand
Introducing Bridgestone Soft Robot Hand—a tire production-inspired marvel. Boasting unparalleled flexibility and diverse motion capabilities, it adapts force and bending with human-like precision. This powerful, safe and versatile innovation, with its simple mechanism, outshines robots limited to fixed movements. Bridgestone Soft Robot Hand embodies cutting-edge technology, striving to support a prosperous life everywhere in a compact design.

BEST PRACTICES



04 **05**

04 Collaborative Robots

Introducing AUBO S Series Collaborative Robots, pioneers in the service industry. As the lightest in their class, they redefine collaborative robotics. The S Series stands out with a modern design, technological color scheme and enhanced safety features. Crafted with environmentally friendly plastic materials, it offers customization for personalized brand needs. Noteworthy for low payback period and minimal noise, AUBO S Series brings efficiency and adaptability to service scenarios.

05 Five Sense Seven Axis Collaborative Robotic Arm

The Five Sense Seven Axis Collaborative Robotic Arm features a human-like sensory system for vision, hearing, taste, smell and touch. Equipped with internal sensors, each sense has dedicated torque sensors. With visual, auditory, gas acquisition and gas detection modules, this seven-axis model simulates human arm joints for smoother movement and versatility. Tongshi excels in complex tasks like medical procedures, fully automated assembly and various human-like activities, showcasing its advanced capabilities.

Ziyuan Zhu

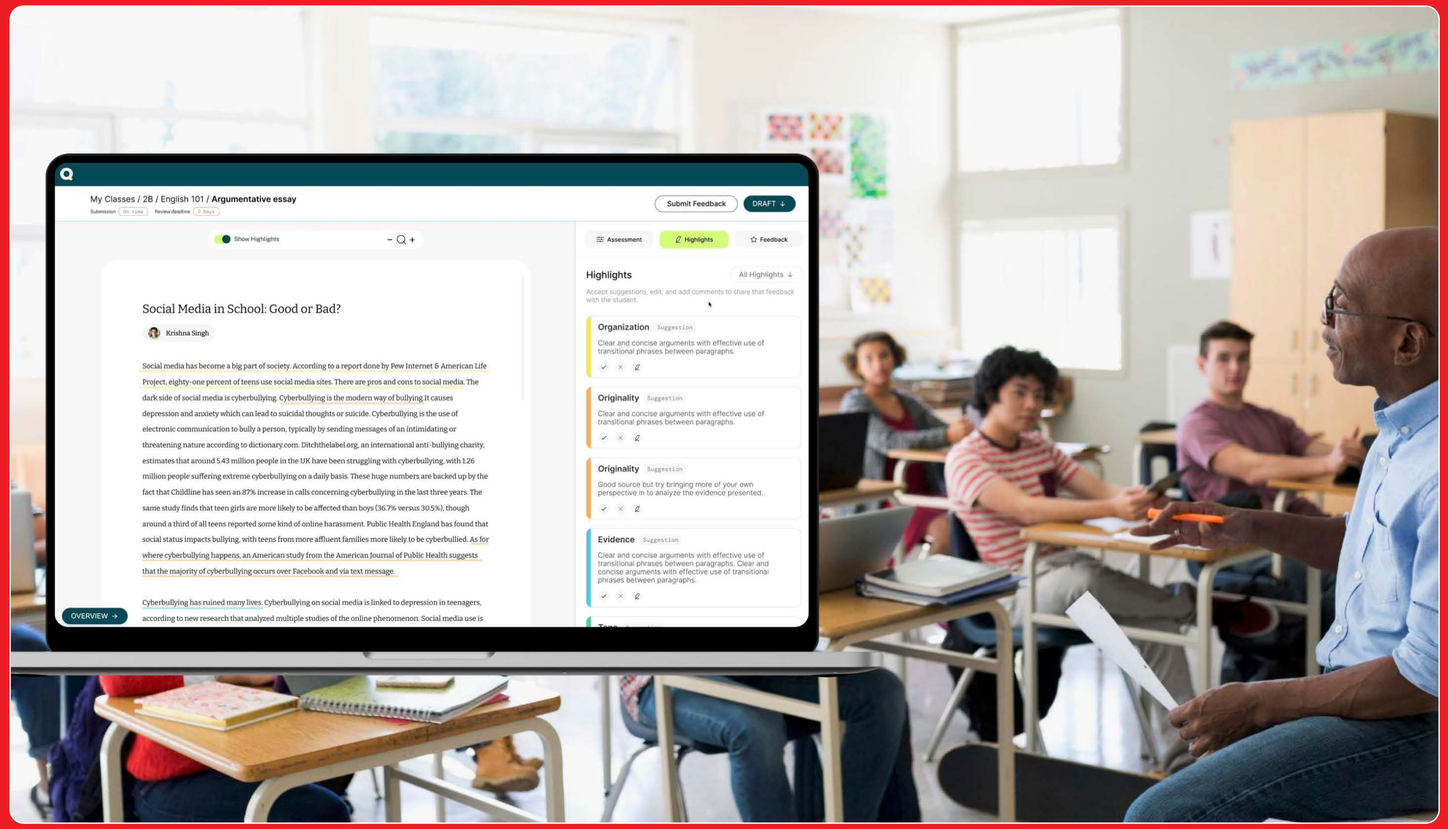
Interdisciplinary designer and creative technologist
IDEO , San Francisco

Ziyuan Zhu is a creative technologist working at the intersection of design and emerging technology. At IDEO, a global design company committed to fostering social impact with human-centric design, shehelps teams tangibly explore the future of product experience with emerging technologies, including generative AI, data visualization and XR. She was invited to give speeches at SF Design Week, International Design Conference (IDC), Design Museum Week, NY Climate Week and more. Ziyuan is also an affiliate researcher at MIT, where she leads research on integrating technology into climate education. With an academic background in design study and computer science at MIT, she thrives on experimenting with various mediums to push the boundaries of design.

From artificial intelligence to augmented intelligence

Now that "AI" is a buzzword everywhere, we stand at the threshold of a design revolution. Many fear AI, similar to two decades ago when the rise of PowerPoint was labeled “the end of reason,” because critics feared it would reduce complex human communication to a simple pitch.

Will AI do the same for design? And reduce design to a simple prompt?
Or will we be able to harness the power of AI without reducing the intentionality that designers bring?



Redefining interaction norms

Multimodal AI interactions like chat interfaces, voice input, and vision recognition, are redefining our dialogue with products.

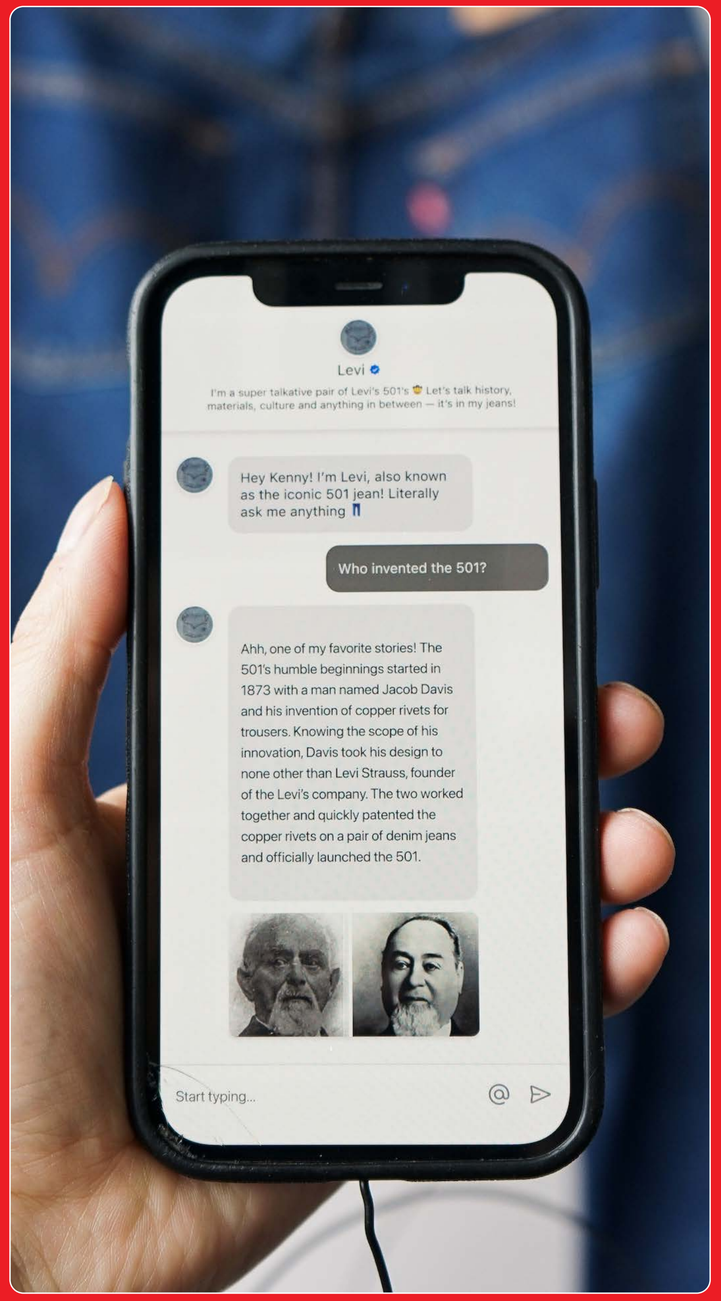
Imagine a pair of pants that can tell you its story — where it was made, how to repair it, and whether it suits you. It’s not a scene from a sci-fi movie; it's a concept in speculative design we're exploring called “Talking Pants.” Here, we use LLMs to enable a conversation between the wearer and clothing. By walking through a store, and clipping a smart cable onto a pair of jeans, you can have a conversation with any of the products in the store through your phone interface. The concept opens a whole new realm of possibilities for creating products that can communicate their value and ethics directly, transforming how we think about and interact with the objects we use every day.

At IDEO, we have created a tool that reveals more about how LLMs work, using a user-friendly interface to explain how the AI model works on the backend.

Choosing the right ally

AI can now help designers in many ways, like data organization and summarization, allowing them to focus more on the creative aspects of their projects. But to leverage this capability to be “augmented” designers, we need to understand how AI works.

At IDEO, we've created a tool that reveals more about the inner workings of LLMs, using a user-friendly interface to explain how the AI model works on the backend. This tool also gives designers insight into the strengths and limitations of different AI models, augmenting their ability to choose the right AI tools in the massive AI landscape.



Championing ethics by design

As we navigate the potential of AI, the importance of embedding ethical considerations into the design process cannot be overstated. As designers, we need to ask ourselves: Could using AI cause harm to individuals? Might it contribute to societal inequality?

Our collaboration with Ethiqly exemplifies how ethical design can empower educators and students. Rather than preventing students from using AI tools like ChatGPT, Ethiqly explores how AI could serve as a start-to-finish writing companion for students that helps them organize their thoughts and pass that first blank page.

As a designer at the edge of innovation, I've learned the importance of integrating AI into my workflow, not as a crutch, but as a catalyst for rigor. By playing and experimenting with AI, I believe we will push the boundaries of design as augmented designers. The synergy between designer and AI allows a deeper, more meaningful connection between us and the products we cherish.

CHALLENGES

The success of the Human-Machine Teamplay in the design industry often requires targeted reskilling and upskilling. This also means that education and training measures need to be adapted.

If employees are not able to use an AI confidently, there is a risk of losing their job, of becoming too dependent on AI tools, or that the capabilities of the AI are misjudged.

OPPORTUNITIES

Human-Machine Teamplay can be used in many aspects of design to improve creative processes and achieve new results.

Many routine tasks are carried out faster and better by AI, which leaves more room for specific human skills to develop.

Beyond AI, high tech can also lend a helping hand on another level. More and more, robots are also being used to take over tasks that take a lot of time, are not particularly challenging or are physically difficult.

Cobots are a solution to numerous challenges that technical enterprises are increasingly faced with, such as an ageing staff, a lack of specialist workers and heightened work safety requirements.

Healthy work

People spend at least a third of their day with gainful work. Since the coronavirus pandemic, working from home and hybrid working have replaced working on site in an office to some extent. This means shorter commutes and more flexibility in one's day, on the one hand, but it also means that the boundaries between working hours and free time are becoming increasingly nebulous. Many employees perceive hybrid meetings as a stressor; the same goes for information overload and being reachable at all hours, even after their official working hours are over. Ergonomic workspaces can often also not be guaranteed when working from home. To satisfy the changing needs of employees, however, office spaces need to be adapted: There is a growing need for workshops and creative hubs, and attention is given to maintaining a live work culture with regular in-person meetings.

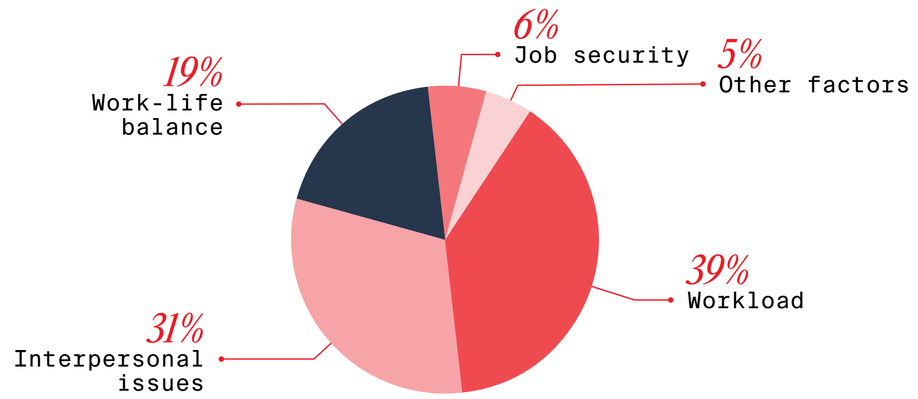
The designer John Lam calls for the following measures to reduce the physical and psychological stress at the workplace:

- Promoting physical health, including *access to mental health support* and counseling.
- Ensuring *ergonomics and work health and safety* to promote physical health.
- *Open communication* and feedback on a regular basis to reduce stress and promote wellbeing at the workplace.
- Providing programs to promote health such as *fitness activities* and healthy nutrition options.
- Promoting *work-life balance* through flexible working hours and opportunities to recharge.
- Providing *training opportunities* to prepare employees for the changing job requirements.
- *Leadership development* to promote a supportive corporate culture.
- Adhering to *guidelines against discrimination* and harassment to protect the mental health and wellbeing of employees.

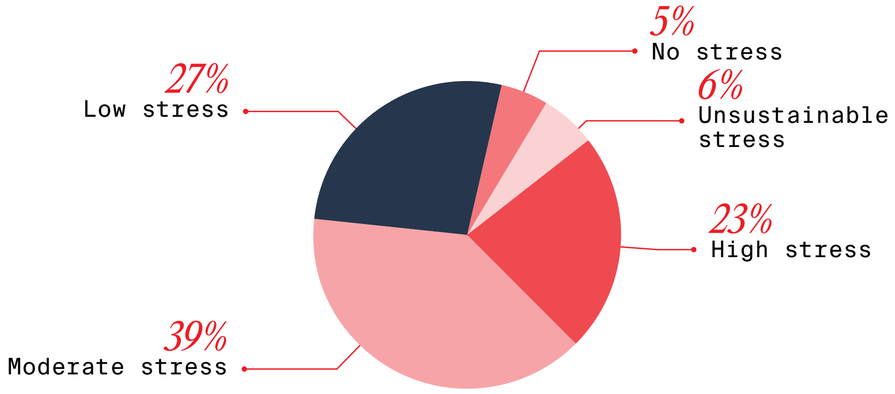
Automation of work processes with the help of AI will also help reduce the workload on employees and create a more pleasant, **healthier work environment**.

A focus on healthy work environments

Main causes of workplace stress

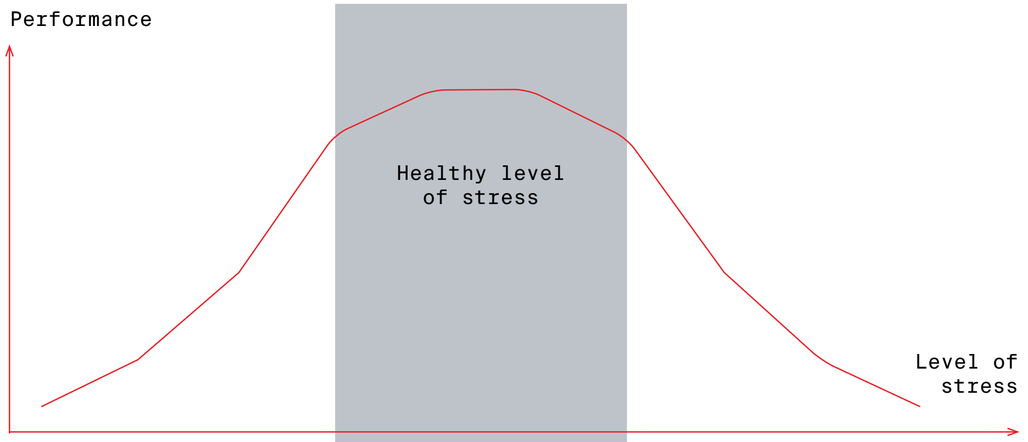


Levels of stress reported by full-time office workers in the USA



Source: selectsoftwarereviews.com 2024

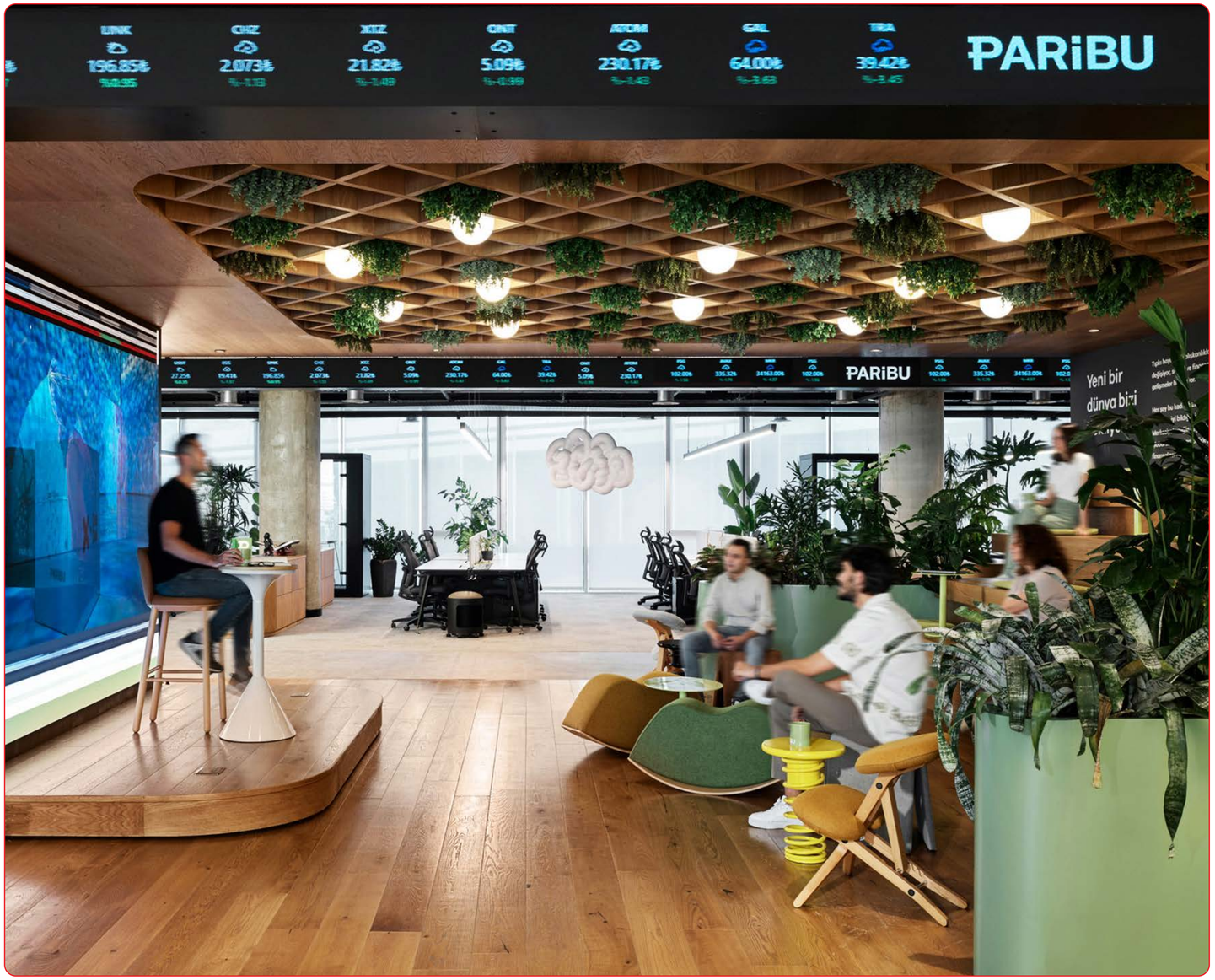
How stress affects employee performance

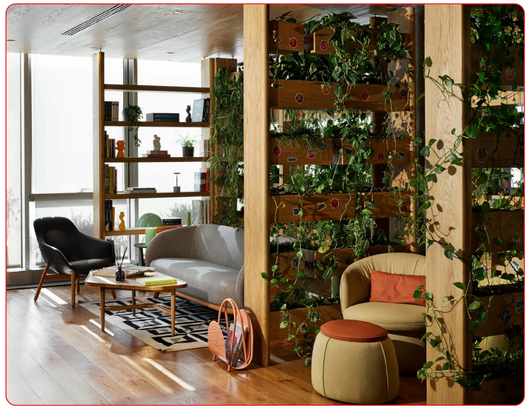


None	Moderate	Eustress (Optimal)	Distress (Toxic)	Burnout
Signs of Underperformance		**Signs of Peak Performance**		**Signs of Burnout**
Lack of motivation		Energized		Exhaustion
Unexplained absenteeism		High engagement		Absenteeism due to health
Boredom		High morale		Overly cynical, critical and impatient
Dissatisfaction (Poor morale)		High efficiency		Inconsistent productivity (Lack of focus)
Taking unnecessarily long to complete tasks		Innovation		Anxiety and disillusionment about work
Poor quality of work		High quality of work		Achieves goals, but does not celebrate them
Failure to set goals		Achieves and celebrates goals		

Source: selectsoftwarereviews.com 2024

BEST PRACTICES

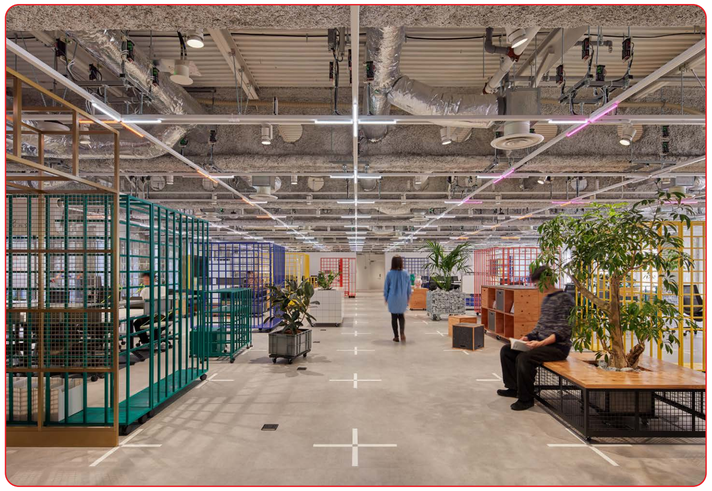


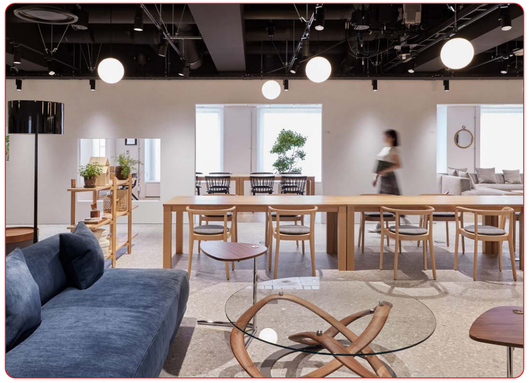


01 Paribu Headquarters

Paribu Headquarters, a tech & crypto-currency exchange, seamlessly blends technology and art in workplace design. Digital and contemporary art pieces transcend aesthetics, creating an immersive gallery atmosphere. This intentional integration elevates the office experience, turning it into a canvas for creativity. Paribu redefines workspaces, fostering an innovative and artistic environment.

BEST PRACTICES

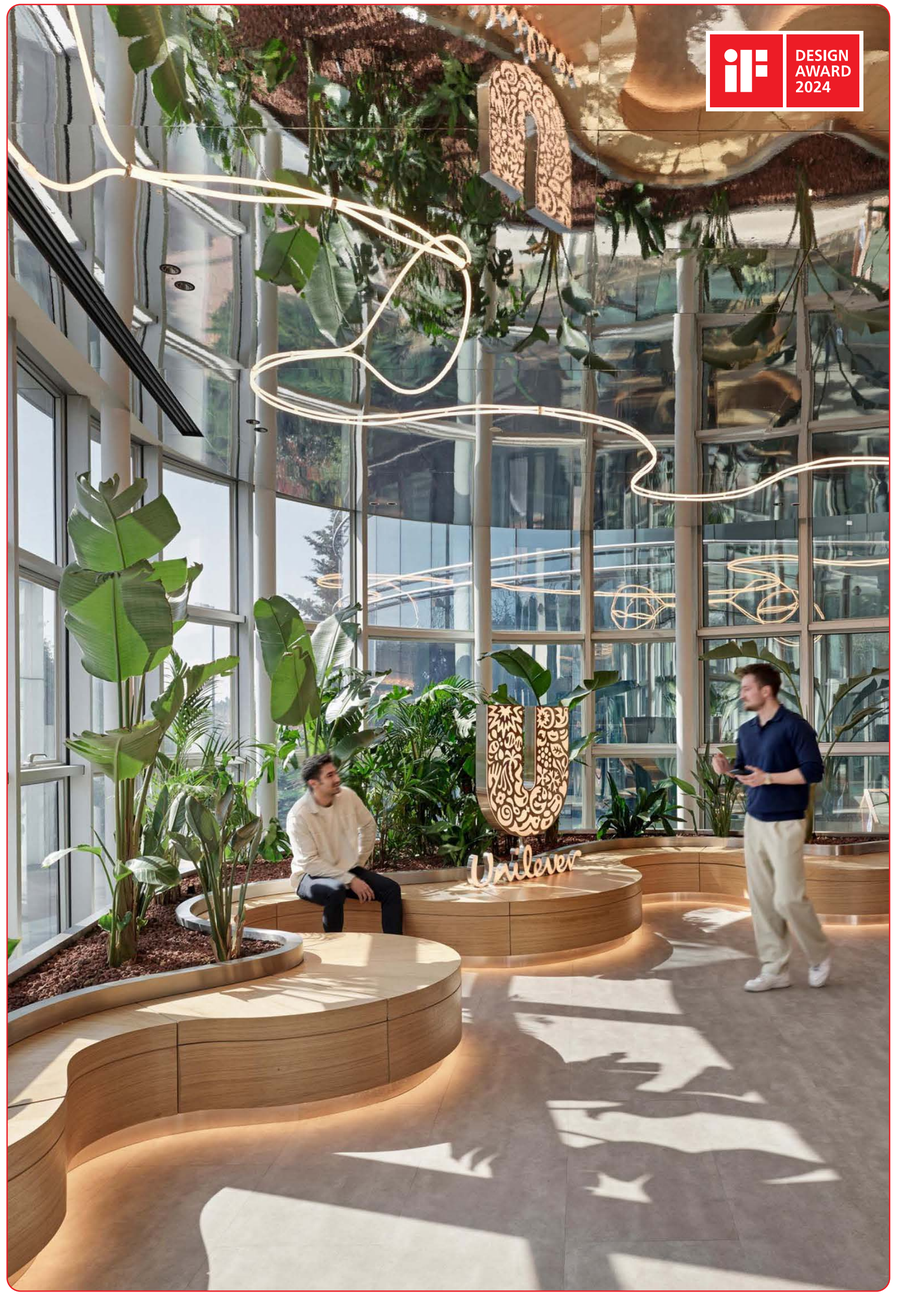




02 The Campus

THE CAMPUS—3 Workplace Floors and Hall CORE is a transformative project renovating a 40-year-old building. It reflects the evolving needs of hybrid work in the post-COVID-19 era and redefines how information is disseminated. Embodying KOKUYO's values of "empathy co-creation," "experience design" and "experimental culture," the project establishes an environment for employees to address social issues through creative challenges, presenting a forward-thinking workplace for the age of hybrid work.

BEST PRACTICES



03 Unilever Istanbul Office

The Unilever Istanbul Office stands out for its innovative design, addressing pandemic challenges and evolving workforce needs. Supporting hybrid work models, prioritizing inclusivity and incorporating sustainable and biophilic elements, the office enhances employee wellbeing. It fosters flexibility, collaboration and a sense of community, making it a comprehensive solution for the modern workplace.

Growing expectations for workplaces

It takes a comprehensive approach to improve working conditions, one in which employers, employees and society work together as a whole to create a healthier, supportive work environment.

A workplace that is beneficial to one's health is not only expected by employees as a given. Companies also recognize the positive influence of a **healthy workplace** on the satisfaction, motivation and productivity of workers. The trend is based on a holistic understanding of health that takes the mental and social wellbeing of employees into consideration.

New ways to divide spaces The office will become a workplace offering, boasting everything working from home cannot. Meeting rooms are equipped with creative tools such as collaborative whiteboards and tools for design thinking. There are also quiet areas to retreat to for work that requires heavy thinking, with soundproofing materials and daylight to foster focus.
Ergonomic office furniture and workplace solutions Ergonomic chairs, desks and furnishings help reduce physical strain and create a healthier workplace.
Apps to foster concentration A variety of apps, for example Forest App, build focus throughout the workday and reduce information overload.
Team training events Technological and societal developments require regular reskilling and upskilling of employees. A number of companies, such as scopeoffice, make this part of their corporate culture and establish formats for a regular exchange within the team about global developments and how to react to these as an individual.

Safe work environments

Safety is a basic human need. A workplace needs to be able to offer psychological safety. Studies show how important it is for employees to feel safe at their workplace—also for their productivity. Organizations that evaluate their level of psychological safety and then measure opportunities for improvement in teams and departments are able to create an environment in which employees identify more closely with the organization and are more productive.(McKinsey 2021) The design of the rooms plays an important role in this: Workplaces can minimize stress levels significantly and increase the quality of the time spent in the office greatly by having natural lighting, using soundproofing materials and providing sufficient spaces to retreat to or for social gathering.

The research conducted in the past years by Gartner, Gallup and the Harvard Business Review has shown that the benefits of increased psychological safety in the workplace can be summarized as follows:

27 % less employee fluctuation
76 % more dedication
50 % more productivity
74 % less stress
29 % greater life satisfaction
57 % of employees are more willing to collaborate
26 % greater availability of skills, as employees learn faster when they feel psychologically safe
67 % greater chance that employees will use a new skill in the workplace

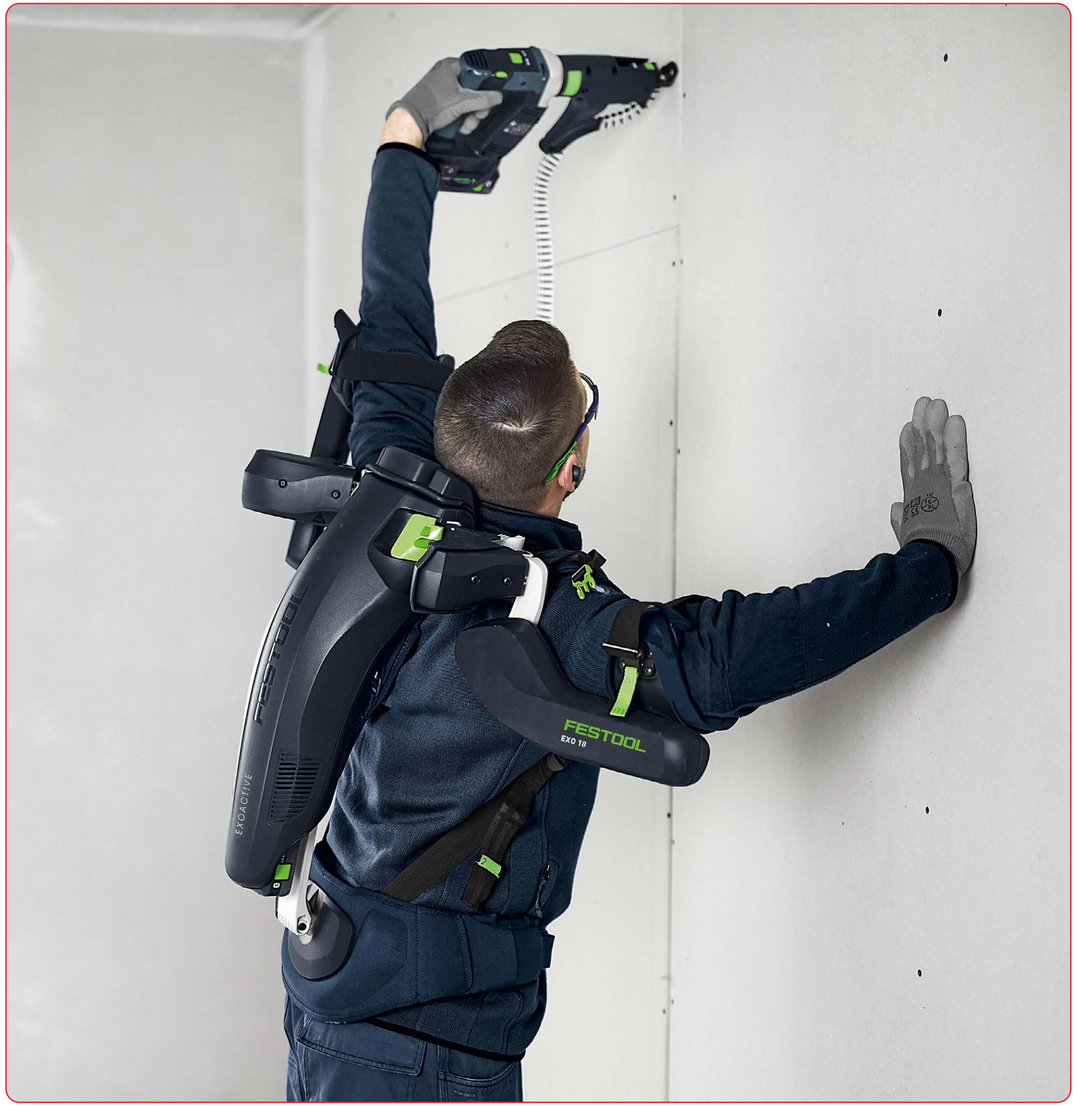
A safe atmosphere thus has a direct effect on the viability of the company.

Less strain and reduced risk of injury in the trades through technical innovations

There is also a very physical aspect of workplace safety. The trends of Human-Machine Teamplay and Healthy Work are linked closely together here: Smart tools promote workplace safety, especially in the manufacturing professions. Learn more about **AI in the trades**

The trades in particular benefit from the new technological developments: wireless devices, new tools for special cases such as hard-to-reach spaces, tools that are lightweight and very quiet make work more enjoyable and also prevent physical and mental strain.

Significant developments have also been made in the past years in the realm of exoskeletons. It is therefore foreseeable that professions that are connected to loading heavy weights in particular will experience significantly less physical strain in the medium term through these developments.



ExoActive Exoskeleton

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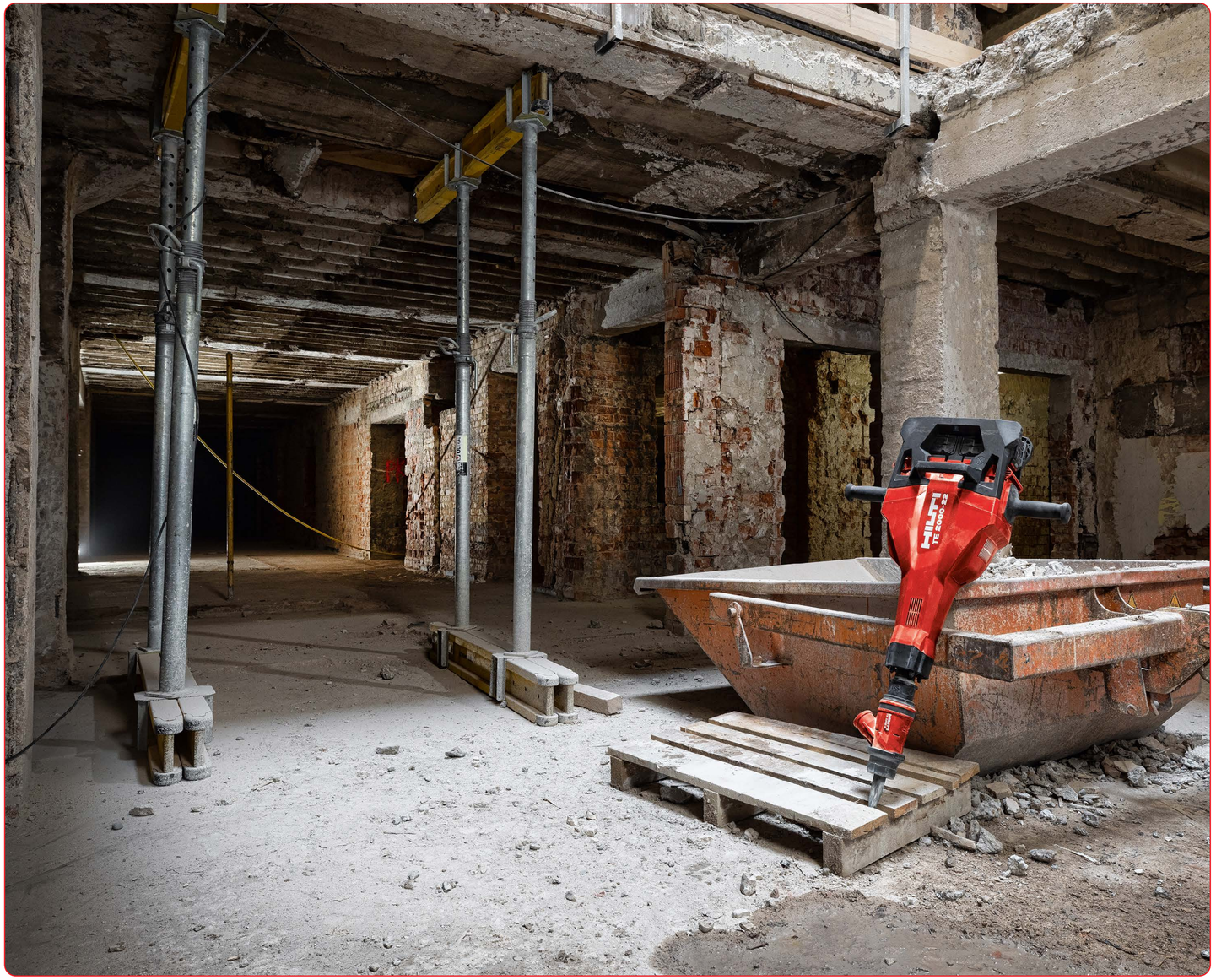


01 02

01 Cordless Jackhammer

The cordless jackhammer is driven by the advanced 22 V Nuron battery platform. The TE 2000-22 mirrors the demolition prowess of its corded counterpart, the TE 2000, without the inconvenience of power outlets or cord entanglements. Weighing up to 10 kg less and boasting a slimmer profile than similar battery-powered breakers, it enhances handling, tool control and mobility. Featuring Active Vibration Reduction (AVR) for reduced vibrations at 3.8 m/s^2, this tool is compatible with Dust Removal Systems (DRS), ensuring virtually dust-free operation.

02 High-performance Boot for industrial Use

Introducing an innovative professional boot in which form follows function. The optimization of material use reinforces crucial areas for protection while ensuring comfort and flexibility. The unique square-shaped shaft, along with integrated textures, adds a touch of sophistication, setting new standards in both safety and aesthetics in the heavy-duty work boot industry. This design is a subtle yet powerful statement of excellence.

BEST PRACTICES

03 04

03 Plunge-cut Saw with Scoring Function

Introducing Festool's TSV 60 K plunge-cut saw with scoring function for the perfect cut. Achieve splinter-free sawing on both sides from the first cut, enhanced by built-in KickbackStop for safety. Festool's system accessories ensure precision on the go, replicating workshop-quality results on construction sites akin to stationary machines.

04 ExoActive Exoskeleton

The Festool ExoActive exoskeleton addresses challenges in trades by reducing physical stress, especially in demanding overhead tasks. With aging workers at risk of early retirement due to strenuous occupations, Festool aims to enhance work comfort and attract younger individuals to the aging industry. The ExoActive mitigates physical toll and also strives to make the job more effortless and enjoyable, acknowledging the importance of a sustainable and appealing work environment in the trades.

What if... we could work without computer screens?

Working with computers is highly productive, but it ties us to our desks and can be the cause for too little physical activity in our daily lives as well as physical ailments such as tension, poor posture and pain. But numerous developments make it possible to reduce the dependence on a stationary screen. This makes a new, immersive work environment conceivable.

Numerous additional forms of interactions complement the **graphic display** of screens. **AI glasses**, voice controls, **screen projects** and **holograms** allow us to go “hands free.” In other areas, **tactile interfaces** are used to gather information using another sense and thus enabling even more complexity, or to operate devices without requiring the user to look at the screen continually.

Since the need for visualization options increases as the work becomes more complex, an immersive work environment is developing in place of a stationary monitor at a set workspace. This can be created using XR contact lenses or XR glasses, voice controls and hologram technology, giving employees more freedom to move around and enabling new forms of data visualization and processing.

The benefits of this, beyond the health aspects: Teamwork is made easier, as multiple people can look at the same issue from various perspectives; focus lasts longer because different input methods (sketches, voice, text, etc.) can be used.

The screen is a medium, but it doesn’t always mean sitting in front of a traditional display. It is essential to consider alternative forms of interaction and explore the human side of communication. That’s why we value a holistic design approach, embracing various forms of interaction and recognizing the importance of in-person communication.

Bern Donadeu
FOUNDER & DESIGN DIRECTOR, NACAR DESIGN AGENCY, SPAIN

Learn more about the development of voice interfaces in the chapter on **Human Digitality**

CONSCIOUS ECONOMY

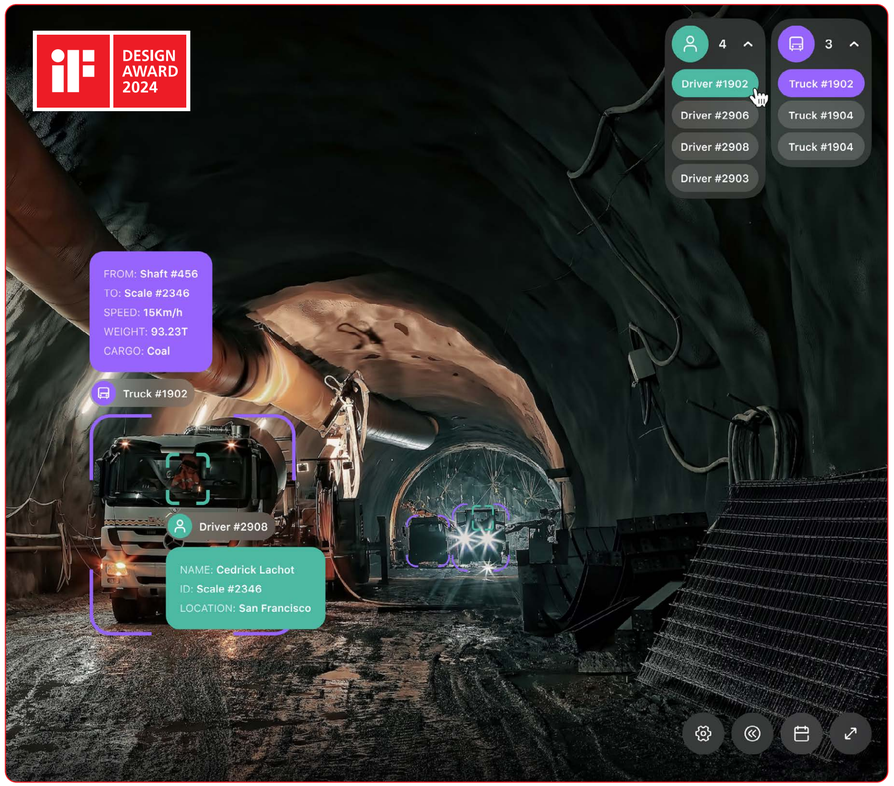
Traditional workstations consisting of components such as a desk, chair, storage space and monitor will become less relevant in the near future.

Especially in terms of innovation and creativity, the focus is shifting away from rigid desks toward flexible and modular spaces where exchange and interaction are encouraged, supported by analog and digital applications.

JOHN LAM

CO-FOUNDER, STATE OF CULTURE, GERMANY

BEST PRACTICES



01 02

01 Real-time eXtended Reality Multimedia

Nokia's RXRM transforms industrial collaboration with its integrated Extended Reality (XR) platform. Emphasizing a seamless user experience, it features an intuitive interface for interacting with 360° video, IoT content and 3D audio. This solution, blending UX/UI excellence with industry-tailored software and innovative hardware, offers a transformative approach to work.

02 Think Vision 3D Monitor

The Lenovo ThinkVision 27 3D monitor seamlessly integrates professional aesthetics with high performance. Offering a 4K image for 2D workflows and FHD 3D imaging, it ensures versatility. With discreetly positioned 3D cameras and front-facing speakers, the monitor maintains a clean appearance while capturing users' line of sight. The ergonomic stand provides flexibility for personalized workspaces. Designed for heavy 3D development and educational environments, this monitor combines style with functionality for industry applications.

CHALLENGES

Remote and hybrid work could mean more stress and the dissolution of the boundaries between working hours and free time. To ensure a healthy work environment, workspaces and working hours need to be reevaluated. There is a growing need for workshops and creative hubs, and attention is on maintaining a live work culture with regular in-person meetings.

Workplace safety is becoming the central task of employers: The design and equipment of workspaces plays a key role here. There are opportunities for designers in terms of the setting as well as the devices used for work.

Working with computers is highly productive, but it ties us to our desks and can be the cause for too little physical activity in our daily lives as well as physical ailments such as tension, poor posture and pain.

OPPORTUNITIES

Setting up workspaces with natural light, using sound-absorbing materials and providing sufficient spaces to retreat and work quietly as well as areas to exchange ideas can significantly reduce the stress level at work.

Technological developments make the use of mechanical tools less physically demanding: by getting rid of cords, reducing weight and noise output, devices are becoming safer and less taxing to use.

XR, hologram technology and voice interfaces make it possible to reduce the dependence on stationary screens. This makes a new, immersive work environment possible.

HUMAN DIGITALITY

HUMAN DIGITALITY

Digitalization is undergoing an evolution from disruptive euphoria to “tamed” human digitality. Artificial intelligence and the efforts to build a cyber-resilience form the pillars for a balanced use of the potentials of digital systems in a hyper-networked society.

EXECUTIVE SUMMARY

A new era of digitalization has begun:
The transformation to Human Digitality aims for a new approach to hyper-networked realities that places digital technologies in a new, human relationship.

The task for designers is to create new forms of interaction between humans and machines and a dialogue with AI Companions. This takes place above all through the increased use of voice interfaces, gesture controls and emotion recognition.

AI Companions can offer creative and emotional support and can be coaches and learning assistants by meeting users at their individual learning level. They are also used in service interfaces or by brands as part of their marketing strategy.

Recognizing the importance of Cyber Resilience, we acknowledge the vulnerability created by the interdependence of the real and digital worlds. Designers can enhance security by minimizing the collection and processing of critical data in applications.

A new era of digitalization

From digital saturation to human digitality: The redefinition of the network society

After decades of digital transformation, digital technologies have taken hold in numerous areas of our lives, and the fundamental dynamics of networking are becoming established globally. The communicative complexity that has been unfurled has created enormous benefits for connection—while also creating new insecurities and security concerns. It is becoming clearer, what this new emerging networked society is fundamentally lacking: a balanced relationship to the digital revolution.

The transformation to human digitality aims for a new approach to hyper-networked realities that places digital technologies in a new, human relationship. The next step of digitalization is a cultivation of the communicative complexity that is unfurled by digitalization.
A human approach to digitality is based above all on a new understanding of Digital Literacy. Already now, digital competency comprises far more than the ability to use digital technologies. The heart of it lies more on a responsible and empowering approach to the real-digital world.
Especially with the use of artificial intelligence, it is becoming increasingly essential to combine technological skills with human problem-solving skills. Digital literacy therefore also means digital emancipation and empowerment.

Learning new “post-digital” cultural and social techniques strengthens human self-efficacy and media literacy—and it requires designers to create new forms of interaction between humans and machines. Novel skills and cultural techniques allow users to put the ever-present digitality to use confidently—and put it in a new position as humans’ constant companion.

Digital literacy
A contemporary understanding of digital literacy comprises far more than just technological skills: The core of it is a confident, responsible approach to digitality. Emancipation and empowerment play a key role here, especially in the context of artificial intelligence. Digital literacy thus also reflects the fundamental repositioning of digitality as a constant companion.

The future of AI: From device to equal-level AI partners

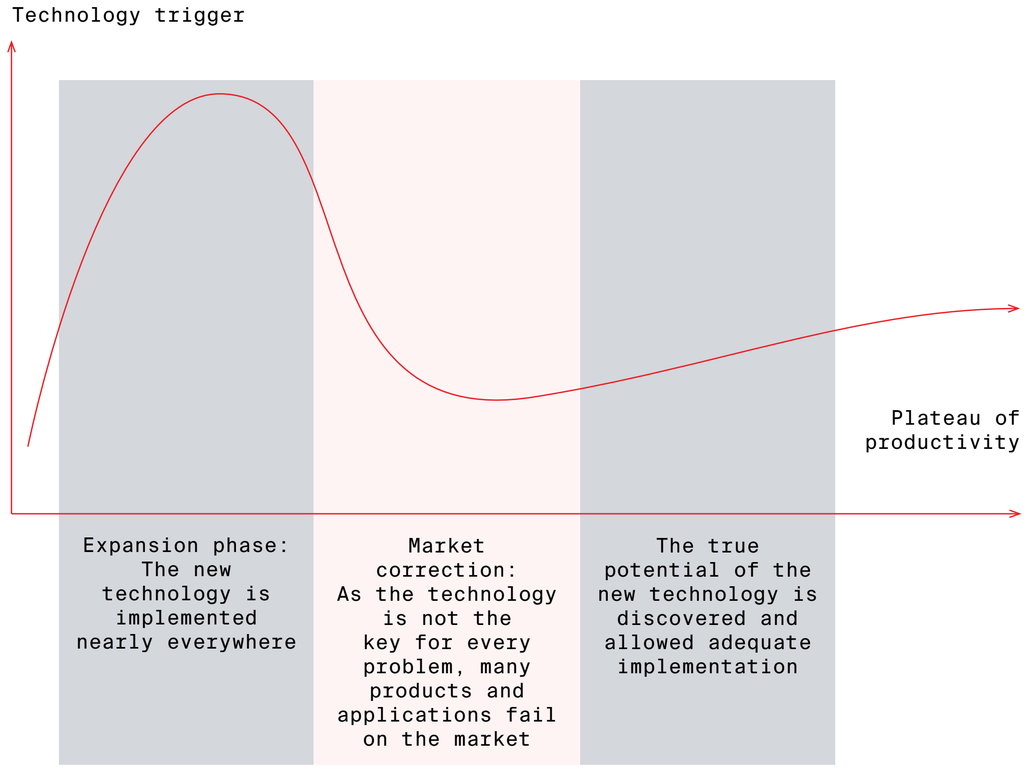
More than a year has passed since the introduction of ChatGPT on November 30, 2022, yet the ripple effects of disruption surrounding artificial intelligence have certainly not smoothed out again. Quite the opposite: Multitudes of tools and applications are being developed at a breath-taking speed.

Alongside the major AI players, numerous smaller start-ups have established themselves in the market with niche applications, and more and more tools are integrating previously developed AI, expanding their scope of application.

As artificial intelligence matures, perception and data interpretation of products are becoming complex enough for the first time, with the result that machines are able to function as equal-level interaction partners. In the future, we won't use devices anymore, but will instead communicate with **AI Companions**. The specific effects that this development will have on our relationship with devices remains to be seen. We are, after all, currently in a phase of expansion in which the potentials of innovation are still being explored. One development is already evident: Our dialogue with these products, which are becoming more and more similar to us in their functionality, is changing our expectations and habits in using them. Technical devices are more than just functional instruments. Instead, we are starting to view them as cooperation partners that understand our intentions and react to these.

This will make completely new, intuitive forms of interaction with products possible in the near future—interaction that feels more like a conversation on equal footing than operating a device.

Hype cycle



Conscious Economy In this chapter, we examine the changes in communication with products that were created for private use. An analysis of the interaction with AI in work tools can be found in the chapter on Conscious Economy.

HUMAN DIGITALITY

The integration of AI into our creation signifies a profound shift, transforming products from static objects into dynamic elements that actively enrich everyday experiences.

This evolution emphasizes personalization, fostering emotionally resonant relationships. Balancing the potential of AI to elevate user experiences with ethical considerations is crucial in order to shape a future where design, powered by AI, is not only innovative and intuitive but also responsible and human-centric.

SHIKUAN CHEN

SENIOR VICE PRESIDENT, COMPAL ELECTRONICS, TAIWAN

AI is transforming interactions

Finding a fine balance between human appearance and tech interface

Artificial intelligence is often connected with human aspects, especially through the conversation-like interactions. This “humanness” can be used in a targeted manner to create an emotional response and build a long-term connection to the technology. Especially if the interaction with the tech is intended to appeal to the emotions or create a connection to a brand, then it helps to have a human face. But the new design options also present challenges: How will designers address the matter of projecting stereotypes? Can these be reduced by the design, or does the design perpetuate these—for example if the assistance system has the face of a beautiful, demure woman?

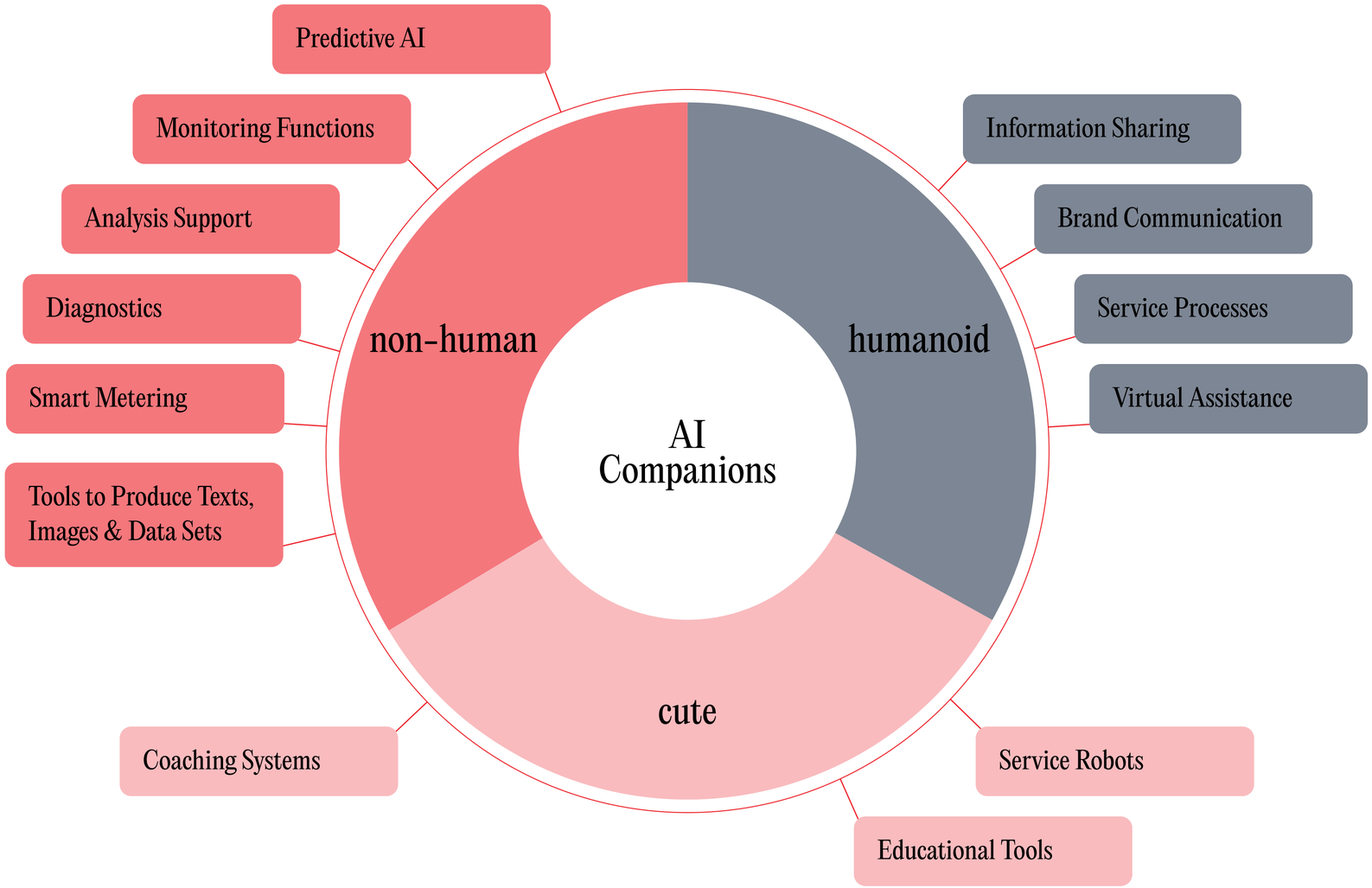
Three general design strategies for AI assistants can be observed:

- *The interface is humanoid* A human face gives an AI a personal appearance, showing directly how the assistance system can be used: The interaction becomes an intuitive conversation that doesn’t require any adjustments from the user.

- *The interface is cute* Using a stylized child-like design is particularly popular with robots or assistance systems with limited capabilities. Cuteness conveys a sense of trustability—and it makes it easier for users to deal with the limits of the AI’s capabilities or its technological limitations.

- *The interface is technoid* Especially in instances where the machine data processing varies greatly from the human interpretation or if the AI serves a monitoring function, a technoid appearance is often utilized. An overly humanoid interface could lead users to misinterpret the power of judgement of the AI, causing a loss of trust in the technology and thus also the institutions that use it.

AI is transforming interactions



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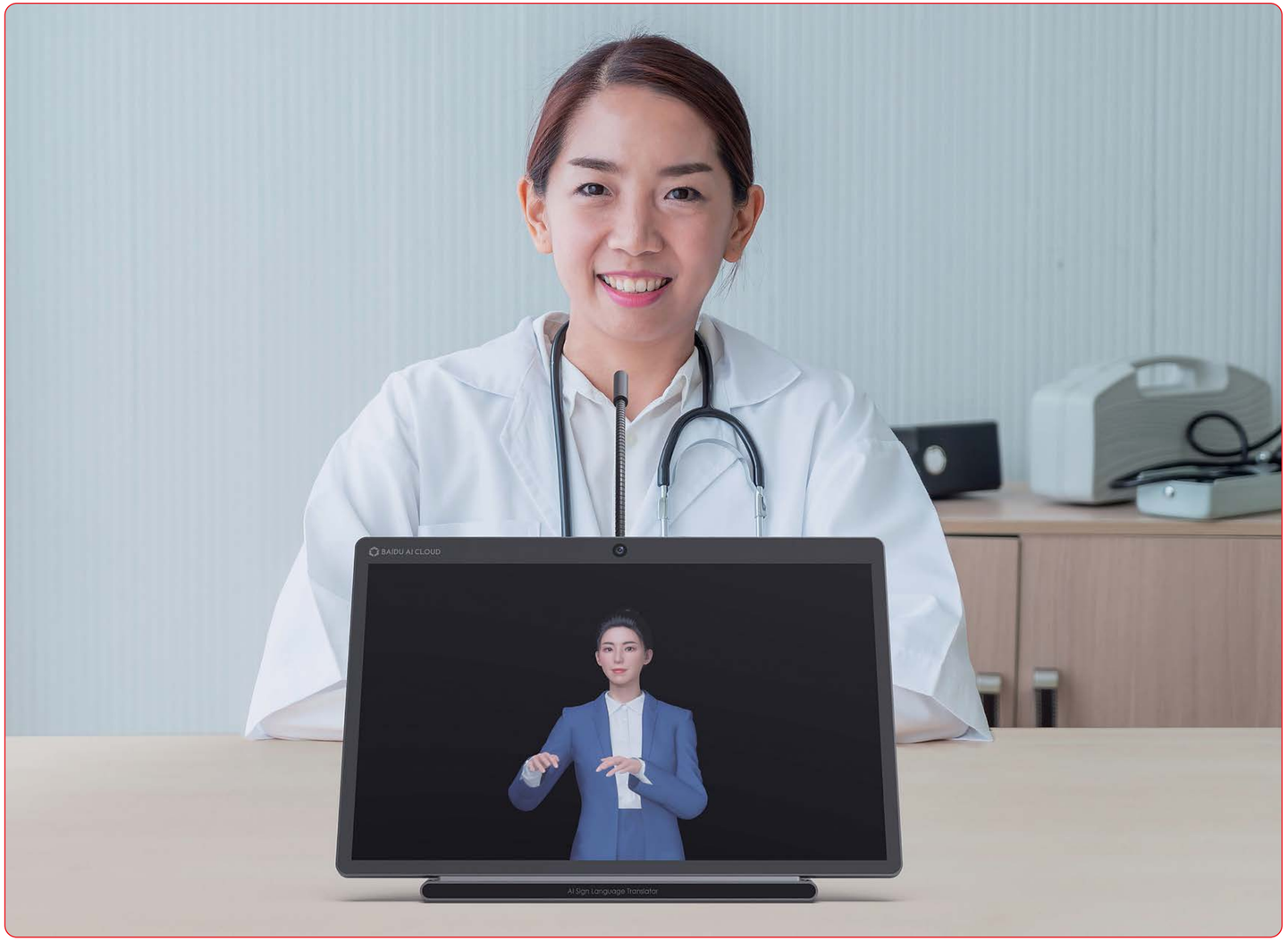

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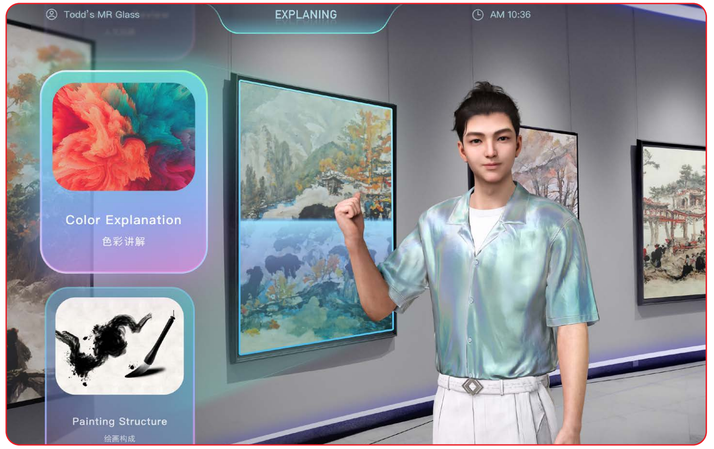


01 Sign Language Translation

The Xiling AI sign language platform delivers digital human sign language translation for the hearing impaired on-line and offline. Online, it synthesizes sign language in videos and live broad-casts, translating text and speech.
In offline scenarios, the All-in-one Sign Language Interpreter facilitates equal information access for the hearing impaired in public service places, eliminating communication barriers.
A transformative solution for inclusive communication.

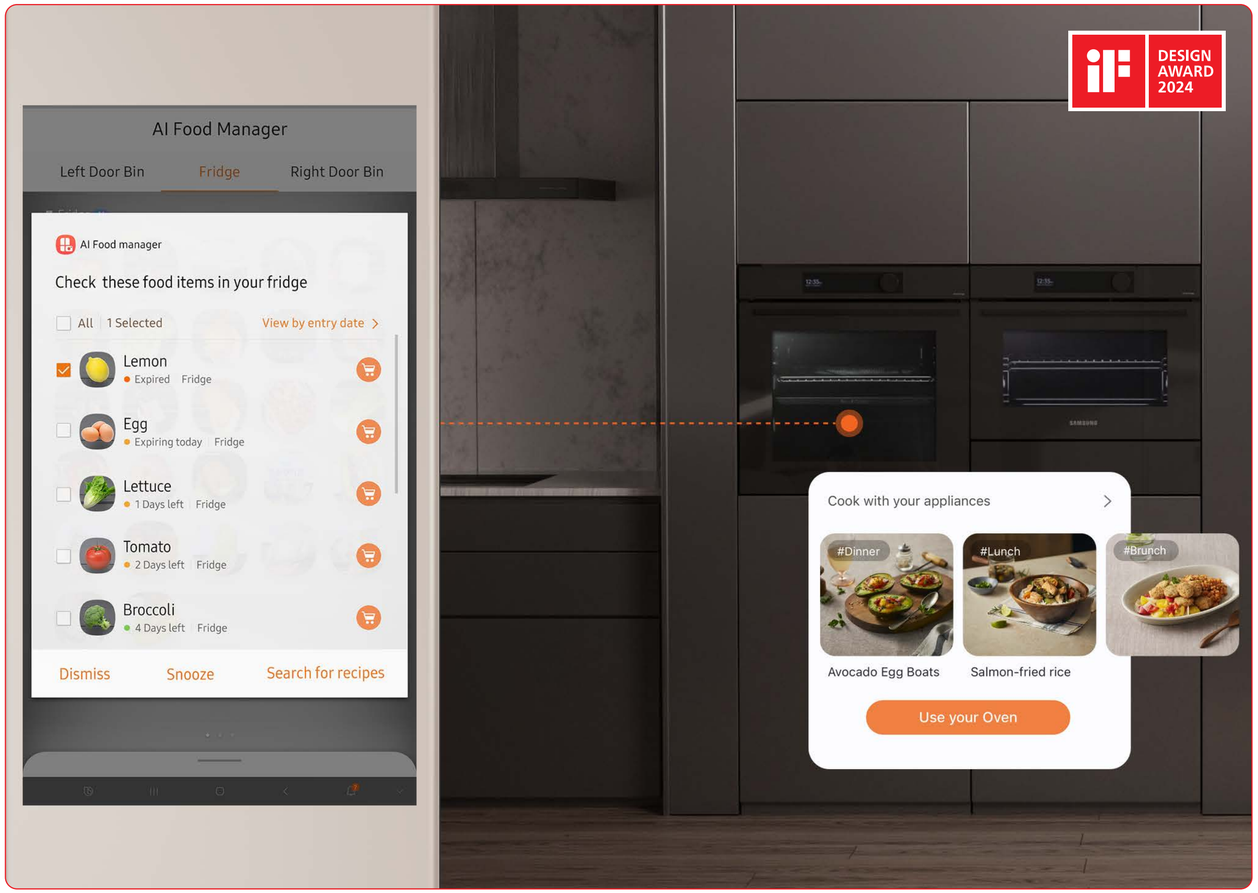
02 Virtual Human Interaction

Introducing Mixed Reality Intelligent User Experience—a novel MR aesthetic creation mode using Baidu AI to guide teenagers in enhancing aesthetic awareness and creative abilities.
The Virtual Human employs an intelli-gent communication mode that eliminates virtual experience distance, aiding teenagers in aesthetic under-standing. Collaborating with AIGC-generated space, the Virtual Human fosters co-creation, elevating teenagers' creative abilities and imagination.

03 Skin & Hair Care Coach

Femooi's devices and cosmetics in combination with the WeChat applica-tion deliver a complete personalized user experience to help users with their skincare and haircare needs. Features like AI skin tests, question-naires and 1-to-1 consultations create tailored treatment plans for individual skin and hair concerns. Interactive tutorials and a 3D avatar guide users for optimal results.

BEST PRACTICES



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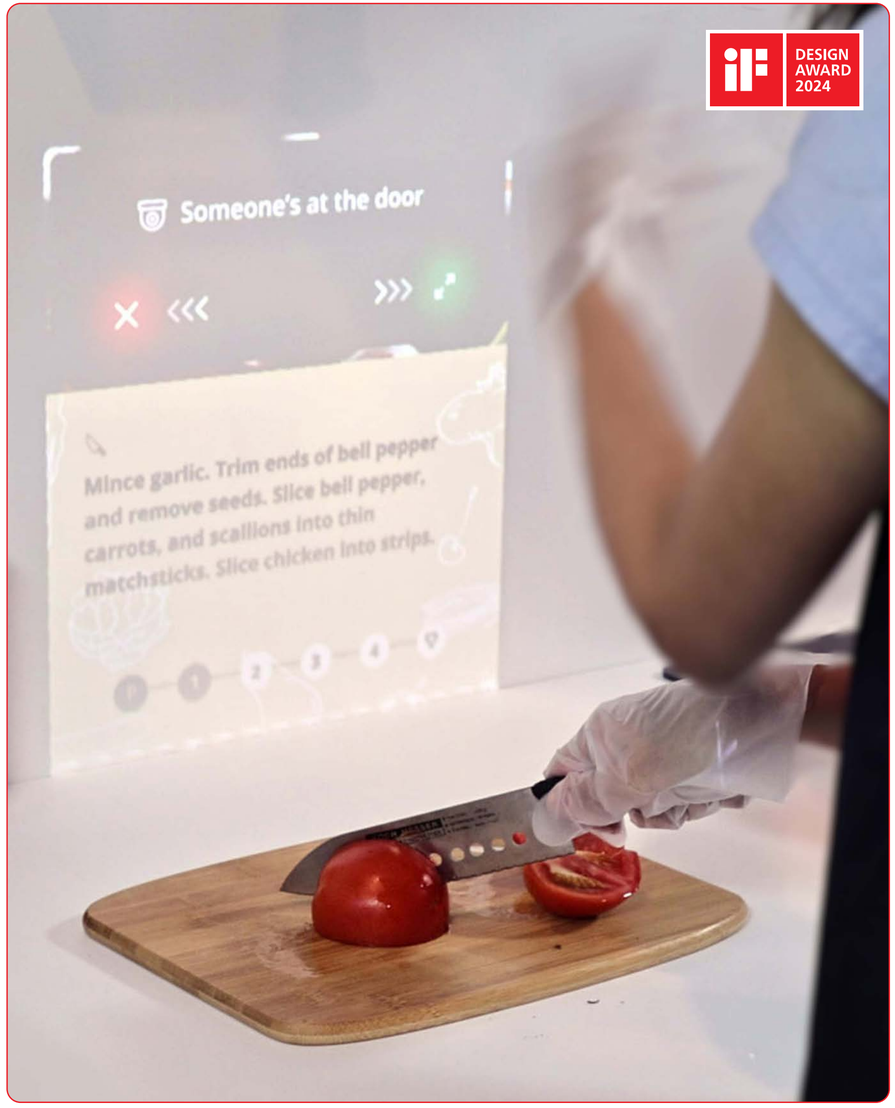


04 AI Food Manager

Introducing the AI Food Manager on Family Hub, utilizing an AI camera for automatic inventory generation and expiration date tracking. AI Vision recommends recipes based on available items, sending cooking instructions to connected appliances for an automated cooking experience. The system integrates with SmartThings cooking Services, allowing real-time inventory checks and e-shopping. A seamless and convenient kitchen experience that enhances efficiency and user convenience.

05 Smart Kitchen UX

Experience the Smart Kitchen UX, a central hub connecting IoT devices for remote home appliance control. It streamlines kitchen tasks by linking to outdoor cameras, tracking fridge inventory and utilizing Smart Seasoning Jar. Unlike traditional recipes, AI recognizes ingredients, offering nutritional info and allergy warnings for a seamless cooking process. The interactive design facilitates a conversational guidance, intuitively engaging users and fostering connections in the cooking journey.

From thin to broad: Artificial intelligence makes new interface designs possible

Artificial intelligence is changing **human-machine interactions** fundamentally. Text-To-Everything—that is, prompting AI through commands—is bringing language more and more to the forefront, while interactions using graphic interfaces are becoming less important.

Since AI increasingly understands the context of the statement, the information or the command, it is no longer necessary for users to adapt to strict structures for interaction with the system.

At the same time, devices gain a greater understanding of the emotional and cognitive processes of the individual using them and can adapt to their thought processes and patterns of activity. The “thin interface” that is intended to protect the computer from the complexity of the human is becoming a “broad interface” that is capable of handling this complexity factually at least to some extent. (Simon 1968, Häußling 2010)

At the same time, though, the opposite effect is also emerging: More and more people are starting to understand how certain algorithms work and use this in how they interact with them: **Algorithmic Adaption** can be seen especially in social media, where profile-based feedback creates a new “post-authentic” form of identity building. Individuals as well as artists and brands are learning how to use the logic of the algorithms to stay visible in digital spheres.

This mutual understanding ensures that **AI Companions** are quickly becoming increasingly important in numerous industries. The potentials of human and machine intelligence complement each other in a productive way to utilize all potentials to their fullest in an ideal case.

Riding the wave of AI and understanding and using the tools is a craft in itself. But every existing tool can also be enhanced by AI.

Thomas Paulen
FORMER CEO, VANBERLO, NETHERLANDS

HUMAN DIGITALITY

The coming decade will be defined by this wave of powerful, fast-proliferating new technologies.

Driven by overwhelming strategic and commercial incentives, these tools will help address our global challenges and create vast wealth — but also upheaval on a once unimaginable scale.

MUSTAFA SULEYMAN
CO-FOUNDER, INFLECTION AI, USA

AI Companions

Digital assistance systems are becoming more human. Interfaces are getting faces.

AI Companions are shaping a new form of productive, creative and close human-machine relationships. AI assistants don't just help with daily tasks—they can also provide creative inspiration and emotional support. Their scope of application already spans far beyond service interfaces. The more human-like these **Virtual Humans** become, the bigger their scope of application becomes: from personal coaching for individuals to virtual brand ambassadors for major corporations. According to Emergen Research, the global market for Virtual Humans is estimated to grow from 10 billion dollars in 2020 to roughly 530 billion dollars in 2030. For designers, this brings a completely new field to the forefront: designing human-like faces and the artificial identities that go with them.

But these design opportunities also present new challenges: In addition to how stereotypes are handled, the question also arises of how the capabilities of the AI can be conveyed through the design. What can AI do—and what can it not do? This question becomes even more important when the questions being asked involve health matters or people's wellbeing.

An option would be for the AI to always recommend contacting a specialist when the limits of its capabilities have been reached, or to refuse certain prompts—this is already the case for image generation software. Adobe Firefly, for example, does not accept any requests containing the prompt "without clothing."

Digital human avatar market

Product type dynamics

Source: emergenresearch.com

AI Companions

AI Companions are shaping a new form of productive, creative and close human-machine relationships. By helping with daily tasks as well as providing creative inspiration and emotional support, AI assistants also influence human togetherness. Their development therefore also brings the matters of ethics, transparency and privacy to the foreground.

BEST PRACTICES

01 MetaStudio

MetaStudio by HUAWEI CLOUD streamlines virtual human production to application, boosting user productivity and creativity. Prioritizing “AI for good,” it provides service channels for individuals with disabilities.
The platform facilitates communication, digital asset trade and tool exchange, empowering diverse industries. MetaStudio encourages users to be creators, fostering collaboration and contributing to the development of a robust 3D content creation platform.

02 Sign Language Avatar

The Sign Language Avatar is the first TV guide UX avatar designed for the hard of hearing. This friendly character guides users with sign language instructions on-screen, aiding comprehension of features and menus, especially when titles lack description. Clear facial expressions and hand movements enhance sign language understanding, paralleling accurate pronunciation in spoken language. Leveraging motion capture technology ensures precise representation of facial expressions and sign language movements, fostering a more inclusive and accessible TV experience.

01 02

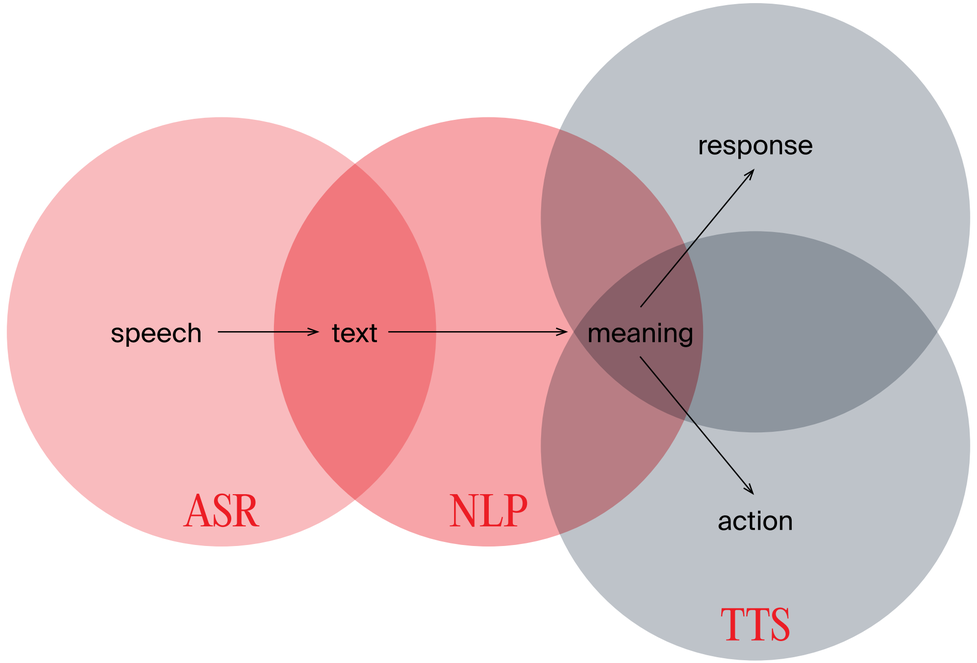
AI Companions and chatbots as a future prospect in everyday life

A core element of AI Companions are **chatbots**. These programs are able to simulate and process human conversation, both written and spoken. Chatbots allow users to communicate with a technical system like they would with a real person.

The technological advances of the artificial intelligence on which this is based have made effective speech recognition possible. It is based on the interplay of four core technologies:

- *Automated Speech Recognition (ASR):* a speech prompt is transformed into text
- *Natural Language Processing (NLP):* individual text fragments are assigned a meaning
- *Dialog Manager (DM):* the required steps for answering a request are determined and carried out
- *Text-to-Speech (TTS):* a response to the request is provided as text or speech

A chatbot system that is able to access comprehensive data pools and solve complex requests from the user in a dialog is a **Digital Assistant**. Digital Assistants are able to respond to complex requests, which might require them to access numerous data pools—something a regular chatbot is not able to do. Digital assistant systems that can help with selecting product packages or navigating a service system have been around for years. These application-specific systems already have the ability to filter queries out of freely spoken input and can even recognize the countenance of the user and react to this.



AI Companions give consumer electronics a voice

We engage in conversation with digital devices: **Voice Interfaces** are becoming more relevant as a result, partially complemented by **emotion recognition** and **gesture controls**.

Virtual assistance systems have taken hold in the majority of smart consumer electronics. In the USA alone, more than 110 million people use virtual assistants. According to estimates, the number of devices that have an integrated voice assistant will far exceed the number of people worldwide in 2024 (Juniper 2020). The number will have more than doubled in five years, from 3.2 billion to 8.4 billion.
Powerful modern processors are able to process statistical models of artificial intelligence, making advanced analytics with large amounts of structured data possible. The use of voice assistants is also on the rise as more languages become available and as metadata can be used more intensively in context. The result is a nearly natural interaction with machines and accelerates processing in devices with voice controls exponentially. (Deloitte 2018)

The most popular voice assistants now are:

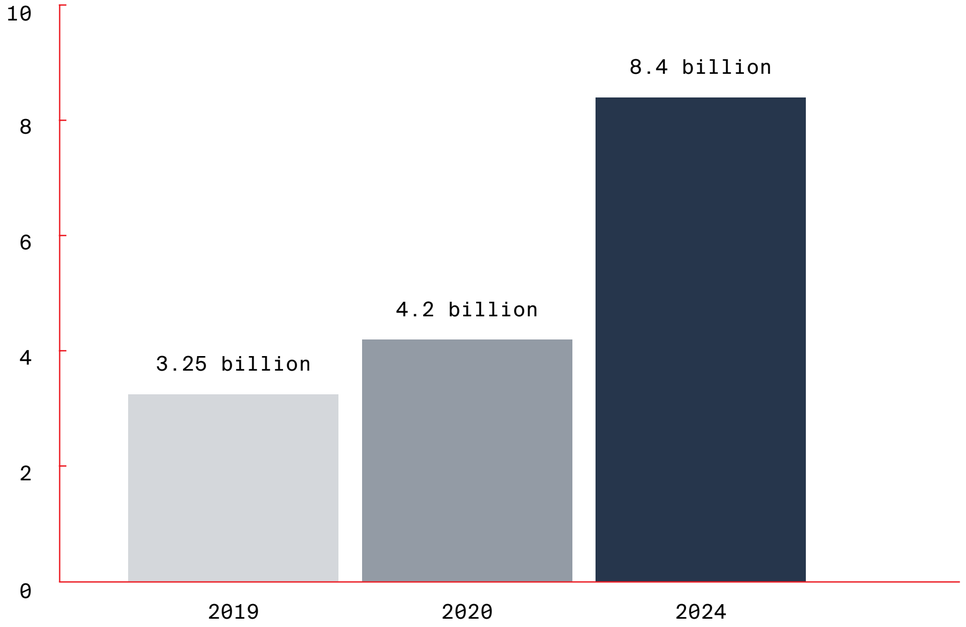
- *Amazon Alexa*
- *Apple Siri*
- *Google Assistant*
- *Microsoft Cortana*
- *Samsung Bixby*

Google has integrated the AI chatbot Bard into its Google Assistant and has equipped it with new features such as the ability to find important emails, to send messages, to assist with trip planning and creating social media posts. Amazon also announced in September 2023 that it would expand its voice assistant Alexa to include generative AI skills. This will enable Alexa to understand phrases better, to interpret context and to be able to execute numerous queries at the same time.

Amazon's Alexa has an open license: Because of this, many other hardware manufacturers are able to use the cloud-based service or can make their devices controlled via Alexa. For example, Alexa can be used to control Miele appliances or to pass on requests to these (Miele). A similar strategy is used by Google, whose Assistant has also been integrated by numerous external manufacturers. Unlike Amazon Alexa, Google can also be integrated into external software in languages other than English. Apple Siri is exclusively integrated into its proprietary hardware—also because Siri's voice analysis is carried out locally only, meaning that the recorded conversations do not need to be saved anywhere if they are not relevant. This increases data security for users. Another unique characteristic of Apple Siri is the wide range of languages and the high level of individualization possible in the system.

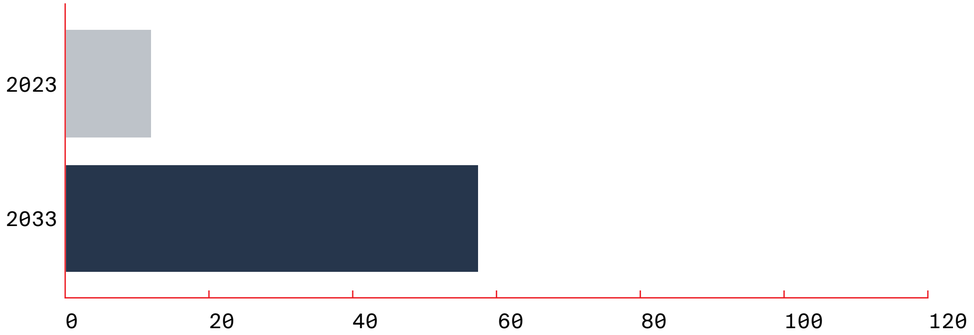
AI Companions give consumer electronics a voice

Worldwide use of voice assistants



Source: statista.com

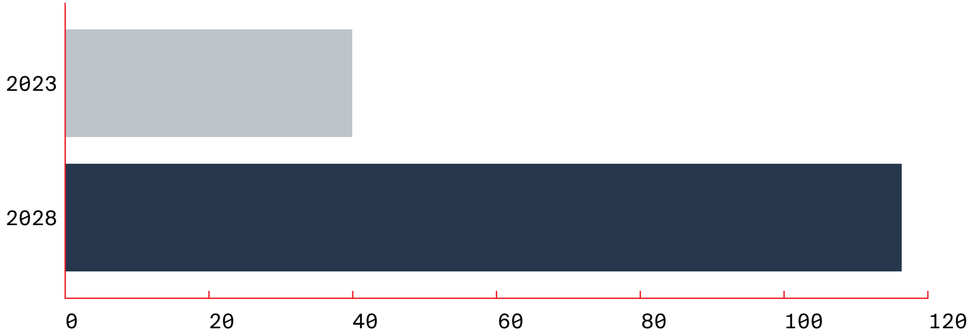
Gesture control market



The global gesture control market garnered a market value of USD 11.8 billion in 2023 and is expected to accumulate a market value of USD 57.4 billion by registering a CAGR of 17.1% from 2023 to 2033

Source: futuremarketinsights.com 2023

Emotion recognition market



The market for emotion detection and recognition (EDR) was estimated in the previous year to be USD 40.1 billion and will grow with a CAGR of 19.49%, reaching USD 116.7 billion in the next five years.

Source: mordorintelligence.com 2023

Ongoing development of voice assistant systems

Until now, voice assistants have been used especially as a way to give a machine commands without having to operate the interface manually. They use the advantage that interacting via voice controls is often more dynamic and less static. In a survey, only 10 percent of respondents said that they like talking to an assistant system as much as they like talking to a person.

However, voice assistants do not yet have the capabilities for dialogue that text-based AI has had since the release of GPT at the end of 2022. Especially if the AI Companions are able to interpret gestures and emotions in addition to voice recognition, it becomes possible to carry out an intuitive dialogue in which even subtle messages can be interpreted by the machine. It is therefore certainly plausible that virtual assistance systems will become actual conversation partners—which will also lead to an emotional bond to the device.

The trend toward voice interfaces, emotion recognition and gesture controls can be observed in these industries and product groups in particular:

- *Cobots*
- *Service assistants*
- *Automotive interiors*
- *Smart home solutions*
- *Educational tools*

Voice-controlled assistance systems are used widely in automobiles and are constantly improving. **Tesla**, for example, added a voice command feature with software version 2019.40.50 that makes the vehicle able to process natural language. This update allows it to carry out more complicated voice commands, including commands such as: “Set the temperature to 21 degrees,” “turn on the passenger seat heating” or “show the back-up camera.”

Mercedes-Benz is also improving its voice control system by integrating ChatGPT, increasing the intuitiveness of the MBUX Voice Assistant’s “Hey Mercedes” feature. This partnership with Microsoft uses the Azure OpenAI Service to combine the natural dialogue format of ChatGPT with the verified data of the MBUX Voice Assistant. Users are now able to engage in more complex speech interactions, from directions to more complex queries, while keeping their focus on the road. Ensuring data protection is the highest priority for Mercedes-Benz. The company ensures control through IT processes and protects customer data through anonymization and analysis in the Mercedes-Benz Intelligent Cloud in cooperation with Microsoft Azure to ensure security and reliability.

Voice control systems are an important driver in the development of a screen-free future. You can find more information on this in the **Conscious Economy** chapter.

AI Companions as learning companions and coaches

Especially in an educational setting, artificial intelligence is often seen as a challenge or even an obstacle, a tool that makes it possible to produce a perfect result without work or effort, a tool that is a gateway for cheating in exams and can also be highly demotivating. After all, part of the learning process includes making many mistakes, and the tasks are daunting and difficult to solve at first. Critics are therefore concerned that AI will hinder the learning process for children and adolescents in particular. The critique applies especially in settings where the educational format is results-oriented, where mistakes are sanctioned and the result is what matters, not the process.
An alternative mindset is not only more likely to lead to success, but it also leaves room for a promising cooperation with artificial intelligence. If the learning process honors the effort that was put in and measures the individual success, then AI can actually be a valuable aid here.

Users can be met at their individual level of knowledge and can learn intuitively at their own speed. The humanoid interface and cooperative interaction with the AI also allow them to build a personal relationship with the coaching program, laying the foundation for long-term commitment.

Chun-Wie Sean Su, Head of Design Asia Pacific at Logitech, reflects on the changing relationship between humans and machines as artificial intelligence gains greater importance:

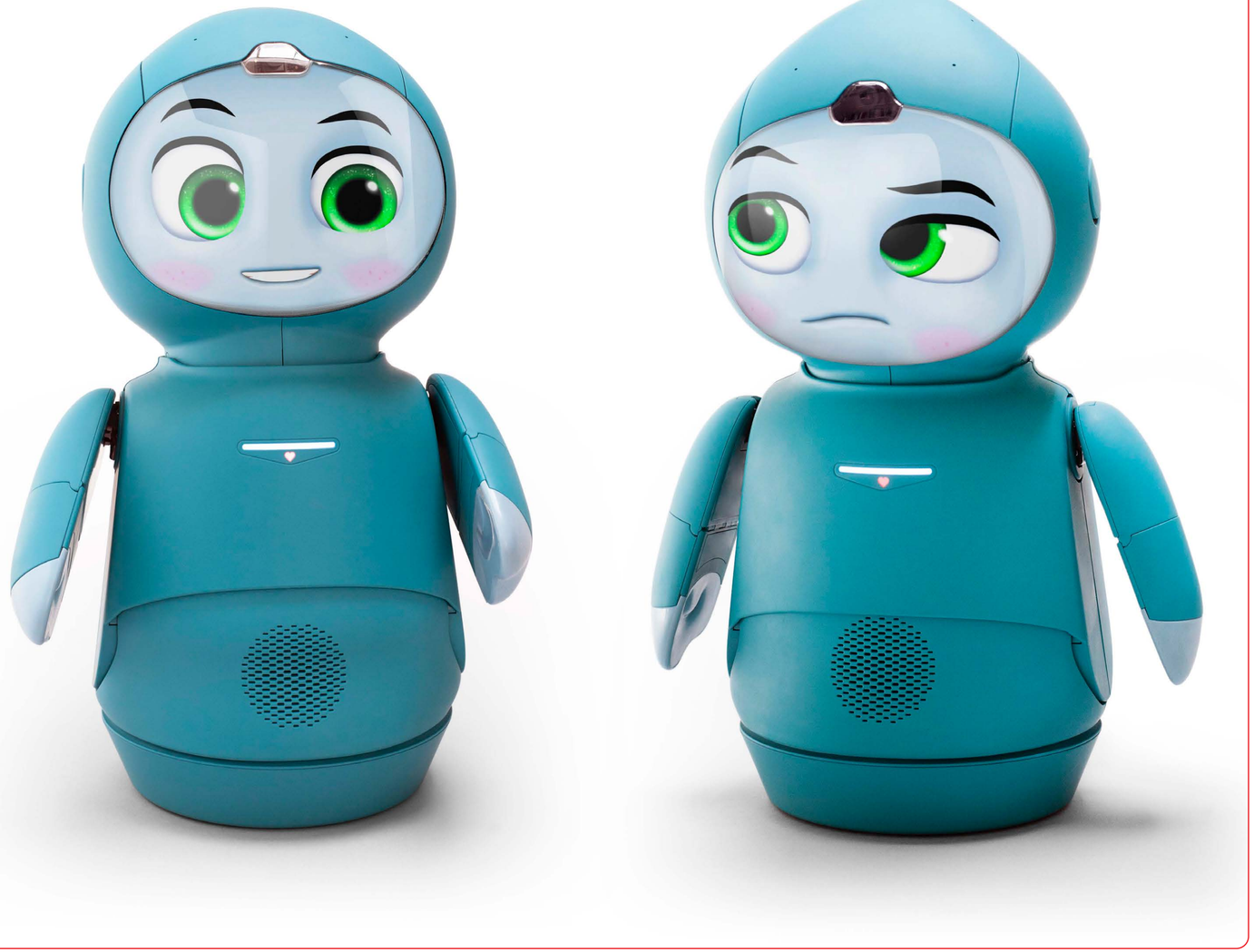
In a 1935 essay, Walter Benjamin, a critical theorist, criticized the mass production of artwork as detached and lacking meaning. Amidst his critique, Benjamin acknowledged photography's value, surpassing lithography as the primary medium for capturing the world. Photography, he noted, freed the hand's artistic functions, shifting them to the eye through a lens. Artists were liberated from manual constraints, guided solely by their vision.

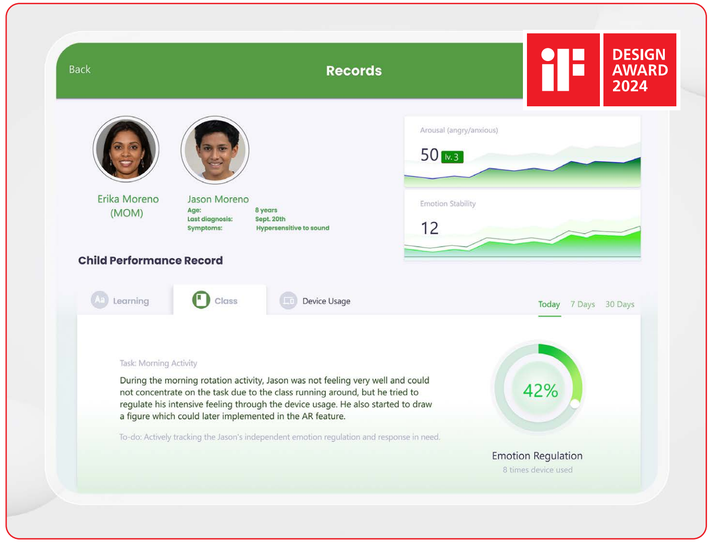
The rise of computer-aided design (CAD) marked a milestone for industrial designers, offering precision and speed in three-dimensional design. However, it raised concerns among those reliant on drafting skills. Similar worries arose among graphic designers transitioning from physical to digital design. They feared detachment from human touch and professional obsolescence. History, however, shows their fears did not manifest as expected.

Reflecting on the past reminds us of creatives adapting to change. AI presents a distinct change, and just as creativity thrived with past advancements, we should maintain curiosity and analytical approaches in shaping the evolving human-machine relationship.

Find out more about how AI coaching systems will impact the generation of **AI natives**.

BEST PRACTICES





01 AI-Enabled Robot

Moxie, the AI-enabled robot by fuse-project and Embodied, Inc., redefines the role of a smart companion in health and wellness. Tailored for children across the ability spectrum, Moxie facilitates play-based learning, fostering social, emotional and cognitive skills. Designed to support neurotypical and neurodivergent children alike, Moxie introduces a revolutionary approach to developmental support through engaging content and everyday interactions.

02 ASD Kids Education

A-System, a solution for Autism Spectrum Disorder (ASD), employs AI, machine learning and neural networks to develop a comprehensive algorithm system. Utilizing large pretrained models and neuroimaging technology, it identifies biomarkers related to neurodevelopmental disorders, enhancing clinical diagnostic accuracy. This progressive approach contributes to early intervention for more effective ASD treatment.

01 02

BEST PRACTICES

03 Educational Robotics Kit

UGOT, a modular AI educational robot kit, streamlines construction with a tool-free, knob lock design, saving 90% of the build time. Open AI algorithms and versatile modules offer an engaging platform, evolving with technology for a dynamic AI education.

AI Companions in service interfaces

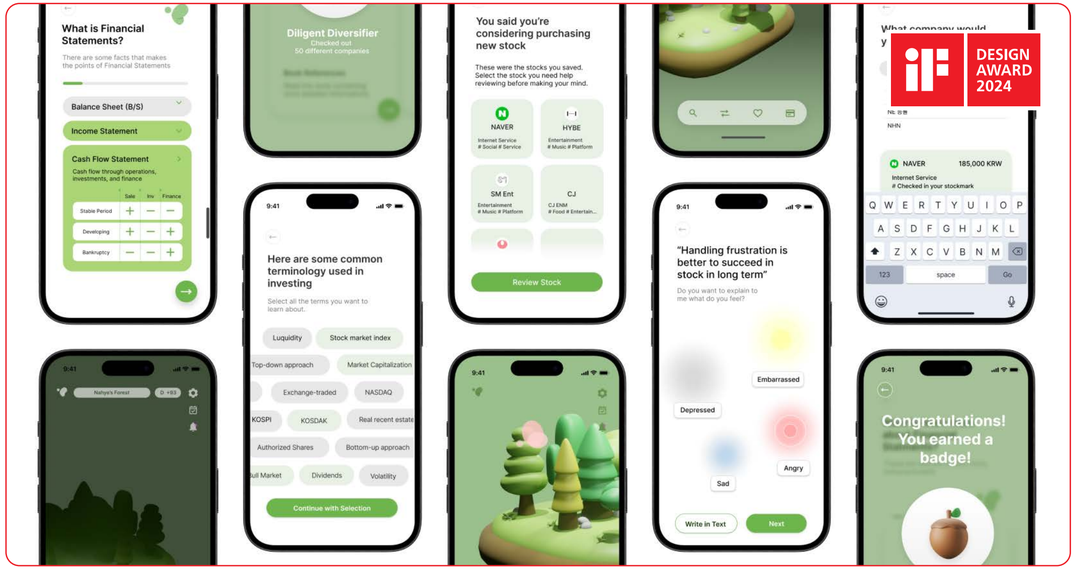
The more complex a service is, the more necessary it becomes to have user interfaces that make access uncomplicated. It becomes clear when purchasing a train ticket, for example, that conventional screen solutions can meet their limits. The major challenge is from two competing needs of users: on the one hand, the interaction with the service point should be as quick as possible, while also requiring confidence when using the service system to avoid errors or incorrect purchases.

These challenges make the benefits of an AI-based virtual assistance clear: The service gets a human face to which users can simply explain their individual concerns. The AI's understanding of context allows for intuitive customer communication with individual offers and without high personnel costs.

The new design options also open up a broad range of questions designers will need to answer: Can a human face be used to project branding? How does the design manage stereotypes—for example the fact that service systems predominantly use female voices and faces that line up with conventional standards of beauty? And how can the limits of an AI's capabilities be communicated through the face that is used?

Source: Qatar Airways

BEST PRACTICES



01 02
03

01 WeChat Palm Service

WePalm, part of WeChat, revolutionizes identity and payments using palm biometrics. Secure and unforgeable, it utilizes distinct palm textures and vein patterns for various applications, from payments to gym access.
The “palm QR code” ensures contactless, hygienic and secure transactions, offering users a convenient and natural gesture control experience.

02 Investment Education Service

Evergrow, a FinTech app, nurtures investment education by visualizing portfolios as a growing forest.
This unique approach enhances financial literacy and encourages thoughtful decisions. Integrating Hazel, a financial fairy advisor, Evergrow fosters a healthier investment atmosphere for beginners and makes investing easier to understand.

03 AI Virtual Digital Human Cabin Crew

Qatar Airways introduces Sama 2.0, the world’s first AI virtual digital human cabin crew, revolutionizing the passenger experience at ITB Berlin 2024.
Powered by innovative conversational AI, Sama interacts in real time, answering queries and enhancing travel experiences.

Artificial Influencers give branding a new face

Beyond service interfaces, brands are also using virtual humans increasingly to communicate their content to the public in a targeted way. The first step was ten years ago with Hatsune Miku, which was developed for Crypton Future Media to develop awareness of its Hatsune Miku software.

These days, numerous brands use AI Influencers to place their brand content on social media. The term is often misunderstood, as the AI here doesn't stand for "artificial intelligence" but rather for "artificial influencer." The content for the AI Influencer is generally not generated by an AI but rather by a marketing team and actors whose gestures and voice are converted into a virtual form.

The benefit of this is that the branding gets a human face without being dependent on a human brand ambassador. The storytelling of the AI Influencer overlap entirely with the content of the brand and can thus be adapted to the "biography and personal development" of the AI Influencer. The virtual personalities also do not depend on real contexts: they can be put to use anywhere, at any time, are never sick—and never ask for a raise.

Some AI Influencers are not tied to a brand and are financed through ad placement and cooperations with brands:

Liv in The Future
Miquela Sousa
Guggimon

Brand mascots are often also given virtual lives.
Well-known examples for this include:

The GEICO Gecko
Barbie of Mattel
CB of Casas Bahia

Anne-Liese Prem

Founder and CEO of tomorrowstories, Salzburg

Anne-Liese Prem is the founder and CEO of tomorrowstories, a communications & PR agency for future-forward brands at the intersection of emerging tech and culture. Anne-Liese has worked internationally in places as diverse as Australia and Uganda, for global brands like Swarovski and Red Bull. She focuses on next-generation storytelling, including spatial computing, immersive experiences, gaming and generative AI, and collaborates closely with C-suite executives and startups as an advisor, helping them sharpen their future strategy.

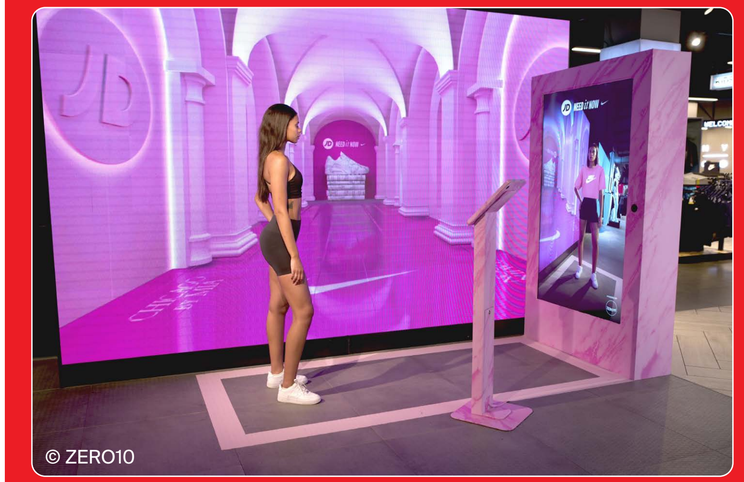
iF Design In 2022, there was huge interest in the "metaverse." It seemed like everyone was predicting that we are all going to live in virtual worlds. What's left of this hype today?

The terms 'metaverse' and 'NFT' were among the most-searched buzzwords on Google in late 2021 and early 2022, but interest quickly fizzled. There were many misconceptions about what the metaverse actually is. Today we can say that the metaverse is neither the idea of just one company nor the concept of our real lives moving into virtual realities. In my view, the metaverse refers to the gigantic digital transformation we are witnessing at the moment: Several technologies are coming to fruition at the same time and are catapulting us into a new age of the internet. Our real lives and digital lives are merging in unprecedented ways. The metaverse technologies we saw never went away. On the contrary: they are evolving at the speed of light. What's left of the hype is an immersive 3D internet, an innovative way for brands to engage with customers via a whole range of emerging technologies, and a new generation of customers expecting brands to navigate digital worlds with the utmost proficiency.

iF Design Over the past few years, it seems like we are experiencing a major shift in how technology drives our culture. Every day we hear of disruptive innovations that will completely transform the way we work, live and play. What is driving this current massive wave of digital transformation?

Technological advancements have been accelerating over the past century, but in the past few years there has been an unprecedented accumulation of innovative technologies going mainstream. From AI to immersive tech such as augmented reality or spatial computing and gaming engines, we are seeing an abundance of new applications sweeping into our daily lives. However, the tech is only one side of the coin driving this major shift: During the pandemic, we all became a lot more fluent in different technologies. There is a young generation growing up with 3D gaming consoles and their approach to the internet is immersive, immediate and intentional. Generation Z and Generation Alpha demand co-creation, the highest standards in functionality and a seamless user experience. It's a point in time where supply and demand are pulling in the same direction toward a digital future without boundaries.

© Raiya



© ZERO10

iF Design What are the key technologies changing how brands engage with customers?

Brands now have an array of new technologies to tap into for their branding efforts: The three main categories are AI, immersive technologies such as Augmented Reality, Mixed Reality and Virtual Reality, as well as gaming and blockchain. AI, for example, is turning branding into a hyper-personalized affair, allowing for a one-on-one relationship in which each customer feels at the center of all activities. Brands can use a vast amount of data to target individual customers with just the right offer. And applying AI as a creative tool in branding opens up many new ways of creating high-quality content and coming up with exciting ideas for communicating your brand. Fashion brands like G-Star Raw or Raiya are already using AI to help design truly extraordinary pieces. Including immersive technologies in your branding helps you meet customers where they already are: Someone who is used to dressing an avatar or experiencing life in 3D gaming environments will also want the same standards when they meet a brand on an e-commerce website. In physical retail environments, brands can build a bridge to their digital offering with tools like virtual try-on mirrors, for example ZERO10. Finally, blockchain and Web 3.0 provide a layer of digital ownership and trust in these new digital worlds we are venturing into. Combining physical products with a digital twin will be the state of the art very soon.

© G-Star Raw

iF Design With so much change around us, it's often difficult to discern hype from what's going to stick around and to identify what is really moving the needle. From your point of view, what does the future of branding look like and what do brands need to do to stay future-proof?

I'm a future optimist, because I believe we only adopt those technological advancements in the long run that fulfill our deepest human needs. We want to survive as a species and will be smart enough to make technology work for us and not against us.
For example, there are lots of issues around how we can use AI and how we can secure our data, copyrights and privacy in a digital future, but I believe we will come to understand all these innovations as tools to improve our lives. For me, the future of branding looks bright. We have a once-in-a lifetime opportunity to leverage tech to work more productively and to be creative beyond any physical limitations. Brands will be able to create truly magical experiences and foster new relationships with customers. Customers stop being passive consumers and turn into participants who co-create within the brand universe. Imagine not only being part of a Gucci show or fashion movie with your digital twin, but actively contributing to the design, downloading and 3D-printing it, as well as engaging in a lively brand community across the globe via immersive worlds. In order to secure their place in these futures, brands should stay open and experiment with emerging technologies. By boldly stepping into these new areas now, brands can a) develop new narratives and aesthetics for the next generation of customers, b) set up the structures necessary for future products and services, and c) better understand and judge the real potential of certain technologies for their particular business.

CHALLENGES

AI Companion appearances require decisive design choices, shaping how users perceive the technology (human, cute or technoid).

Designers grapple with handling stereotypes in humanoid interfaces, deciding whether to build on or minimize preconceptions.

Conveying AI limits is crucial; designers must indicate which matters users can address and which they cannot to manage expectations.

Personalized interactions may lead to emotional involvement and dependence, prompting designers to assess when a personal connection is necessary or risky.

OPPORTUNITIES

Voice assistance innovations make intuitive interaction possible, transforming devices into companions throughout the day.

Emotion recognition and gesture interpretation create equal-level conversation partners in assistance systems.

A variety of interaction options make it easier it complex information, allowing three-dimensional representation or simultaneous use of various media.

Humanoid AI interaction fosters resonance, strengthening connections to devices or brands; brands conveying content through virtual humans benefit significantly.

Cyber Resilience

Material infrastructures and security are gaining importance

With the growing possibilities of digitalization, we are becoming increasingly aware of how dependent the digital world is on material infrastructures. The idea that digitalization means moving services into a weightless, dematerialized space is obsolete. The material and infrastructural requirements are moving to the forefront: the undersea cables, the data hubs, the pressing question of where the massive amounts of energy that the internet requires will come from.

The political aspects of digitalization can also not be forgotten in this development: The greater the international tensions of our multipolar world become, the more evident it becomes how vulnerable the infrastructures of the internet are—and that they need to be protected from attacks, natural disasters and technical disruptions.

Particular attention should be paid to the vulnerability of digitality, which arises as digital tools and services are used in various ways. This is where there is a great deal of wiggle room for designers in particular to make applications more secure. Which is why we want to focus in this chapter on the question of how users can be protected from becoming security risks for cyberattacks.

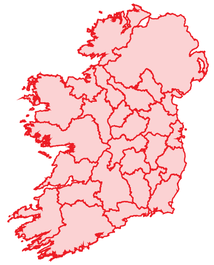
The energy footprint of GPT

Average energy consumption of

564 MWh

per day,

or 2.9 Wh per query. (assuming 195 million queries per day)



In a worst-case scenario, Google's AI alone would have the same energy consumption as Ireland:

29.3 TWh

per year

Source: de Vries, Alex: "The growing energy footprint of artificial intelligence" Oct 2023

Resilient Digitality: New cultural techniques and the Trustable Web

A new cultural technique is already emerging in the everyday of many people to help them find a healthy approach to digitality and networked lives: conscious de-coupling and re-coupling, spanning from consciously ignoring certain social media outlets and information sources to varying degrees of quiet or loud quitting and self-care routines. Once reached, the degree of networking cannot be turned back to the original level as easily. Quite the opposite: Progress in artificial intelligence has led to a virtual arms race. AI expands the opportunities for cybercriminals—and is also used to commit cybercrime.

As a reaction to these developments, new security architecture and approaches that fit the dynamic, plasticity and speed of the digital networked society and are built for resilience rather than risk control.

With these approaches, the goal is not the invulnerability of the system but rather the avoidance of extreme losses. This can be achieved if an infrastructural system is decentralized and outages are locally limited, thus also facilitating a faster reaction time. In a Trustable Web, a decentralized, transparent, secure and user-centered internet landscape is created. Unlike the previous web, which is controlled by central stakeholders, the Trustable Web gives more power back to the users by using blockchain technology and decentralized protocols.

Progress in artificial intelligence has led to a virtual arms race.

New security architecture adapting to the digital networked society is built for resilience rather than risk control.

Scam resilience as a design challenge

Living in a hyper-networked world also means being generally reachable for conflicts, attacks and risks—not only on an infrastructural level, but also an emotional one.

Many people are vulnerable to socio-technological attempts at manipulation, such as an email that claims to be from a supervisor requesting an invoice be paid. The biggest gaps in security of cyber-infrastructure are often not in the hardware or the software. Instead, they lie in human misunderstandings, a lack of understanding of risky online behavior and unsuspecting handling of phishing messages.
Already now, there are international endeavors that have specialized in carrying out fraud in online forums and social platforms. The FBI estimates that more than 500 million dollars in turnover are generated annually in the USA alone through online fraud. (Sußebach 2021) Design is thus faced with the challenge of creating awareness among the users of digital devices and enabling them to use digital products in a risk-aware manner. **Scam Resilience** is becoming the core challenge for tech providers and UX designers.

Authentication processes are key for ensuring secure transactions. But there is a fundamental push and pull between preventing fraud and optimizing the customer experience, as strict controls often are to the detriment of the customer experience. Companies need to consider authentication, fraud management and the customer experience at the same time and re-design internal processes based on continual fraud case analyses along important customer paths.

The design of the authentication process plays a key role here: an appealing user interface and a process that involves as few disruptions or intermediate steps as possible is vital here. (mckinsey.com)

An alternative future for private surveillance technologies

Less is more when it comes to camera integration

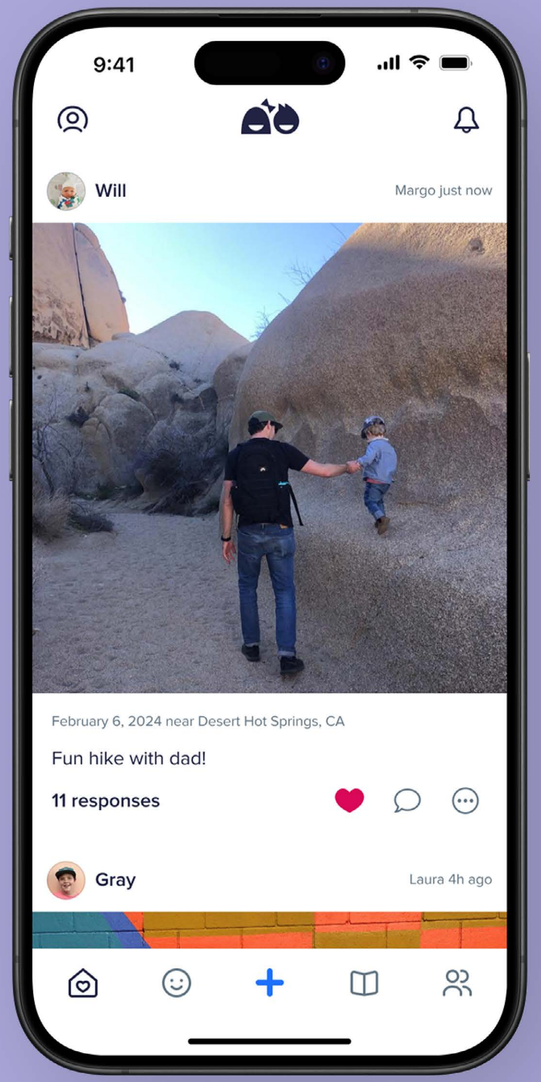
There has been a boom in surveillance products for private use in the past years. Cameras are used increasingly often here, even in products that had been previously developed without cameras, such as baby monitors.

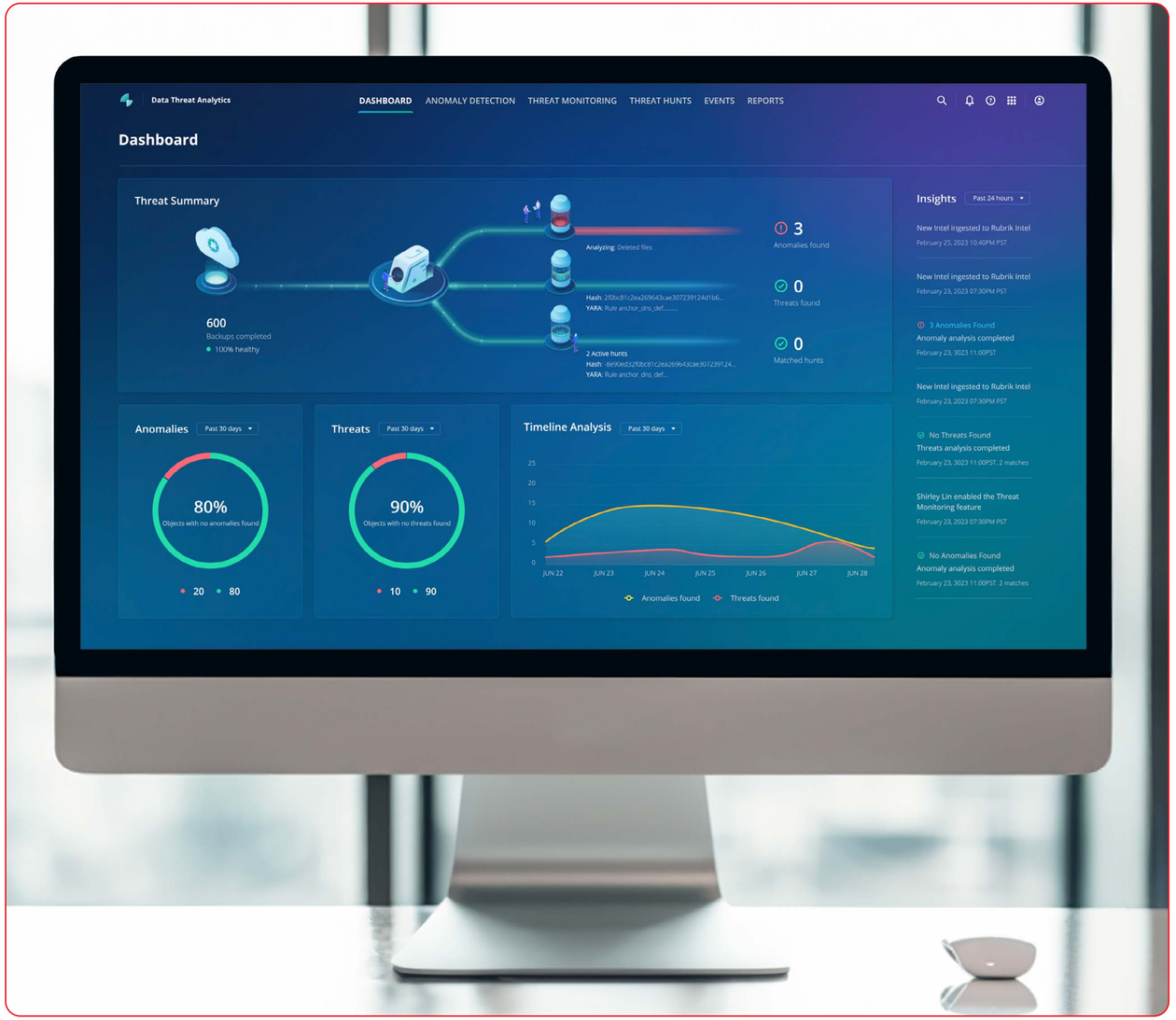
The more technologically advanced facial recognition and image processing become, the greater the impact of a data leak of video or image materials becomes. For designers, it is therefore worth considering when which type of data is collected.

The conscious decision not to use cameras can make products significantly less interesting for cyber-criminals. Alternative forms of data collection are often available that are not as easily exploited but fulfill the same surveillance purpose. These include disruptions in Wi-Fi networks that can be used to recognize chances in the room or **behavioral biometrics**, which can be used to identify people without the use of their faces. This puts the ball in the court of product design and the corresponding design concepts in which decisions are also made about which types of data the devices gather. In terms of increased resilience, the guiding principle is: Less is more.

Behavioral biometrics
Behavioral biometrics analyze the digital, physical and cognitive behavior of a user to decide between cybercrime and legitimate customers, recognizing cases of fraud and identity theft. Real customers interact with digital platforms differently from fraudsters. Where these would enter their information individually, criminals tend to enter their data into fields using copy-paste.

BEST PRACTICES





01 Notabli

Notabli is a private space where you can share your family moments and keep up with those you care about most. Share photos, videos, quotes, notes and audio recordings of your children. Family members stay updated via the Notabli app or through personalized email updates. NotabliBooks makes it easy to create automatic book subscriptions for physical keepsakes. Without ads or algorithmic feeds, Notabli is a calm alternative to the usual social media platforms.

02 Rubrik Security Cloud

Rubrik Security Cloud redefines data protection with its innovative SaaS product. Combining intelligent threat detection, a user-friendly interface and comprehensive data recovery solutions, Rubrik ensures business continuity and resilience against cyberattacks. Powered by AI and backed by rigorous user research, Rubrik stands out for its simplicity, effectiveness and ability to meet user expectations.

01 02

CHALLENGES

Humans and their use of technology present one of the greatest risks to cybersecurity. Especially in the design of sales platforms and social media, the question arises of how scam resilience can be fostered.

Artificial intelligence increases the risk of cybercrime attacks as it increases both the quantity and the quality of the attacks.

Cyberattacks are becoming a business risk for companies. The need for targeted training for employees on how to avoid phishing scams, for example, is growing.

OPPORTUNITIES

Blockchain technologies and decentralized protocols reduce the amount of damage that can be caused by cyberattacks and local outages. A decentralized design strategy with local storage can be beneficial in the design of products and applications.

Designers can influence how susceptible users are to scam attacks by using appealingly designed and motivating awareness training and targeted UX design.

Designers can make a key contribution to the cyber resilience of products and applications by choosing methods of data collection that are less critical: instead of using cameras, sensors can be used to recognize changes in a room through disruptions in the Wi-Fi network or by analyzing a person's behavioral patterns.

CO-SOCIETY

CO-SOCIETY

From polarization to building new bridges. In an increasingly fragmented and polarized society, the core challenge for the future is strengthening togetherness. The “co-” principle is becoming a strategy for the future, paving the path for a progressive culture of “us.”

EXECUTIVE SUMMARY

Design represents a powerful force for transforming today's polarized society into a Co-Society, and it can be used as a key technique to foster new forms of solidarity by drawing on the different perspectives of all stakeholders.

Inclusive design and Co-Society complement each other, making products, services and spaces accessible for all. This includes taking diversity into consideration and removing social, functional and physical barriers through design.

The design of digital platforms and media requires a new way to address current tendencies toward polarization in order to foster constructive, integrative and positive interactions. Design influences aesthetics, concepts and social interactions, fostering new paths to media literacy.

Design facilitates democratic and societal changes by creating spaces for constructive communication, such as hybrid third places merging digital and physical realms.

Between irreconcilable individualization and new solidarity

A sustainable society can be designed

In the face of global transformation processes, today's society often seems to be divided. Whether it's about climate change, developments in identity policies or geopolitical conflicts—there is often an unsurmountable stand-off between those who wish to pursue new approaches and progressive movements and those who wish to preserve the hard-fought accomplishments of the past.
In the digital media landscape and social networks above all, political and perspective matters are hotly debated. Dissent is often fanned by loudmouthed chatbots, which add fuel to fake news and conspiracy theories. It seems to be getting harder and harder to reach a consensus.

The niches forming in social media and destructive media reporting are giving rise to communities of individuals with shared values and interests. These **diverging worldviews** (Mau/Westheuser/Lux 2023) bolster pluralistic lifestyles with a variety of perspectives, but they also lead to the formation of hard-to-reach groups that endanger societal togetherness. But where these seemingly uncrossable chasms form, new bridges can be built.

Upon closer consideration, concluding that society is too divided is too general. Alongside polarization and irreconcilable communication, a counter-dynamic is also arising: one of newfound solidarity and sensitive, respectful interaction with one another. The transformation to a Co-Society brings people and groups of all different types together. It is built on plurality and knows how to use this for the benefit of all.

Diverging worldviews are a key characteristic of fragmented societies and describe specialized communities of values and interests that occasionally cultivate their own schools of thought and vocabulary. Diverging worldviews can enhance a society—but they can also quickly become destructive. They necessitate a special approach to groups whose perspectives are so far removed from those of mainstream society that constructive dialogue becomes almost impossible.

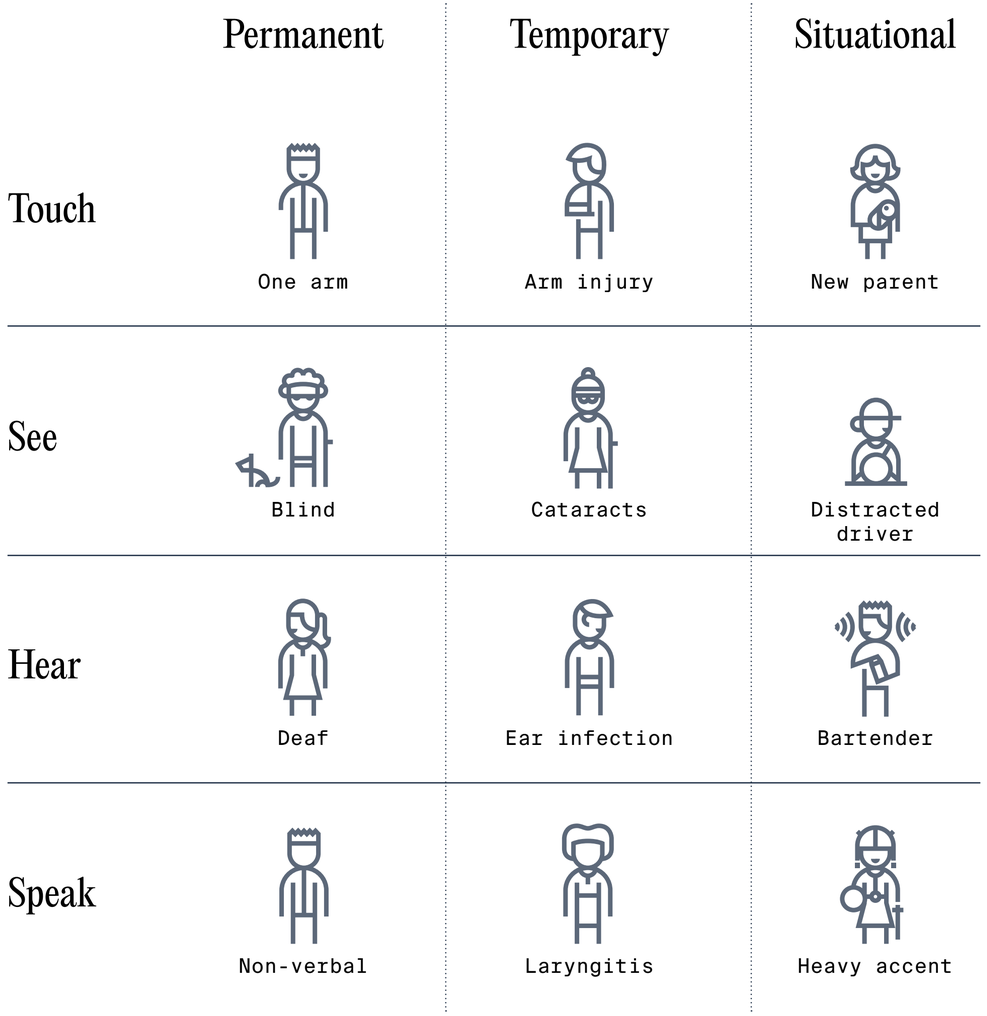
Plurality as a starting point for design processes

The transformation to a Co-Society counteracts polarization tendencies by promoting future-oriented structures and practices for better togetherness. The idea is: Plurality is conducive to finding the solution. Adjusted design processes that allow people from different backgrounds and opinions to come into contact with each other to look for solutions together are therefore essential. And these design processes require places that can be used as open meeting places as well as a suitable arsenal of moderation tools, media and formats.

The design works in two ways here: First, the requirements and tools for participative design are laid out, and then a new environment for co-society is created with the help of participative design.

Numerous tools and formats have arisen in the past years whose goal is to allow various stakeholders a shared view of a creative or societal issue. These tools are used increasingly often to find solutions that are suitable for the complexity of a problem with societal consequences.

Inclusive needs are often not permanent but are either temporary or situational.



Source: Inclusive Microsoft Toolkit

The power of design in shaping a Co-Society

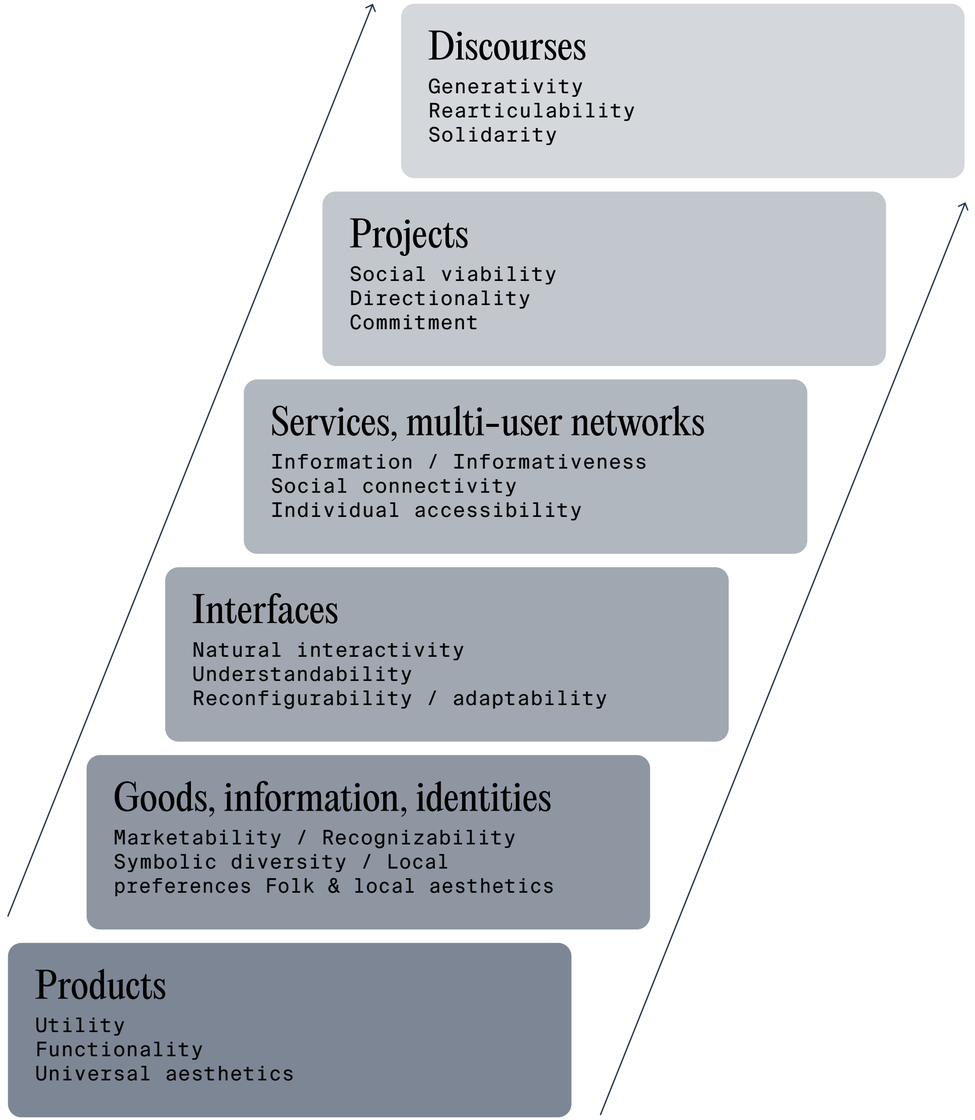
How can design contribute to the transformation to a Co-Society? An important step toward answering this question can be found in Klaus Krippendorff's "Trajectory of Artificiality," (Krippendorff 2006) a concept that illustrates the growing complexity of designed artefacts as a stage model.

While a large part of the design effort still goes into the functionality of an artefact at the earlier stages, the proportion of communicative services increases with each stage. It is not rare for brands to position themselves along societal transformation processes; services increasingly must take into consideration societal issues and social tensions when developing an offer. Each design is charged with values and frequently also reflects societal discourse. The more complex the artefact is, the greater this discursive aspect becomes in the design.

Krippendorff's theory is that meaning is more important than function. A design is successful when the context-independent perception of all stakeholders, their scope of experiences and their interpretation of the meaning are taken into consideration.

Ideally, the needs and requirements of the stakeholders are not only satisfied, but their scope is even expanded. This can only be achieved by adequately involving "stakeholders" with their convictions and assignment of meaning in the design process and by allowing them to make decisions about this. Participation then becomes a key element for the design of the Co-Society.

Trajectory of Artificiality



Source: Krippendorff (2006):

Plurality, cooperation and inclusion

Co-Culture as a guiding principle

In the networked society, fluid communities come together in very different areas of life. **Co-Cultures**, in which people from different backgrounds work, live, travel and even raise children together. Trend phenomena such as co-working, co-mobility, co-living and co-parenting emphasize that the principle of cooperation has already become firmly entrenched in key areas of daily life.

Cooperation also forms the foundation for more resilient solidarity structures that bring people together in a more holistic way. The result of these new forms of cooperation are communities that not only fulfill a function but also give a sense of meaning and purpose.

This manifests itself especially evidently in **Third Places**, which affect the social integration of entire neighborhoods by enabling important dialogues and building bridges. These include neighborhood offices, repair cafés, parks, open discussion “town hall” meetings, associations and even digital spaces that have been designed for inclusive and constructive dialogue.

Where plurality is permitted and seen as a positive value, a corresponding design approach is needed that does justice to these differences between people. Accordingly, **Inclusive Design** becomes a key design concept in the Co-Society.

The inclusive design of products, services or the developed environment aims to take the needs of all people in a society into consideration and to reduce social barriers and discrimination—for example by developing unbiased algorithms, barrier-free public paths or modular furniture that accompanies people functionally well into their elder years.

Third Places are public meeting places that bring people together. People from various backgrounds and with differing opinions can exchange their thoughts, network and learn from each other in open and inclusive environments. With their socially integrative effect, third places help bolster social cohesion.

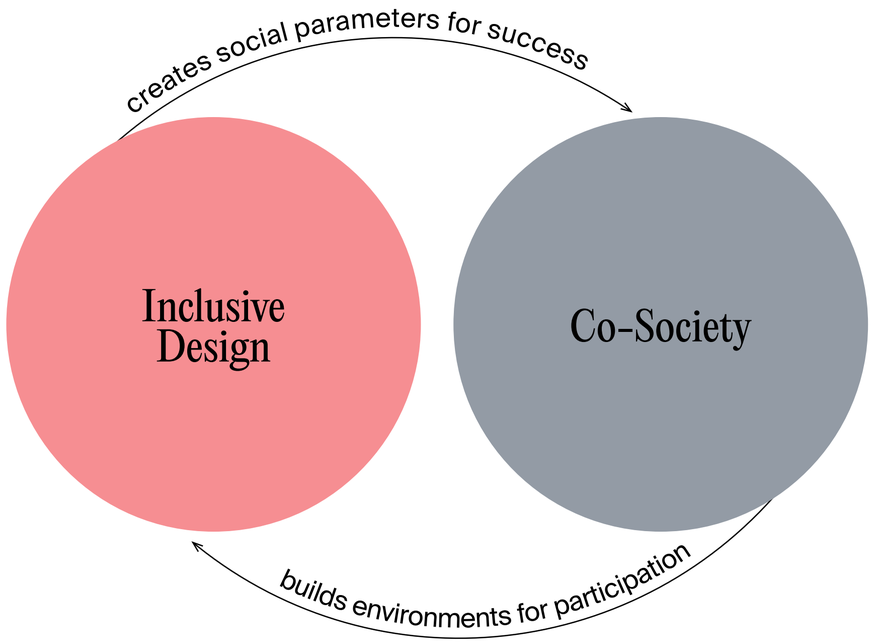
You can find more information on the importance of plurality for brand design in the **Mindshift Revolution** chapter.

Inclusive Design as a driver of the Co-Society

The disability movement in the US in the 1970s not only drove forward equality for disabled people, but it also called the previous role of design into question with the Disability Studies that resulted from it. After all, design decisions and concepts play a significant role in how obstructive architecture, a product design or a service ultimately is. With the advent of digital technologies and global networking, inclusively designed websites, apps and digital services are becoming an important social issue. And it has long ceased to be just about accessibility. Instead, the perspective has expanded significantly over time. Inclusive design now also means taking cultural diversity and differing social needs into consideration to ensure that no one is left out.

As a comprehensive approach, inclusive design has the potential not only to improve the quality of life for disabled people but for all people in a diverse society through smart design solutions. Inclusive design and Co-Society are in a reciprocal relationship to one another. Co-Society creates the social parameters that make inclusive design solutions successful—and conversely, inclusive design allows more people to be able to participate actively in social, economic and cultural life, thus creating the design requirements for a successful Co-Society. (Bieling 2019)

Inclusive design is thus increasingly becoming a new basic requirement for the design of products, services and environments. Instead of making adaptations after the fact for certain groups, inclusion is viewed as a fundamental starting point. Inclusive design as the default helps create a more inclusive and just society in which diversity is valued and everyone has equal access to resources and opportunities.



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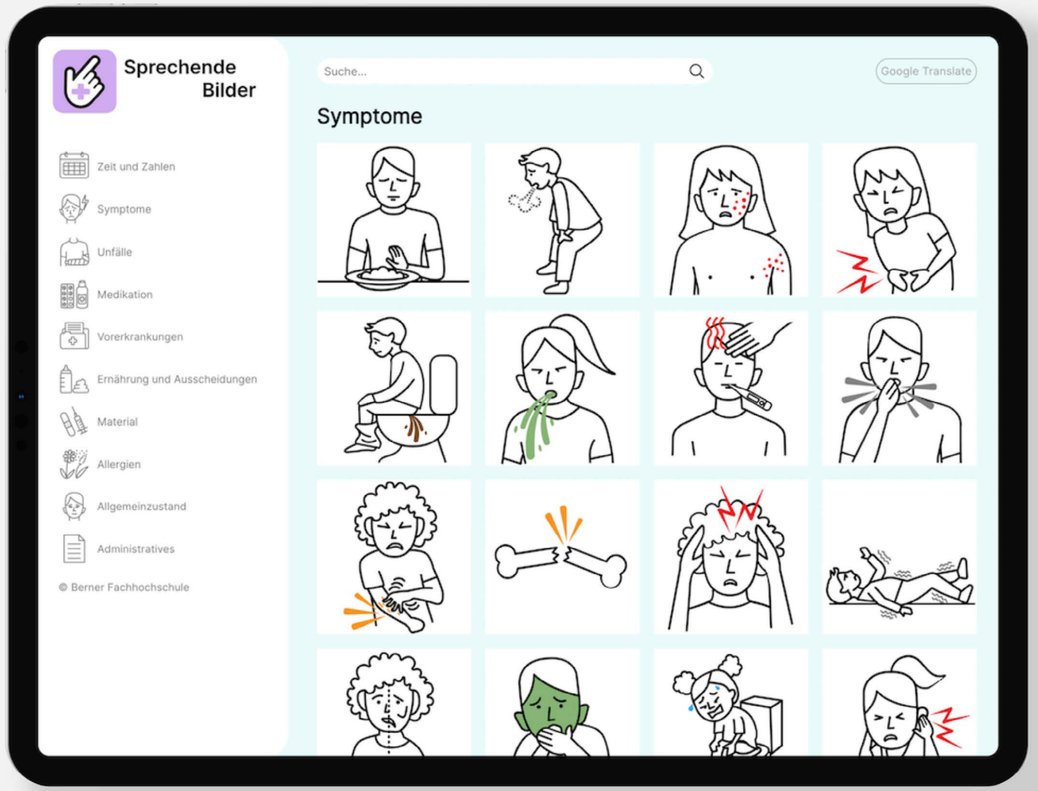


01 Sprechende Bilder

"Sprechende Bilder" is a visual-based aid for secure and efficient communication in healthcare. The platform features a curated image collection tailored to common medical conditions with easily understandable visuals in ten categories following common triage procedures. The clear user interface helps to close the crucial gap between communication situations that can be resolved using gestures and those that require professional interpreting.

02 Panadol Pain Phone

The Panadol Pain Phone is a groundbreaking telemedicine unit tailored for rural communities, particularly in Indonesia. With a video screen for face-to-face consultations and sensors tracking vital health metrics like heart rate and blood pressure, it enables remote healthcare professionals to make informed decisions. Featuring a digital stethoscope for live audio streaming, patients can opt for loudspeaker or handset audio output. This innovative solution bridges the gap between rural patients and healthcare, ensuring access to quality care regardless of location.

01 02

BEST PRACTICES

03 Will & Well
The inclusive fashion label based in Singapore offers fashion for everyone that is designed to provide ease, comfort and dignity. Many elements of modern clothing like buttons and back zippers that have not been updated for centuries are especially inconvenient for people with disabilities. Will & Well applies design thinking and technology to create clothing that impacts lives by providing comfort, dignity and independence in daily dressing processes by featuring magnetic buttons or other customizations.

04 Project INKlusion
Samsung champions inclusivity through its Inclusive Design Strategy and Guidebook, a product of collaboration with DEI leaders and over 500 members of internal ERGs. Dubbed INKlusion, it embodies the metaphor of ink, symbolizing the creative potential unleashed by diversity. This initiative empowers Samsung designers to view DEI not as a constraint, but as a catalyst for innovation, infusing their mindset and processes with vibrant hues of inclusivity and creativity.

03 04

CO-SOCIETY

Services must prioritize accessibility, providing various interaction options and clear content for individuals with cognitive disabilities. Addressing diverse user needs including disabilities, languages and cultures poses a significant challenge, requiring resource-intensive yet cost-effective solutions.

A holistic, empathetic design approach that is adaptable to rapid technological changes, is crucial. The most daunting challenge may be ensuring equitable access to the latest features and services amidst the swift pace of technological progress.

CRAIG MORRISON

DESIGN MANAGER / LEAD PRODUCT DESIGNER, SAMSUNG ELECTRONICS, UNITED KINGDOM

Designing for diversity

Designing for diversity is not just a matter that arises for “a” specific target group with special needs in terms of products and services. It can also be addressed with an intersectional approach, with an eye on the fact that disadvantages and exclusion mechanisms don’t always affect just one specific group of people but frequently overlap in numerous ways and can be distributed. In that case, the solution lies not in a specific product for a specific disability but also in minimizing the access barriers for an entire group of people that have different discrimination profiles through specific measures.

This could mean designing the specific configuration of choices, the necessary services and processes with diversity in mind. In doing so, physical and cognitive disabilities, social and local circumstances and cultural diversity would all be taken into consideration. **California Voting Accessibility** In other words: a service could require different interfaces for the various needs.

Innovative interfaces play an important role in making experiences and services accessible for as many user groups as possible. This accessibility allows people who may not have been considered sufficiently in product development in the past to participate in activities that are already part of everyday life for many. An example that stands out is the gaming industry. While progress can be seen here, the selection of games that are accessible for people with physical disabilities remains slim. Developing innovative accessibility systems, for example those with impaired vision could expand access to video games that have previously been primarily tailored for the abilities of players without disabilities.

Another example for the importance of inclusive technology is the integration of features that are currently spread out over numerous separate applications into a single, comprehensive application. This would eliminate the need for people with impaired hearing to switch between apps in particular, making a seamless experience possible. Inclusion ultimately means that all users are able to experience a similar level of comfort and accessibility when using digital services, independent of individual impairments.

But design can also help address issues such as intersectionality and diversity in society in a very different way by helping to make experiences empathetically comprehensible. An example for this is the interactive theater play “Black Feminist Video Game” by the New York artist collective The Civilians, which is a mixture of a video game, immersive theater and social media. Participants accompany and interact with the protagonist Jonas, a biracial teenager with autism who is looking for love. As the story progresses, Jonas begins to change his perception of women. Through the design of this format, the arrangement of roles and the interactions, the audience participants are drawn into a shared learning process.

The term **interface** can also be used in a broader sense: It then refers less to a technical/physical interface but rather to a social/cultural one.

BEST PRACTICES

01 **02**

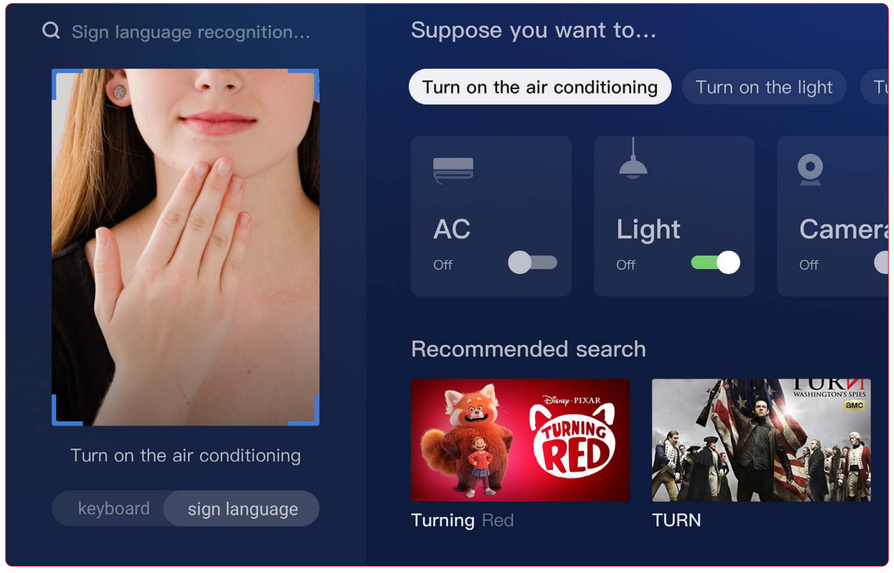
01 Surface Adaptive Kit

The Microsoft Surface Adaptive Kit allows individuals with visual impairments to make adjustments to cables, keyboards and other surfaces using three-dimensional stickers.

02 Electronic Glasses

Electronic glasses for the blind: Eyesynth is an auditive system that translates spatial and visual information into sound. This innovative electronic glasses system is crafted to transform the lives of blind or visually impaired individuals, merging technology and design to create a new realm of sensory experience. The social implications of Eyesynth are profound, as it provides a tool for greater independence and quality of life for its users.

BEST PRACTICES



03 California Voting Accessibility

LA County is creating a voting experience accessible to everyone. The redesign of accessible voting that is capable of supporting the large and diverse population of LA County makes voting secure, private and more accessible to all constituents, including members of underrepresented communities.

04 PharmCare

PharmCare revolutionizes medication management, prioritizing the needs of the elderly and migrant workers. With its intuitive interface, users effortlessly input drug information and translate instructions into their preferred language, aided by easy-to-read drug icons. Powered by AI, its drug label recognition model ensures accuracy and efficiency unmatched by other apps. More than just a reminder, PharmCare fosters understanding and empowerment, promoting health equity and self-care skills for all users.

05 TV UX Design

The International Paralympic Committee and the International Disability Alliance estimate that 15% of the world's population is affected by some form of disability. By analyzing the core pain points of users in typical scenarios and combining them with TCL's new technology solutions, TCL care provides color-blind filters and screen reading for the visually impaired; sign language input, real-time captioning and weak hearing assistance for the hearing impaired; voice customized control for the speech and mobility impaired; and safety and health reminders for the elderly and the vulnerable.

03 04
05

Co-Design

Designing better together

A central requirement for an inclusive design process is the focus on collaboration and cooperation. This drives the principle of Co-Design.

Cooperative design processes originated in architectural projects in the 20th century. Later these approaches were also used in software development and interface design as working together with users made it possible to gain insight and requirement criteria that are otherwise difficult to get. In turn, the “co-” principle also became popular in UX, service design and interactive media design. Cooperative design approaches are particularly recommendable when a project touches on an issue of great societal importance, such as when the design influences the environment of the users and thus the reality of life of many.

Collaborative structuring approaches are valuable when

- the design affects a large group of different people
- the project should be created in a complex mélange of requirements, needs and limitations
- the context for the use of a product or service is very demanding, complex or risky

In Co-Design, various interest groups and stakeholders work together to develop tailored solutions in line with their needs and realities of life. Because the variety of stakeholders bring not only new perspectives but also different types and bodies of knowledge into the design process early on, Co-Design provides the advantage of being able to achieve suitable results more quickly.

Co-Design, often used synonymously with participative design, refers to a collaborative creative process in which the stakeholders are actively involved in the development and design of products, services or systems. This approach is based on the idea that all those involved—designers as well as users—can bring valuable knowledge and unique perspectives to the table that will make a significant contribution to creating solutions that are better suited for the actual needs and wishes of the end users. Co-Design thus requires a more in-depth interaction and cooperation between designers and users, and it aims to improve the quality as well as the relevance of the end product through this partnership.

CO-SOCIETY

For the last thirteen years, I have been leading design projects within corporations.

The value and potential of a collaborative approach versus a more individualized approach is impressive; the results are infinitely better with much more efficient development and implementation.

CLAYTON CAETANO

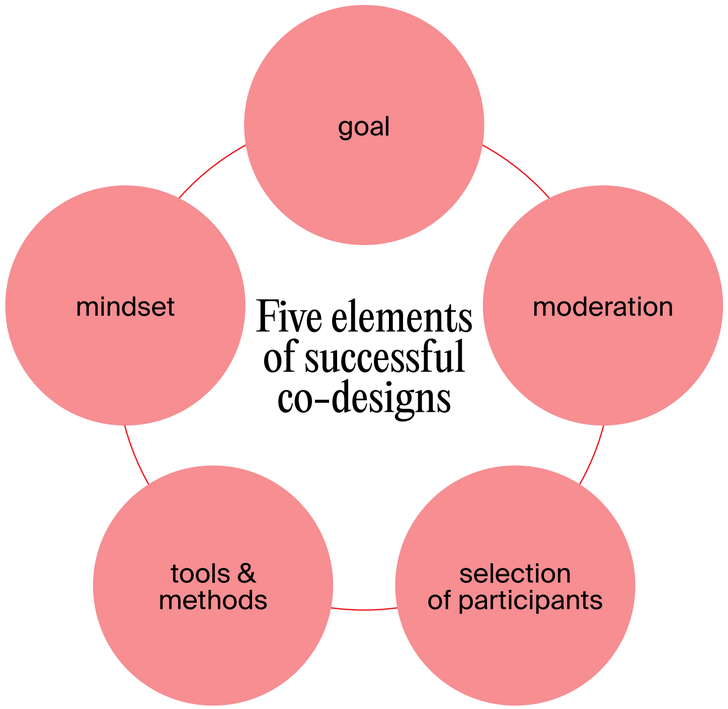
HEAD OF BRANDING AND DESIGN, ITAÚ, BRAZIL

The five elements of successful co-designs

A major impediment for Co-Design processes is the increased work that it involves. After all, the input from the stakeholders involved in the process has to be recorded, moderated, prioritized and interpreted. Designers can use the following five elements to create a goal-oriented Co-Design process:

- Goal: The goal of the process should be defined and formulated clearly and precisely in a stakeholder briefing.
- Moderation: Clear moderation of the contributions from all co-creators ensures that the design process stays productive, balanced and goal-oriented.
- Selection of participants: Selecting who is involved will determine the base of knowledge and experience on which the solution is developed.
- Tools and methods: Established tools and standardized methods ensure orientation throughout the process and support with moderation.
- Mindset: The mindset of those involved in the process must be in line with the design goal. If the goal is, for example, to generate a revolutionary design, then there should be a consensus in the group that risky ideas or visionary thoughts can be expressed in the group and discussed seriously.

A successful co-design process neither takes work from the designer nor causes them additional work. Rather, the tasks of the design work are shifted from the result to shaping the process.



CO-SOCIETY

In collaborative design processes, selecting participants with deep subject-specific knowledge is crucial. Otherwise one runs the risk of developing solutions that miss the core of the issue and don't fit with reality.

It's about bringing in those who are affected by this as participants and to use their knowledge for new solutions.

MICHAEL LANZ
PARTNER, VAGABUND MOTO, AUSTRIA

From urban planning to digital solutions: Co-Design as the key to complex challenges

When are Co-Design and a participative design process necessary and when are they a hindrance?

For classic lifestyle products such as home accessories or kitchen equipment, which face competition with other consumer goods, the direct involvement of the end users during product development might not be as important. Here, consumers can choose from a wide range of goods and find something that suits their needs. Collaborative design approaches become all the more important when the design inevitably affects the reality of the users' lives or if the product has infrastructural qualities.

This is the case, for example, when the design is for the public. The design of the cityscape and the neighborhood has a direct impact on the quality of life and sense of community of those who live there. With Co-Design, not only can the needs be understood better in this case but also the conflicts and fears that often accompany civic projects.

New York and Hamburg are pioneer cities when it comes to involving citizens: The Mayor's Office for Economic Opportunity in New York City uses co-design processes to fight poverty and discrimination among residents. The authority for Urban Development and Housing in Hamburg uses the online participation tool DIPAS to enable the involvement of residents, whether on the go, from home or at events.

Users can utilize the tool to access digital maps, plans, aerial images, 3D models or geodata and provide individual feedback on planned construction projects and infrastructure measures.

Also with the numerous digital service systems and their interfaces, participative design processes play a central role as these affect a broad range of people. User-friendliness and efficiency should not be limited to the design of the interfaces for citizens but should also be present in the internal processing steps in the government agencies. After all, the best digital user interface doesn't help much if the internal administrative processes that follow it are still carried out analog or using a different, incompatible digital solution. For the first, it's not just about fulfilling the needs of the disabled but also fulfilling various needs that arise from the demographic plurality of the users. Different levels of language ability, cognitive abilities and technical equipment can be a challenge, but it should not be expected that users will all simply meet the linguistic, cognitive or technical requirements.

Public space is particularly affected by climate change, but also plays a key role in the **eco transition**.

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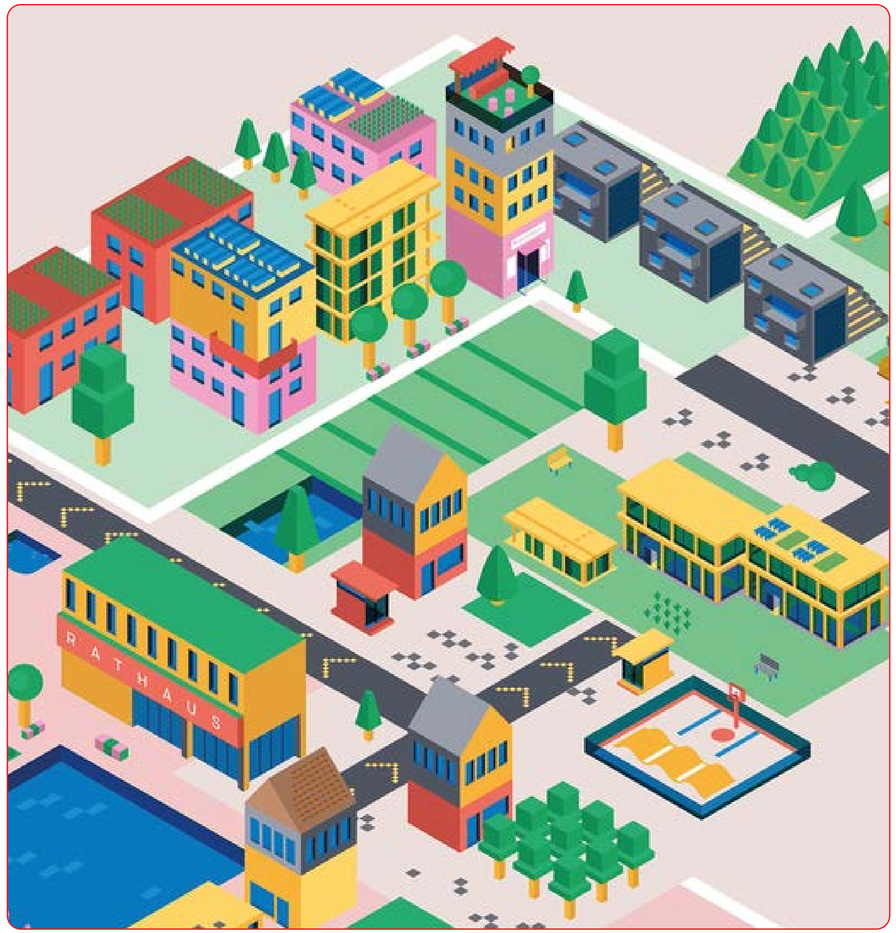
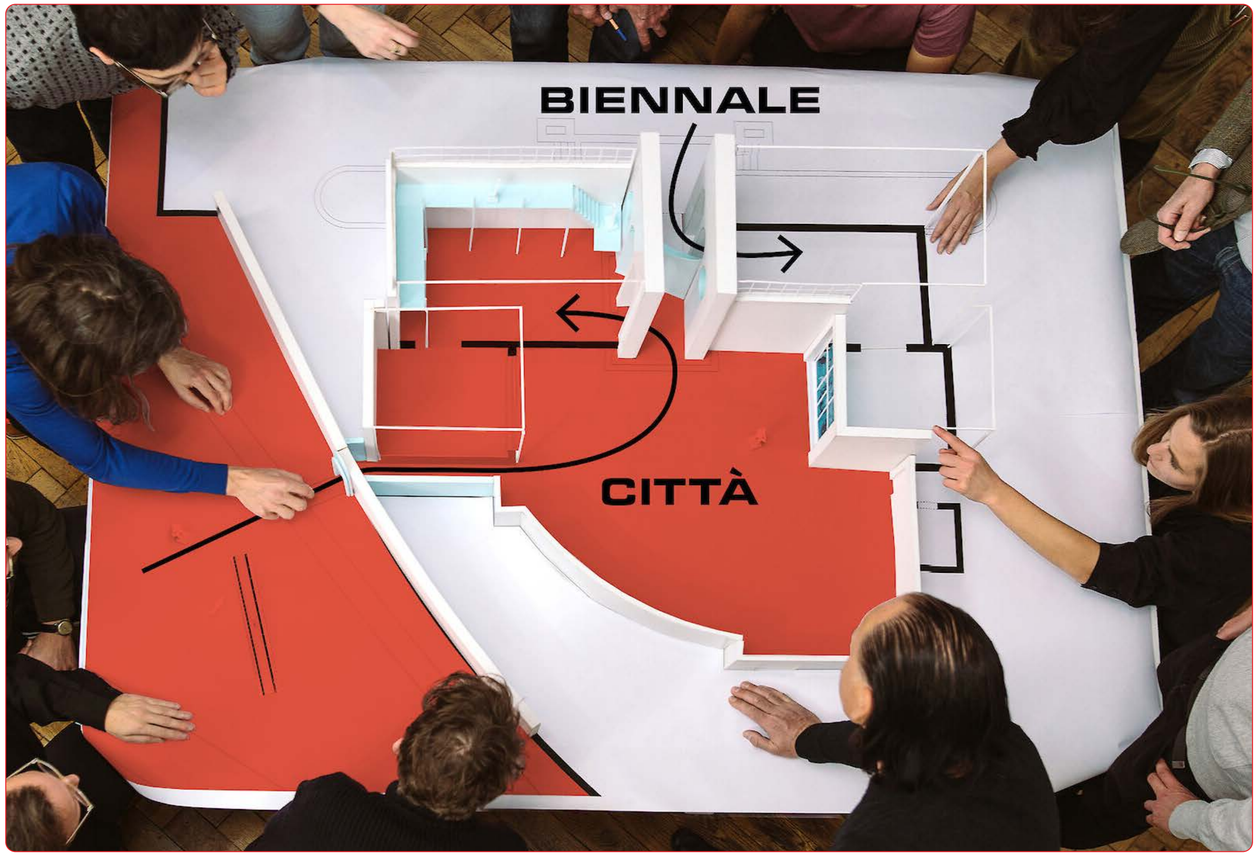




01 urbanista

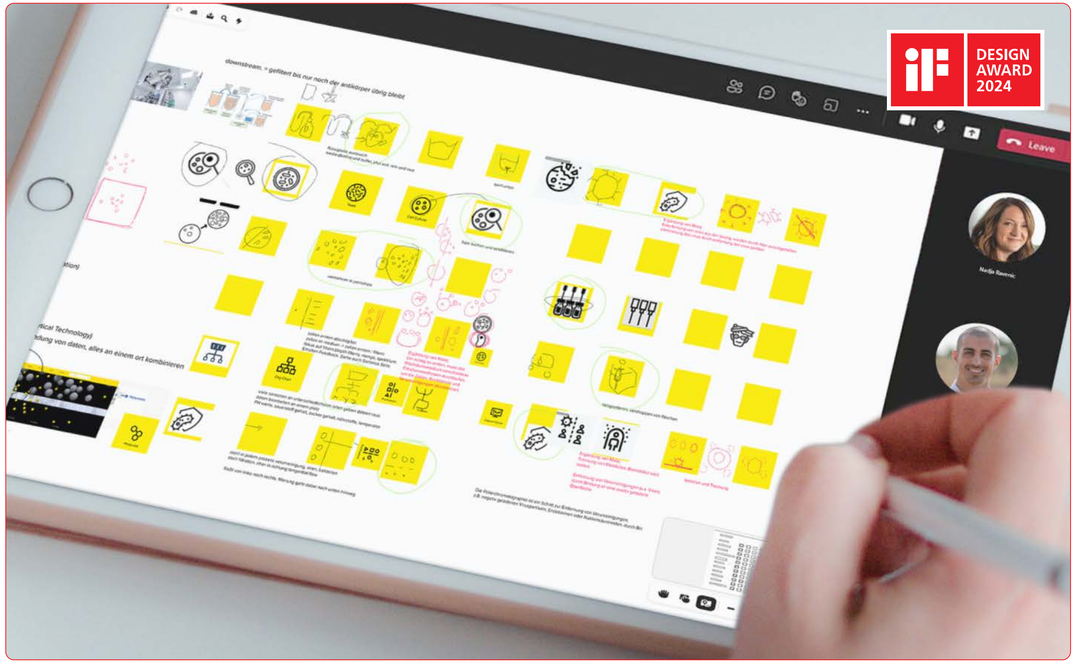
urbanista is one of the leading firms for urban development and future urban strategies based in Hamburg and Zurich. They design large-scale city visions and spatial concepts at the city or regional level, such as the project “nexthamburg”. urbanista’s approach is holistic and participatory by creating co-creative processes and crafting new narratives with their spatial images. They activate local urban makers and navigate political processes with experienced hands.

02 AKT & Hermann Czech Partecipazione

AKT & Hermann Czech’s “Partecipazione / Beteiligung” transforms the Austrian Pavilion at the 18th International Architecture Exhibition La Biennale di Venezia. Dividing the pavilion, they create a community space accessible from the city, fostering engagement with local residents and urban initiatives. This innovative approach marks a departure from past practices, emphasizing inclusivity and dialogue with the surrounding community.

01 02

BEST PRACTICES



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03 MATT+FIONA

MATT+FIONA, an acclaimed social enterprise, engages young minds to envision and actualize improvements in their built environments. Their innovative BUILD projects enable young participants to conceptualize, design and construct their own spaces, leading to life-transforming experiences. With projects spanning various scales, from pre-build installations to full-scale constructions, including larger and more ambitious BUILD+ endeavors, Matt+Fiona fosters creativity and collaboration among young builders.

04 Employee-centric Brand Adoption

Sartorius, a biotech supplier, enhanced brand adoption post-relaunch by engaging employees in a co-creation process. Originating from staff requests for icons, the “Icon-as-a-Service” idea emerged. Through co-creation, employees crafted a living icon system, now boasting 1,200+ icons, doubling overall brand adoption. This initiative highlights the power of employee-centric approaches in brand development.

05 Ebury Edge

Jan Kattein Architects introduces Ebury Edge, a temporary interim use space in the heart of Westminster. It brings together community spaces, a café and affordable working and retail areas. Developed with a co-design approach, it emphasizes community involvement.

Co-design’s little helpers

Applying co-design methods successfully requires careful planning, which is also a process design in itself. It also requires moderation skills and recurring evaluation to ensure that the needs and perspectives of all relevant stakeholders are sufficiently taken into account. The methods that are used to do so can be multifaceted, ranging from classic brainstorming sessions, interviews and surveys, prototyping workshops, co-creation workshops, planning sheets for civic involvement and participative design to activistic formats. Because all of these formats have advantages and disadvantages and they only make sense in certain areas, it is most effective to use a combination of different methods reflexively to achieve a holistic and inclusive design.

Progress in artificial intelligence also makes it possible to carry out more complex co-design processes without requiring too much time. Already now, ChatGPT etc. are used to simulate feedback for designers and developers. This makes it possible, for example, to use datasets, interviews and survey responses to create AI-based personas that can be queried continually throughout the design process or can be used to test concepts. Co-Design is then carried out in a **Human-Machine Teamplay**.

Find out more about the role of human-machine teamplay in the design process in the chapter on **Conscious Economy**.

Current uses of AI in participative design processes

Data analysis and user research: AI is able to analyze large amounts of user data to identify patterns and insights into the behavior and needs of the users. This provides a solid basis for participative design decisions. Especially when a very large number of individuals should take part in the design process, for example when designing public spaces, AI-assisted data analysis can be a valuable tool.

➔ Tools: userlytics

Chatbots and virtual assistants: Chatbots can be used in online platforms for participative design to answer users' questions, gather feedback and support dialogue between designers and participants. This form of assistance is especially helpful for designing websites, apps and software interfaces.

➔ Tools: LivePerson, DeepAI

Collaborative online tools: AI can be integrated into collaborative online platforms to make collaboration between various stakeholders easier.

➔ Tools: guru

Translations: AI can help bridge language barriers by providing real-time translations for participants in a number of languages.

➔ Tools: Sogedes Call Translator, HeyGen Video Translate

Simulations: If the AI is fed with interviews, datasets or statements from various stakeholders, it can be used as a virtual persona and to check drafts. The personas can be used, for example, to discuss questions about the problem at hand or to get timely feedback on drafts or sketches.

➔ Tools: GPT 4.0, Delve AI, UXPressia

Sentiment analysis: The first AI models for sentiment analysis have already been introduced to the market and help companies and designers analyze the mood and emotional reactions of users to services and design suggestions.

➔ Tools: Sentigem, Qualtrics, Brand24

Accessibility and inclusion: AI can assist with identifying accessibility issues and provide solutions for a more inclusive design.

➔ Tools: Equally AI, Amberscript

You can find an overview of other AI tools for designers in the **Conscious Economy** chapter.

CHALLENGES

Designers are faced with the challenge of understanding the needs and requirements of a diverse society and implementing these into their designs. This requires an in-depth understanding of social, cultural and functional aspects.

For co-design to be successful, careful planning of the process, good moderation and a shared mindset for inter- and transdisciplinary collaboration from all participants are required.

Social dynamics between the various stakeholders should not be underestimated.

When putting co-design into practice, designers need to find an equilibrium between the various interests and opinions of stakeholders. This can be particularly challenging when it comes to controversial or sensitive topics.

OPPORTUNITIES

Since co-design makes it possible to involve stakeholders with varying perspectives as well as different types of knowledge and areas of expertise, suitable solutions can often be found more efficiently.

Co-design allows a variety of perspectives to be integrated into the design process and helps keep an overview of the differing needs of users.

With stakeholders taking part in the design process, targeted results can often be found for complex issues.

Sensitive design tasks that affect the reality of life for many users and could result in additional barriers for them benefit in particular from co-design.

Developments in artificial intelligence make it possible to realize co-design processes even when time is limited.

Mending Public

Third Places: places where socializing provides healing

Diverging worldviews are considered to be one of the core challenges of our digitalized world—especially in social media, discussions about current events often result in the spread of hate, fake news and conspiracy theories. One explanation for the emotional charge in this discourse is the overload of information that we are constantly confronted with. But there are numerous efforts to counteract the derailing of the discourse.

Mending Media is emerging as a countermovement to the destructive power of many mainstream media outlets and platforms that use click-bait, alarmism and fearmongering to fuel division, fear and collective dystopian ideas of the future. New media outlets and networks report in a constructive manner about problems and crises, provide useful information and build bridges through informative transparency.

Mending Media does not only focus on the quality of the communication, but above all, provides better outlets for communication. Places for real encounters where different groups can engage in conversations and that create a true value for the individuals in solidarity. Social media provides a digital third place for people to form an ideological community. Unlike third places in analog life, the people taking part in the interactions and communications here are not physically across the table from one another; they remain virtual, an abstract outlet for communication.

This seemingly small difference has major consequences, however, for the social interaction in digital third places. The barriers for bullying and aggression are much higher when one is across from the other person in the same physical space and can look them in the eye. Quite a few things need to change to make social media a socially compatible place again; designers can make a significant contribution to this.

CO-SOCIETY

Today, social media enables widespread opinion-sharing, initially fostering informative debates among experts. However, platforms like Instagram, Twitter, and blogs now allow anyone to comment on everything.

To address this, we must tackle it alongside improving communication, as the graphical development is insufficient to ensure engaging social network spaces.

PATRIZIO CIONFOLI

DIRECTOR DESIGN AND INTERACTION, STUDIO VOLPI, ITALY

Healing social media

There are three possible levels where change can happen to make social media a friendly, integrative place again:

- **Sense-perceiving level:** This level comprises, for example, a UX design that helps make access to social media inclusive for as many groups as possible. It is also possible through additional design elements for messages that convey the context and intention of the person commenting more clearly.

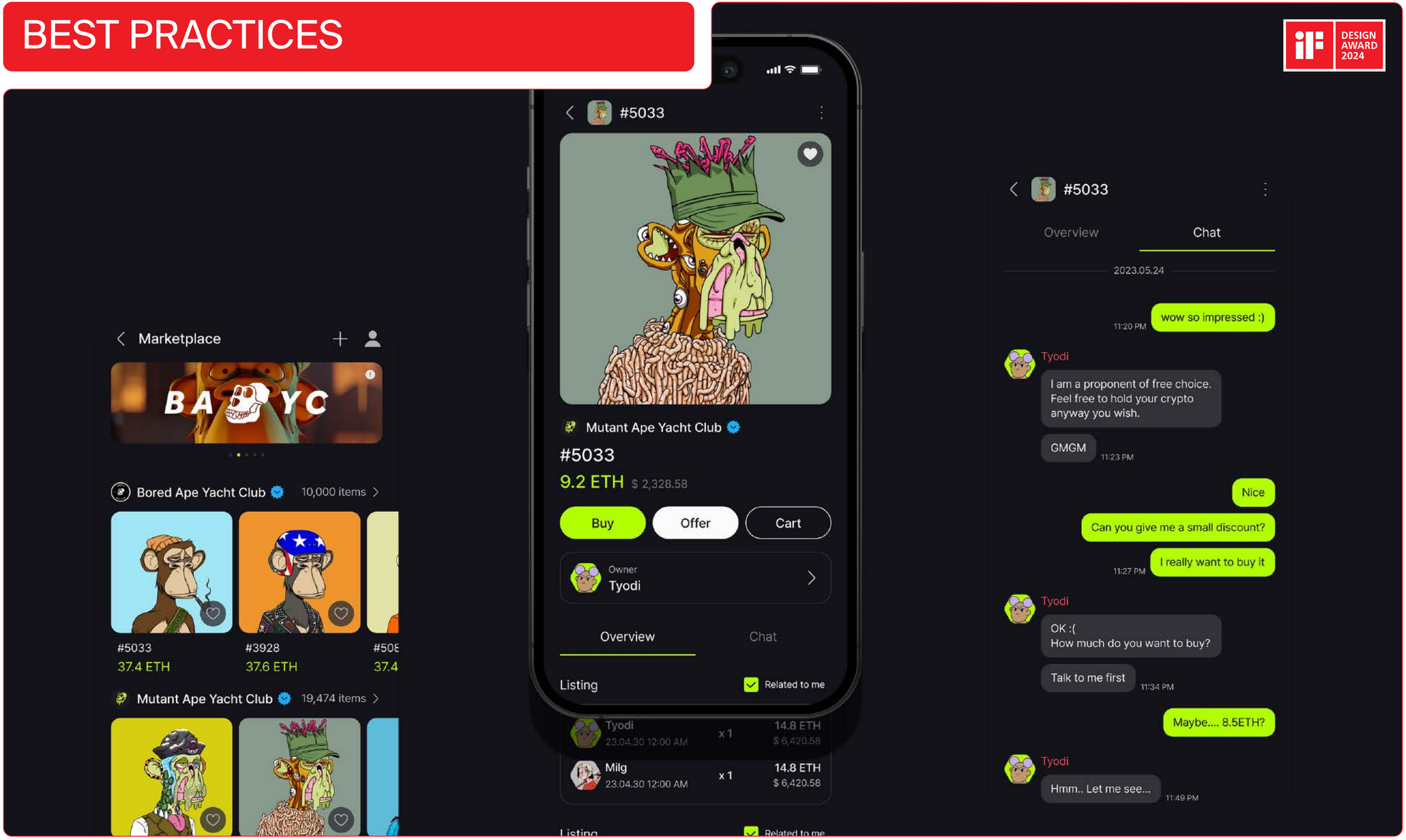
- **Conceptual-structural level:** At this level, it's less about the look and feel of the social media offer but rather about who can communicate with whom, for example. One example of this is dating websites, which take different approaches to how users can initiate contact to others and often limit this.

- **Social-educative level:** Even in the early days of the internet, a set of rules known as netiquette evolved in the first forms of social media, such as blogs and forums, to ensure enjoyable communication. In the present day, when not only humans inhabit the digital third spaces but also chatbots, these simple rules for niceness no longer suffice. Instead, it is necessary to develop media literacy to be able to handle the opportunities and risks of these digital spaces appropriately.

The issue lies more on people's media literacy than the design of the platform itself. I think proper education on online communications is far more crucial.

Masashi Kawamura
CHIEF CREATIVE OFFICER, WHATEVER, JAPAN

BEST PRACTICES



01 CIETY APP

CIETY, the integrated social platform, revolutionizes online communities by fostering meaningful connections and conversations. With innovative features like Giftok and a Marketplace, it offers a seamless experience for trading and engaging. Emphasizing openness, creativity and reliability, CIETY stands out for its user-centric approach, addressing loneliness and reshaping the future of social platforms.

A new agora—how brands provide true value and contribute to a positive public with third places

In ancient Greece, the agora provided a central value for living together as a marketplace, gathering place and event space. It is the original form of today's analog **Third Places**, such as exhibitions, repair cafés, libraries, bars, parks, sports parks, schools, swimming pools or spiritual places such as yoga meet-ups in public parks, which fulfill similar needs in the present day but are now specific to a target group. Third places serve social needs and contribute to social cohesiveness. They provide an abstract sense of community, become places where neighbors gather and engage in conversation, offering a space for free time in which to escape the constraints of work and home life. They make life more worth living for individuals, and they give society greater social cohesiveness.

The social importance of third places is also recognized by marketing and branding. Well-designed third places allow brands to build authentic customer relationships and to maintain their brand identity by purposefully making meaningful experiences possible that go beyond merely consuming their products. Starbucks' strategy to allow customers to stay even after the last drop of coffee has been drunk is a good example of this. Consumption plays a role, but not necessarily the primary role.

Rather, third places provide true value for a community and a target group in terms of branding. To achieve this, the needs of the community are analyzed and then aligned with the brand identity.

The goal is to act in line with certain values and thus build trust and positive emotions. Brands in the cultural sphere, such as museums or concert halls, are often able to achieve these requirements a little more easily thanks to their history and their core business.

Contemporary brands are increasingly creating sharing spaces, fostering communities and events. Such spaces can hold great cultural significance, filling a public void.

Patrizio Cionfoli
DIRECTOR DESIGN AND INTERACTION, STUDIO VOLPI, ITALY

BEST PRACTICES

01 YANG

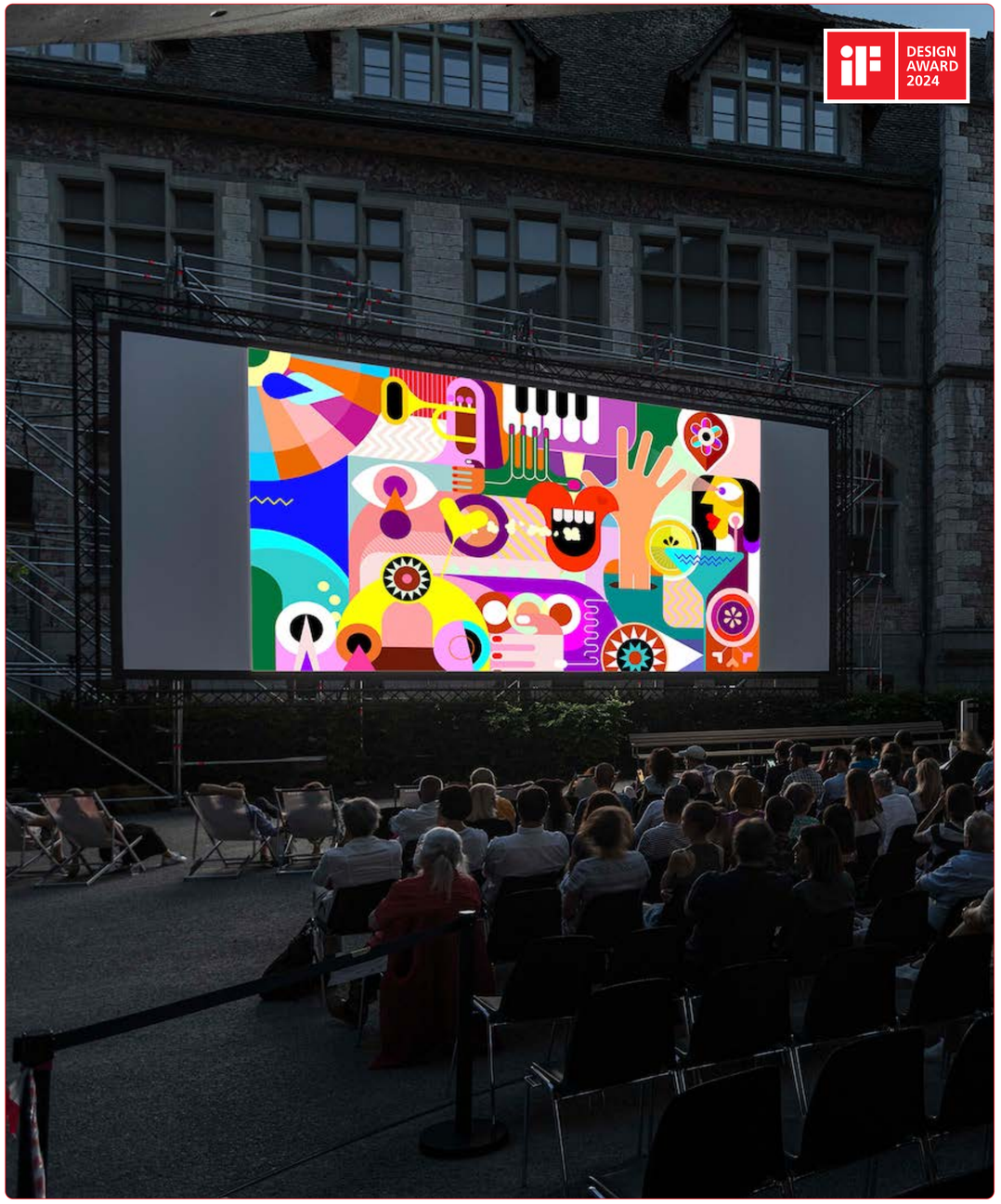
YANG is an autonomous third space on water, featuring world-first L4 level surface unmanned driving technology. It expands urban commercial boundaries, offering social activities like water cafes and hotels. Powered solely by lithium batteries and solar energy, it is environmentally friendly with zero pollution. YANG utilizes a rectangular layout vector propulsion system for precise and safe maneuverability, enabling lateral movement, hovering, autorotation and berthing actions.

02 FIFA Museum presented by Hyundai

The FIFA Museum's temporary home during the 2022 World Cup embodied Hyundai's sustainability campaign, showcasing a blend of tradition and modernity. Its rammed earth façade exuded timeless beauty, while the layout evoked the excitement of a football stadium. Versatile and user-friendly, it hosted museum exhibitions and campaign events seamlessly, aligning with Hyundai's sustainability goals.

01 02

BEST PRACTICES



03 Shinhan Bank

Café Swith SOL, inspired by Shinhan Friends characters, offers a unique brand experience of Shinhan Bank with captivating content reflecting the personalities of the Shinhan Friends. Notably, all content is tailored for hearing-impaired baristas, fostering a sense of “linking together” and promoting communication and coexistence for all customers.

04 Open-Air Cinema Experience

The Hofkino by Allianz is a 30-day event at the Swiss National Museum in Zurich, blending open-air cinema with vegan gastronomy. Catering to an ethically conscious audience, it revitalizes cultural spaces while addressing modern consumers’ cravings for authentic, sustainable experiences. Adaptations were made by the twofold academy, training individuals with autism in design and programming, championing neurodiversity for innovative and inclusive brand experiences.

Hybrid third places for democratic civil society

The motto of the 2026 World Design Capital in Frankfurt RheinMain is “Design for Democracy”—and also in other places, the question is asked of the transformative powers of design for social change on the bigger and also the smaller scale. Design activism, for example, uses design as a tool for social and sustainable change or gives marginalized voices an outlet. Co-design and participative design integrate as many stakeholders as possible into the design process to generate solutions that cover as many different needs as possible. Inclusive design, on the other hand, aims to provide accessibility to as many marginalized groups as possible through barrier-free design. It will, however, be important to create the right spaces to find solutions for issues and difficult discussions together. Perhaps these spaces will be physical places as well as digital and their hybrid nature will combine the benefits of the digital world with the friendliness of real places.

If it is possible to free the buzz of communication from its polarizing barbs through design, then the future of society, which is in the transformation process to a Co-Society, may rightfully be better than it seems at first glance today.

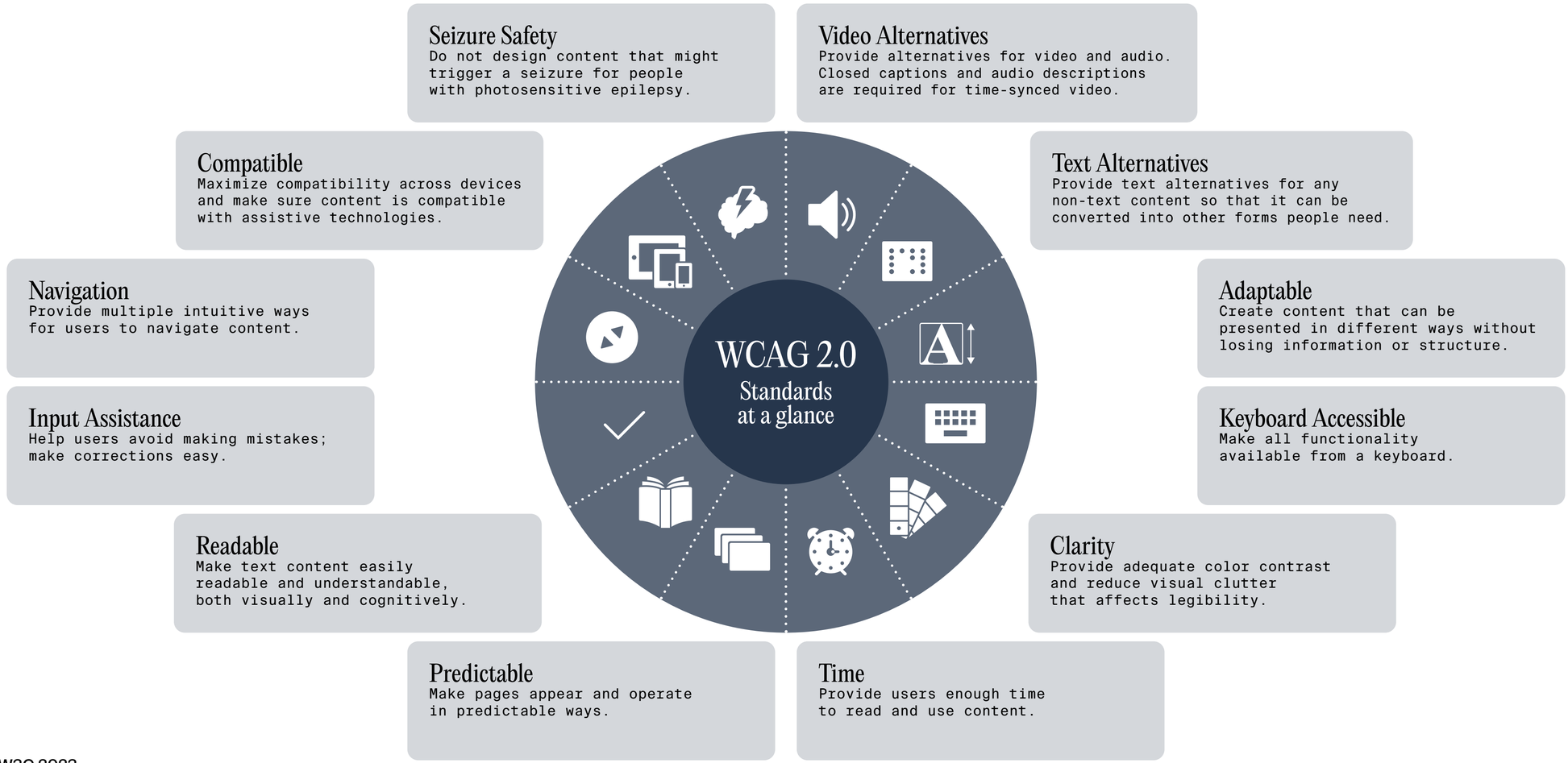
The goal of design should be to make us feel better in the future than today. Design should be the material result of the desire for an ever better world. The increasing divergences must make us ask the right questions:

Why do we have those ever-widening divergences and where? What are the reasons behind these differences?

Patrizio Cionfoli
DIRECTOR DESIGN AND INTERACTION, STUDIO VOLPI, ITALY

WCAG 2.0

The WCAG standards can be a helpful guideline for making third places truly accessible for all. The guideline was developed by W3C, a consortium that has been developing a series of shared principles for the benefit of all internet users since 1994. Numerous member organizations and industry leaders contribute to the W3C documents, including Tim Berners-Lee, the computer scientist credited with inventing the World Wide Web.



Source: W3C 2023

CO-SOCIETY

We need more projects that bring us as people together and contribute to finding solutions together for current issues.

Active discussion reduces reservations and creates more mutual understanding. Promoting interpersonal contact is an important aspect here.

MICHAEL LANZ

PARTNER, VAGABUND MOTO, AUSTRIA

What if.... every draft put an emphasis on user-friendliness as well as community?

The Co-Society will herald a new era of design in which the original promise of design will be fulfilled: contributing to a better world. The boundaries between aesthetics, user-friendliness, social and ecological sustainability, users, designers and producers are dissolving. **Co-Design**, participative design together with users and stakeholders, is becoming the standard, resulting in products that are in line with the needs and values of the consumers in their production and consumption. Third places—public, accessible places that are separate from work and home life—are becoming centers of creativity and collaboration, where people from different backgrounds can work together equally on sustainable solutions for the greater good.

In this world, the connection between people, production, community and product is profound and meaningful. Each object tells a story of conscientious production, social justice and positive influence on the environment. Innovative materials and environmentally friendly processes as the standard, while promoting fair working conditions and local influence in production. This new era is classified by a society that puts values such as sustainability, community and inclusion in the forefront. Appearance and functionality go hand-in-hand with a respectful approach to our planet and its inhabitants, and the boundaries between producers, consumers and the environment start to fade in order to create a harmonious, more sustainable future.

One that is better than William Morris pictured it in his novel *News from Nowhere* at the end of the 19th century. (Morris 1890)

The new era of Co-Design is characterized by a society that puts values such as sustainability, community and inclusion in the forefront.

Nadine Clarke

Strategy Partner
Tangent, London

Nadine Clarke, Strategy Partner at Tangent, specializes in crafting strategic initiatives that drive digital transformation across the agency's brand portfolio. Steering key projects, she ensures that user experience and design meet customer needs, provide significant value for clients and deliver measurable results. With experience in managing digital programs for global brands like SAP and IWG, her approach sees her exploring the effects of digital shifts on product, process and people to deliver tailored outcomes.

The Green Interface: Digital Design with Sustainability in Mind

Do you know how much carbon that stunning video file on your homepage is responsible for? And those custom fonts may look fantastic, but how weighty are they to load each time your page is visited? Carbon emissions associated with our sector are rivaling even the airline industry in 2024, and all these digital choices, big and small, mixed with a catalogue of other design variables, are contributing.

When we think of the known polluters in the mainstream at present, websites are not usually the first entity that springs to mind. However, Information and Communication Technologies (ICTs) contribute 4% to global emissions, and an average website produces 4.6g of CO_2 per page view. To contextualize this further, it means that if one page is viewed 100,000 times per month, it produces a staggering 553kg of carbon annually. This is the equivalent to heating a typical UK home with natural gas for the year. At Tangent, we are navigating the complexities of digital sustainability across the websites, apps and digital real estate we deliver every day for clients. What have we learned so far?

While many will immediately assume that the bulk of these complexities will lie among the choices surrounding the technology that powers these projects, we would argue that as much attention can and should be paid to mitigating emissions from design choices as well.

It is our belief that adopting sustainable user experience (UX) principles can be a key driver in reducing our industry's environmental impact. From optimizing visual assets and reducing data transfer to embracing dark mode and streamlining user journeys, there are many practical approaches that can minimize energy consumption and the overall carbon footprint of your digital products.

Where to begin?

Tangent, like many peers in the industry (though we could also argue, not enough of them), has been taking steps to channel everything we have learned about carbon conscious design and system architectures. In doing so, we are building greener websites that still deliver optimum functionality and look the part while doing it. Here are some routes to joining us on that journey.

Though it may seem obvious, many in our industry are guilty of forgetting that, generally, the more complex a website design is, the more energy it consumes. This means that animations, motion effects, videos, GIFs and large images contribute significantly to the carbon footprint. We're not saying you should go without imagery or effective visual flourishes, but to optimize them for size and file types — for example, SVG files instead of PNG or JPEG. Always ask yourself: Does this image add enough to the experience to justify its carbon output?

The web, guilty as it is in its own carbon production, is also blessed with various free online tools that measure CO_2 emissions. One example is the Website Carbon Calculator, which you can use to determine the CO_2 figures for websites. Use this as your benchmark for improvement and build a plan from there.

Richard Trigg

Design Partner
Tangent, London

Richard Trigg brings over 15 years of experience to his role as a Design Leader at Tangent, where he skillfully manages a team of product designers and engineers to deliver innovative and user-friendly digital products. A graduate of Brunel University, Richard has built a career that took him from British Airways to the forefront of technology sectors, with a steady focus on user experience, research and effective design leadership. His approach is centered on marrying customer experience with technology to develop solutions that not only meet user needs but also drive business success.

Always ask yourself: Does this image add enough to the experience to justify its carbon output?

The pursuit of sustainable digital design challenges us to innovate within a framework that prioritizes environmental responsibility.

The great creativity trade-off?

So, if it is possible to integrate sustainable design practices, surely there must be a trade-off elsewhere? Many creatives, when confronted with these facts, will ask themselves: Can we really bridge the gap to sustainable practices while maintaining our capacity to craft truly compelling creative designs? Are the limitations too great in this scenario?

On the contrary: Embracing creativity within these constraints becomes essential when you can't freely adopt every trick in your book. Arguably the pursuit of sustainable digital design does not entail sacrificing creativity; rather, it challenges us to innovate within a framework that prioritizes environmental responsibility. Ultimately, achieving truly creative designs within the constraints laid out by greener practices requires a shift in mindset that will keep designers on their toes.

Humans are vessels for creativity, which is why we should always have the driver's seat in the digital design process.

The future of sustainable digital design

We believe that as more brands prioritize sustainability reporting and ESG metrics, policy will also follow in this area. Until then, the onus falls on us as designers to integrate these considerations seamlessly into our workflows.

When it really comes down to it, designing sustainably is not merely a choice but a moral obligation, or at least it should be—one that transcends individual projects and client demands. The digital design community is presented with an opportunity to come together, to innovate responsibly and to pave the way for a future in which technology and sustainability coexist harmoniously. As we embark on this transformative journey, let us remember that every pixel, every line of code, every font choice and image dimension has the power to shape a more sustainable world.

Sustainability in action: Ten key practices for designers

1. Embrace light design by adhering to strict weight limits.
2. Streamline typography with fewer fonts for greater effect.
3. Efficiently optimize visuals for images and graphics.
4. Wisely use media by limiting energy-heavy content.
5. Innovate within constraints for enhanced creativity.
6. Find efficiencies by collaborating with development teams.
7. Advocate for green hosting by choosing providers powered by renewable energy.
8. Use tools like the website Carbon Calculator to measure your impact.
9. Acknowledge the tech sector's role in global emissions.
10. Offset your design impact for the planet, not just ESG metrics.

CHALLENGES

Digital platforms should be designed in such a way that they promote constructive communication between users on the aesthetic as well as the structural and educative level.

In design projects that aim to improve social situations, conflicting targets often arise with business models and factorization.

Digital third places have the disadvantage that communication is anonymous.

OPPORTUNITIES

Carefully designed third places can strengthen democratic civil society.

Innovative design approaches allow new media formats to be developed that make constructive reporting and exchange possible.

Brands can communicate their values effectively by creating third places, thus creating new forms of brand communication.

MINDSHIFT REVOLUTION

MINDSHIFT REVOLUTION

The Mindshift Revolution is changing the relationship between identity and society, reclassifying power dynamics and transforming values, norms and worldviews. This fascinating transformation is giving rise to the next, socially conscientious zeitgeist.

EXECUTIVE SUMMARY

The Mindshift Revolution is a period of societal, moral and spiritual change, urging companies to understand their audiences and embrace innovative design approaches aligned with evolving worldviews.
Social media shows a variety of realities of life, uncovering structural discrimination and inequalities.

Global protests driven by the Mindshift Revolution aim to advance social justice and empower marginalized communities.

In brand design, the Mindshift Revolution prompts a shift towards authentic brand activism, necessitating the integration of brand values across all company aspects.

Design plays an active role in reshaping social structures by promoting diversity and inclusivity in products and services.

Neo-spirituality influences product design, branding, and services, infusing significant life moments with new meaning and enabling brands to align with consumers' spiritual journeys.

Looking for new values and standards

Social inequality and protest as a driver for new values and standards for the complex global society

Thanks to digital communication and social media, we know more about the world than ever before and have additional democratized ways to spread information in the form of posts, reports or experiences. This means that we are confronted with individual experience reports, opinions and posts that are not our own. They show us how different the realities of life can be for others, give us insight into the many forms of structural discrimination and inequality that are part of everyday life for many people.

As a result, the number of protest movements questioning established global power structures and attempting to transform social frameworks into a better shared society is increasing. In this transformation process of the **Mindshift Revolution**, power relationships are questioned, and existing values, standards and perspectives are reconsidered. This process is not without friction, debates and sometimes painful discourse. When conservative viewpoints meet progressive perspectives, the effects are manifold: In addition to conflicts on worldviews and demands for society, countless new ways and styles of interaction are being developed and tested, which might be overwhelming for some.

The current conflicts can also be described from another perspective, though: as a side effect of a necessary societal process of progress and as an expression of an **idea evolution** (Luhmann 2008) that is already underway, in which the values, norms, narratives and regulations of the classic modern society are being questioned. (Baecker 2007)

Idea evolution: While structural transformation processes are in the forefront in the Co-Society, the Mindshift Revolution is centered on ideological change processes. The background of this development is the fact that new ideas, values and narratives become formative with each new societal structure. In the transition to a modern, functionally differentiated western society, this change became evident in a new idea of love or how to assess changes, for example. While different ideas of love were prevalent in ancient days, with Agape, Eros and Philia, modern society has placed romantic love into the forefront. C.f. for example Luhmann, Niklas (1994); Love as Passion. The Codification of Intimacy; Esposito, Elena (2007); Fiktion der wahrscheinlichen Realität [The Fiction of the Likely Reality]

Plurality in design

Brand design in flux: From traditional brand positioning to authentic brand activism

In the Mindshift Revolution, we are experiencing a global societal search for new and successful solutions and a trying-out of new value sets. This search is taking place on the one hand on the individual level, but also with companies and organizations. Brands, products and applications are expected to position themselves along a value orientation that should be implemented consistently at all levels.

Companies must answer these questions:

- Which stance and values does the brand message of a company touch on and require a position from the company?
- How can corporate values be communicated through design?
- Which forms of communication make sense for this?

It has become evident that it is not always enough for brands to communicate their sociopolitical positioning regarding values and norms solely through marketing campaigns. Instead, more and more consumers are looking for an actual contribution to societal transformation processes instead of halfhearted lip-service in the form of a rainbow logo during Pride month.

As a result, the Mindshift Revolution is also changing the world of branding and marketing. The bar has been raised for brand activism: from engagement on social media to spreading the brand values to all areas of business. (Vredenburg/Kapitan/Spry/Kemper 2020)

Products that make environmental, social and governance-related claims have achieved disproportionate growth.

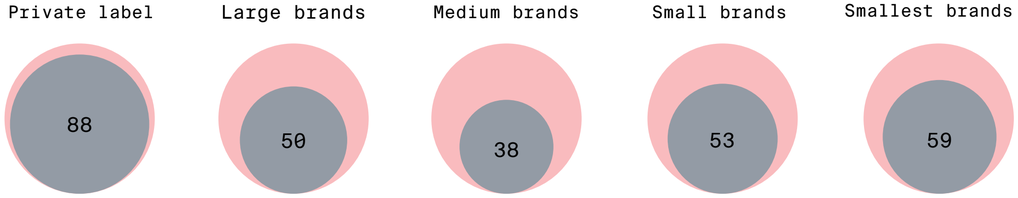
Retail sales growth, US, CAGR 2018–2022, in %

[1]Environmental, social and governance.

Source: NielsenIQ, McKinsey & Company

Environmental, social and governance-related claims can help boost growth for a variety of brand types.

Share of categories with outsize growth for products with ESG [1]-related claims by brand type, US,[2] in %



Note: Among national brands, large brands comprise the top 60% of sales. Medium brands are the next 20%, small brands are the next 15%, with smallest brands in the bottom 5%.
[1]Environmental, social and governance.
[2]Outsize growth indicates categories in which the growth rate of products with sustainable claims exceeds that of products without sustainable claims.

Source: NielsenIQ, McKinsey & Company

Plurality is also an important driver for **co-society**

Brands take a stance and act

Brand activism refers to companies actively taking a stance for social, political or environmental values and norms through authentic campaigns and communication strategies that go beyond conventional marketing measures. Successful branding campaigns are always followed by restructuring or projects that promote and set an example for the values that have been communicated to the outside and on the inside.

The Body Shop is considered to be the trailblazer for brand activism. The company has taken a clear stance against animal testing since its foundation in the 1980s and is committed to the inclusion of all body types.

In the past years, more and more companies have committed themselves to wholly embracing their values throughout all corporate structures. Adidas, for example, developed an additional **Adidas Campus** in 2022, in which it made engaging in sports and an athletic lifestyle its primary design guideline.

Ecosia, an online search machine, has set itself the goal of investing the majority of its proceeds in planting trees. The company thus supports numerous environmental protection programs while also promoting carbon binding.

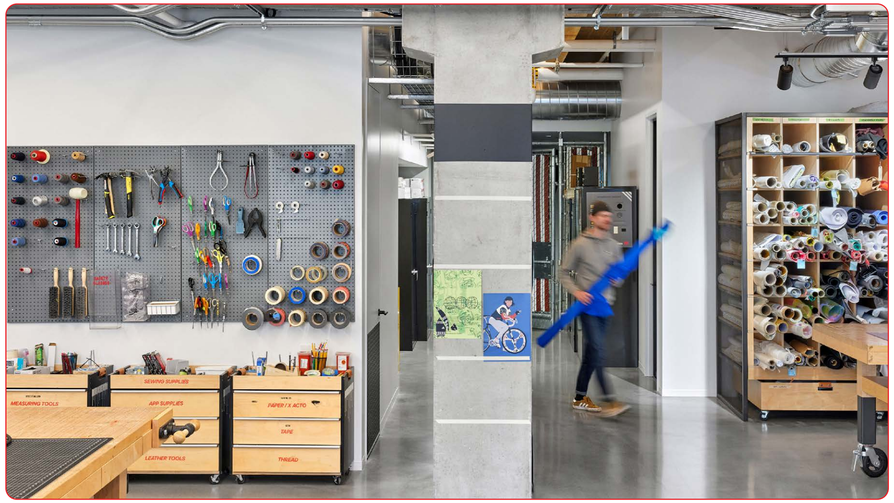
The outdoor clothing manufacturer Patagonia has been considered a trailblazer for consistent brand activism for many years. It garnered attention in 2011 with its Black Friday marketing campaign, in which it advertised for repair and reuse with the slogan “Don’t buy this jacket.” Patagonia campaigned for the Vjosa, the last untouched river in Europe, to be declared a national park, and it has a fleet of buses that travel from city to city offering clothing repairs. In 2022, the company was transformed into a nonprofit trust, donating all proceeds to environmental projects.

Successful brand activism communicates brand content through specific action and campaigns. This new development is interesting as it subverts the functional separations that were characteristic of modern society. The brands of the next society now pursue sociopolitical goals and the goal of better company symbols concurrently.

Brand activism as values-driven

Source: Kotler/Sarkar 2017

BEST PRACTICES



01 adidas GOLD, Performance Zone, RED

The GOLD, Performance Zone and RED buildings of the adidas campus are more than just structures; they embody inclusivity, credibility and sustainability. Designed to foster creativity and teamwork, each space reflects adidas' brand values authentically. From adaptable workspaces to custom storage solutions, every detail prioritizes wellness and sustainability.

BEST PRACTICES

02 03
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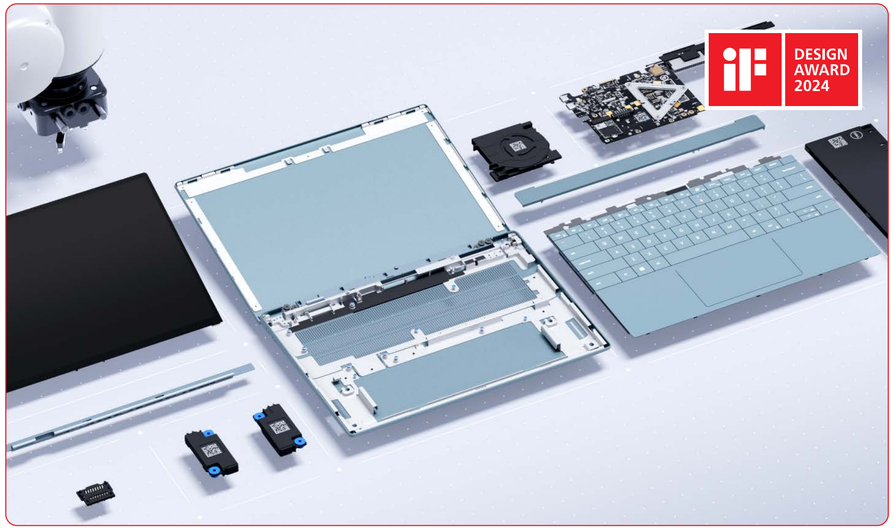


02 Ben & Jerry's

The social business Ben & Jerry's has a progressive, nonpartisan social mission that seeks to meet human needs and eliminate injustices in local, national and international communities by integrating these concerns in the company's day-to-day business activities. The "Change is Brewing" campaign is launched as part of their ongoing work to advance racial justice, calling for the nation to divest from a broken criminal legal system and invest in services that help communities thrive.

03 OTO Chair

Introducing the OTO Chair: revolutionizing sustainability in furniture design. Crafted from recycled plastic, this chair embodies the principles of the circular economy. Its innovative single-mold production, a fraction of traditional size, minimizes waste and energy consumption. With screw-free assembly and optimized logistics, every stage prioritizes eco-consciousness.

04 Concept Luna Evolution

This concept aims to explore and test new design ideas and manufacturing processes to reduce resource use and promote a circular economy. Dell's recent efforts with Concept Luna Evolution focus on integrating intelligent telemetry and robotic automation to scale sustainability benefits in PC manufacturing, repair and disassembly processes.

Societal structures as a design task

A basic assumption of the Mindshift Revolution is that plurality enriches society and thus advances it. This also presents the design with the challenge of making plurality possible in our social world and, beyond that, manifesting it through the design of products, services and applications. **Co-Society**

If human, social and cultural diversity are better taken into account in our day-to-day lives through products, services and applications that are designed with this in mind, then design is making a constructive contribution to the social structures of the next generation. (Crenshaw 1989) For designers and companies, this is, however, connected with the challenge of actively addressing current forms of exclusion, discrimination and marginalization.

The fact that diversity, inclusion and developing an everyday perspective that is aware of discrimination is worthwhile not only on a social scale but also offers economic benefits has been proven by numerous studies. Teams that are diverse in economic contexts achieve better results and are more resilient in crisis situations. More equal structures of participation from different perspectives strengthens social cohesion, and projects that bring together a variety of perspectives make it possible to understand problematic situations on a more complex level. (McKinsey 2020)

Nike ‘Created For You To Rise’ Interactive Game

Advantage awareness is driving new design perspectives

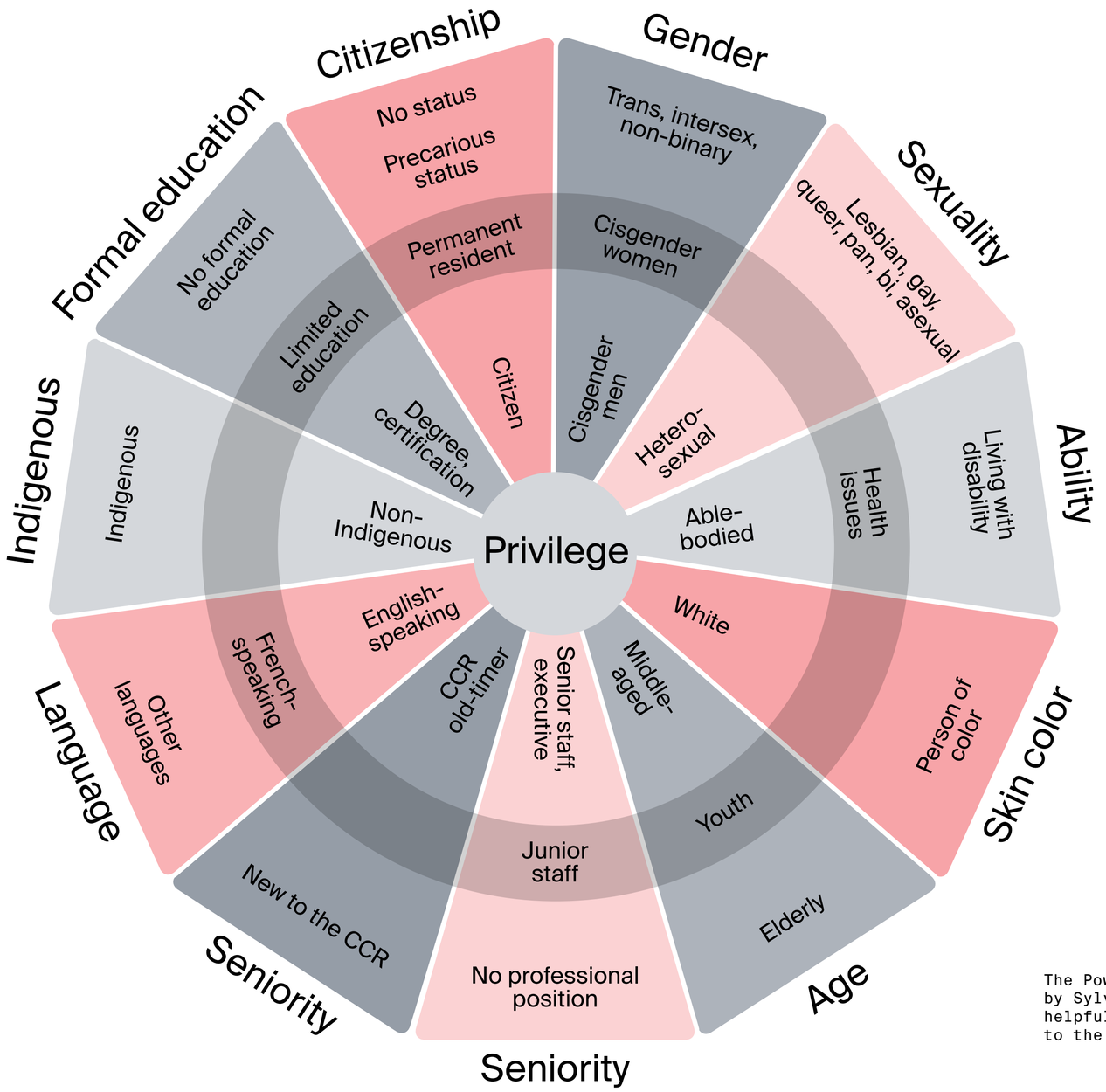
As part of this development, we also gain a better understanding of forms of discrimination that are prevalent in our everyday. We are starting to understand that discrimination can be a multidimensional phenomenon. Already at the end of the 1980s, this was summarized under the term **intersectionality**. An intersectional perspective can also take into consideration the fact that a person of color from the educated upper class could have significantly more privilege than a white man with a low education level.

For design, an intersectional perspective can be beneficial in numerous ways. On the one hand, it allows for a different understanding of the effects of inclusion and exclusion that each configuration brings up, and it draws attention to matters of privilege and discrimination as well as power and powerlessness. These matters touch on the political dimensions of design, which had played a subordinate role in everyday design in the industry until now, and which will gain importance in the future, especially in view of AI, system and service design.

Advantage awareness provides motivation toward a constructive approach to this circumstance. Personal engagement ensures that minorities can position themselves better—and it makes dialogue on an equal level possible.

Intersectionality means that forms of discrimination can overlap, just like privileges. Individuals could have a complex profile of discriminations or privileges based on age, origins, size, disability, sexual orientation, language, race, ethnicity, religion as well as neurodiversity such as autism or ADHD.

Wheel of Privilege



The Power and Privilege Wheel developed by Sylvia Duckworth gives an initial, helpful overview that should be adapted to the corresponding design task.

Source: ccrweb.ca

MINDSHIFT REVOLUTION

True creative problem-solving resulting in creative solutions that are desirable, feasible and viable nearly always come from an alternative definition of the problem.

This alternative definition can only come from reframing problems, but to reframe problems we need to diversify the framers. This includes leveraging the tacit knowledge that designers who are often not included (women, POC, neurodiverse, non-binary, etc.) bring to the table and making sure that the problem is being solved for a broader population.

KAREN KORELLIS REUTHER
DESIGN CRITIC, HARVARD UNIVERSITY, USA

BEST PRACTICES

01 Founderland

Founderland, born to address the stark underrepresentation of female founders of color in Europe's venture capital landscape, offers a holistic support system including community, mentorship and fundraising. Thanks to a grant from Google.org, it is the fastest-growing non-profit of its kind. Through initiatives like the Google.org Impact Challenge for Women and Girls, Founderland aims to usher in a new era of visibility, funding and connectivity for historically marginalized women founders in Europe.

02 Markets International Magazine

The Markets International magazine delved into the theme of "Different for Success," highlighting diversity in the workplace. Experts emphasize that safeguarding, nurturing and leveraging employee diversity presents significant opportunities for companies. In order not to photographically quote the well-known subjects too much, a completely different visual approach was chosen, which also has a certain timelessness.

03 Nike 'Created For You To Rise' Interactive Game

The project aims to create an immersive experience for Nike's customers, integrating Chinese elements into the design. Nike opted for contemporary urban motifs over traditional cultural symbols, resonating better with modern urban lifestyles. Avatars representing diverse body shapes and genders were crafted to cater to a wide customer demographic, reflecting the brand's focus on the Great China market.

Design and justice

As advantage awareness grows, so does the desire for justice. The protest movements we can currently observe in many countries are an important indication of structural inequalities that are also manifested in the design of products, applications and infrastructures.
Three significant ways in which this is evident are:

- **A lack of representation and diversity in design teams and decision-making processes:** Structural inequalities in design are often evident in the lack of diversity in design teams and among those who make design decisions. This leads to results that do not reflect the needs and perspectives of all segments of society. For example, a team that comprises primarily middle-aged men could inadvertently develop products that do not suit the ergonomic or aesthetic needs of women, older people or younger users. Especially in IT—for example when developing facial recognition software—the algorithms are often trained and tested within the team in the first rounds. The biases that are created as a result often affect large segments of society.

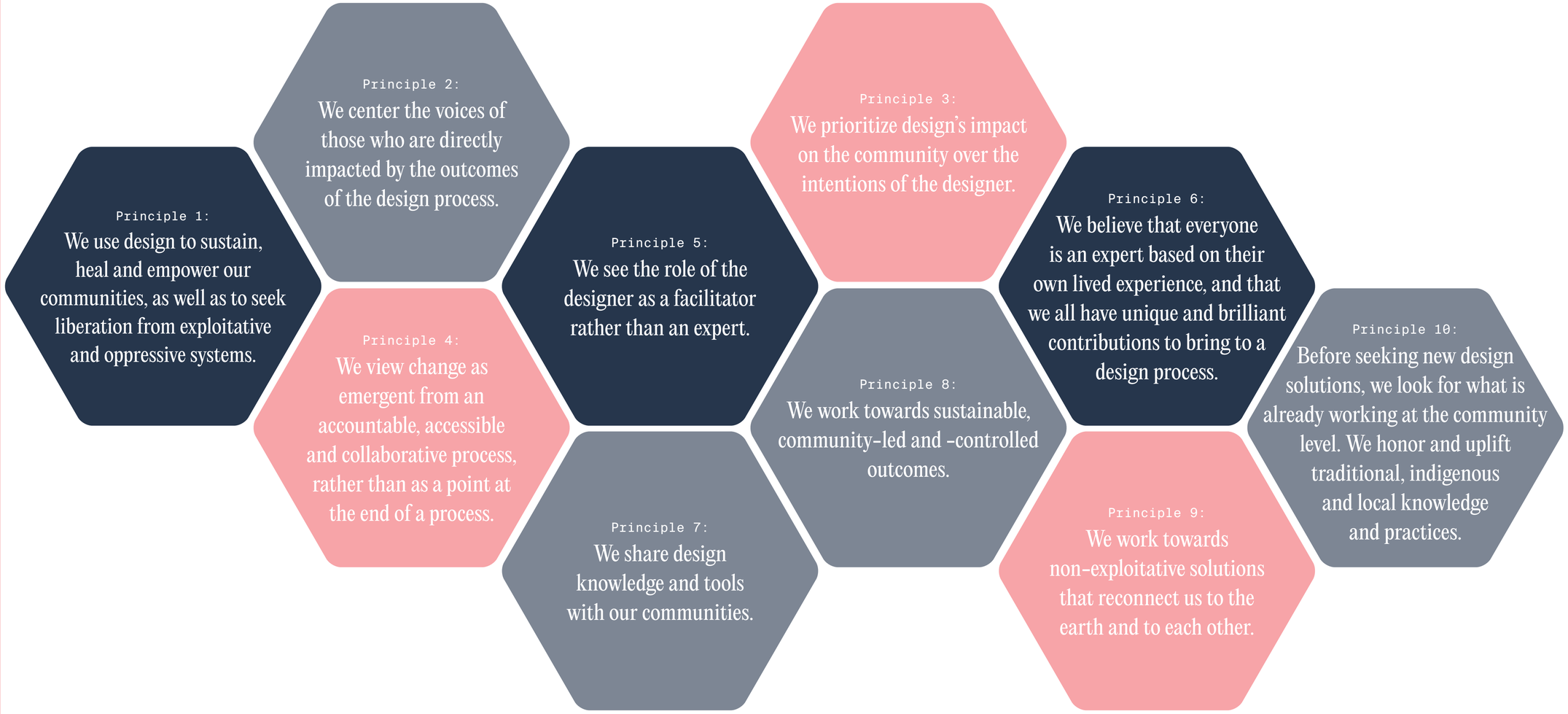
- **A lack of equity for diversity in planning:** Especially in the design of public buildings and public transportation, a lack of equity for diversity in planning leads to environments that are inaccessible for people with disabilities or special needs. Buildings without wheelchair access or websites that are not compatible with screen readers, for example, exclude people with physical disabilities. The size and ergonomics of products that are designed solely for “normal” people can also exclude other users, such as those who are large or small or those with limited motor abilities. **Co-Society**

- **Bias and stereotypes in visual communication and product design:** Design can also emphasize inequalities through the use of stereotypes or biased illustrations in visual communication and product design. This ranges from the depiction of gender roles in advertising and media to product designs that unconsciously reinforce cultural stereotypes or cliches. For example, the marketing of certain products solely to one gender group or the depiction of people of a certain ethnic group in stereotypical roles in the advertising help to solidify social inequalities and undermine diversity and inclusion.

These examples underline that design is far more than just an aesthetic or functional activity. It bears far-reaching social and cultural implications. Actively tackling these aspects can promote a more just and inclusive society.

Design Justice

It is exactly this that the Design Justice Network has laid out as its mission. The ten principles of Design Justice provide a guideline that helps designers keep the question of justice in mind in their designs.



Source: Design Justice Network 2018

CHALLENGES

Designers are faced with a necessity to integrate new worldviews and value sets into design and brand strategies.

The Mindshift Revolution requires a consideration of intersectional perspectives and power ratios in design—and as part of this, also a closer consideration of the needs of a diverse group of users.

The political dimension of design is increasingly becoming an objective for users. These need to be addressed and inequities actively counteracted.

OPPORTUNITIES

Authentic brand activism allows companies to play an active role in societal change while also communicating brand content authentically through concrete actions.

Inclusive design allows social structures to be influenced positively and plurality to be manifested in products, services and applications.

The new demands on design also foster a networking of design researchers. The frameworks resulting from this promote the creation of new standards and innovative approaches in design.

Neo-spirituality

Design as an expression of new needs in moments of change

Spirituality is a basic element of the way humans see themselves and the world, comprising transcendental experiences and desires as much as it comprises rationality and logic. Spirituality is not the same as religion, though for most of us, this is likely the first example of spirituality that comes to mind. Spirituality is when we search for a higher meaning in experiences and when we experience things that are beyond ourselves. These kinds of experiences are particularly important in threshold moments in our lives.
In moments like this, we are also particularly impressionable to symbolically charged product design, branding and service offers.
It can give us an impression of how this new segment of our life might look, or it gives us orientation and possible coping mechanisms. Entire industries are therefore dedicated to threshold moments like this, and brands position themselves as being there for us in such times. Experiencing a higher, more meaningful reality in things gives us stability and helps reduce uncertainty in moments like this.

Particularly important threshold moments are:
- the birth of a child
- coming of age
- weddings
- moving to a new home
- end of life

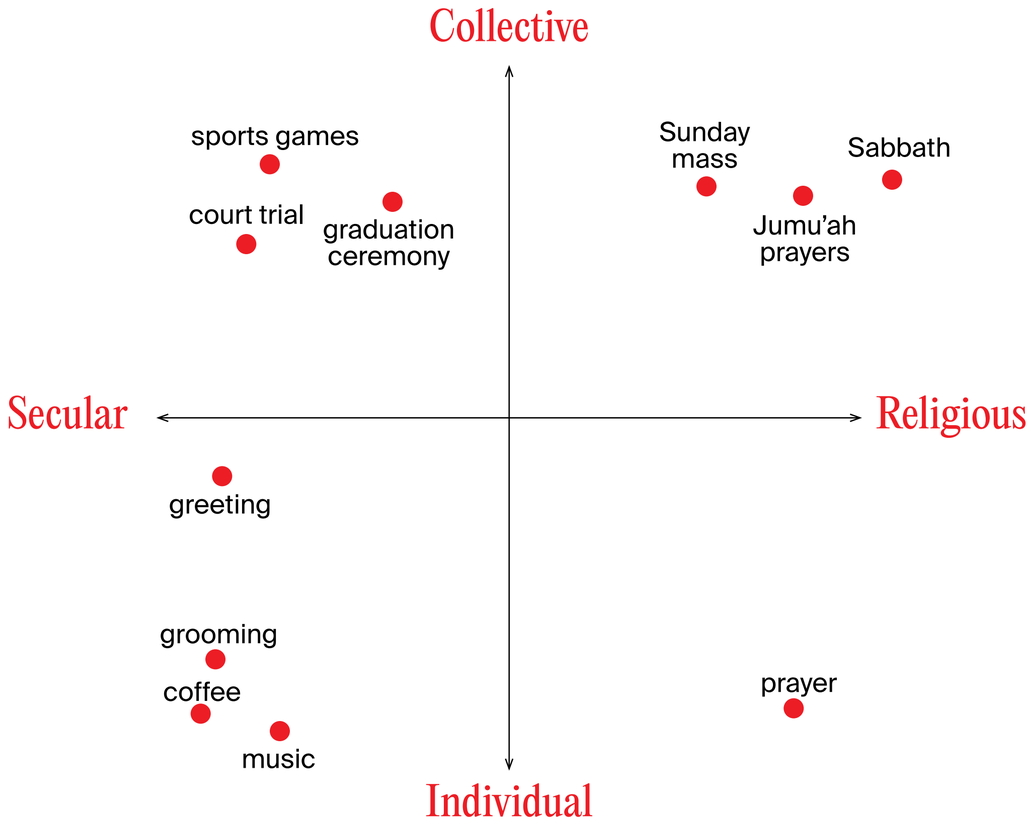
Threshold moments are transitions, moments of in-between and of transformation. In these moments, one development process is being completed and another is beginning. Quintessential threshold moments are births, graduations, weddings and death. They can be happy moments as well as moments of sadness, characterized by letting go of the old and letting in the new. Threshold moments are ritualized in all cultures and accompanied by transcendental experiences that symbolize an end and a new beginning.

Design gives spirituality new forms and possibilities for interaction

Traditionally, religions, with their rituals and cosmologies, fulfill the task of giving this desire for spirituality the corresponding means of expression, explanations and places for these experiences. These have become less enticing, especially in industrialized nations, though the moments themselves have not lost any of their charisma or spiritual importance.

After all, the move away from organized forms of spirituality does not mean that we have now become completely modernized (Latour 2008) and have transitioned to an entirely rational worldview. The spiritual needs have stayed the same and have found other means of expression. This is also evident in digital mass offers or apps like **Godpod** that bring religion into virtual spheres.

The present is moving away from the dominance of traditional, religiously influenced rituals and ceremonies and spiritually meaningful spaces are creating openings for new design opportunities. New forms are emerging to provide the corresponding means of expression for spiritual needs and places for these experiences. While the New Age movement of the twentieth century was characterized primarily by esoteric, neo-spirituality today is characterized by giving a higher meaning to everyday moments—with the help of products, applications and services. Often this higher meaning is connected with a holistic perspective: If it's good for me, good for society and good for the planet, then it is good. Brands, products and applications that are devoted to the desire for meaningfulness thus benefit from a holistic approach.



Source: ritualdesignlab.org

The meaning of routines, rituals and ceremonies

Those looking for meaning seem to find it everywhere these days: in their jobs and their families, in decorating their homes, in DIY projects and travel offers. Those looking for meaning in their everyday will therefore not only find it, but they will also be confronted with a wide range of offers that provide meaning in every aspect of life. And as not all offers can be used at the same time, the best need to be selected to curate a good private life for oneself. (Reckwitz 2017)

This is hindered by the fact that a good life, despite all the best efforts toward meaningful design, cannot be realized simply by collecting things. Instead, meaning is found through processes focused on addressing one's physical and mental wellbeing, self-efficacy, stable relationships and resilience. None of this is material, but rather depends on making an effort and taking care. Countless services, applications and products are thus built around routines, rituals and everyday ceremonies that are dedicated to achieving wellbeing and health.

Routines, rituals and ceremonies are forms that can be used to absorb uncertainties and make transcendental experiences likely but serve different goals.

Source: A Kui's Wedding Dress

The meaning of routines, rituals and ceremonies

Routines are recurring behaviors of a structural nature and provide assurance that a goal will be achieved. It doesn't matter here what the goal is: it could be a clean apartment, the efficiency of the day's structure or how much energy one has. Routines work because they minimize the cognitive effort that we need to put in to achieve a goal. They become so internalized that it isn't hard to remember to make the bed in the morning. Sometimes routines comprise the use of numerous objects in a certain order.

Design can gather the elements in sets and kits, making it easier for users to carry out that routine. This is a common strategy in the cosmetics industry, for example. The trend toward morning or evening skincare routines requires certain care products and tools that are designed to work together.

Rituals are intensified routines. Rituals are similar to routines in that they are also about completing certain steps. However, the steps cannot be switched just like that. Rituals are distinct from routines in another way: They are carried out consciously and are not only done to achieve a certain state but also have an emotional component. They thus serve to improve not only the external but also the internal experience, the emotional state. Design can improve existing rituals by increasing the intensity of the sensory experience of the ritual objects, it can create new forms of ritual or make it possible to carry out certain rituals in other contexts. One example is showerheads that can be programmed and customized to allow different water intervals. They transform the shower routine into a wellness ritual.

Ceremonies comprise rituals that are carried out in a certain order and are characterized by their social function: Most ceremonies are carried out by groups and serve a social function. They require observers as well as active participants in certain roles. Traditional forms are weddings and religious services, but also opening ceremonies at sporting events. Event design, for example, can shape wedding ceremonies to the individual wishes of those involved.

Symbols play an important role in rituals as well as ceremonies.
This means that their elements—whether these are courses of action or objects—carry meaning that indicate a higher purpose. Ceremonies and rituals can, however, also become a symbol: A wedding is a symbol for the bond of matrimony, the opening ceremony is a symbol for the meaningfulness of the event, or a Japanese tea ceremony is symbolic for transcendental values such as harmony, respect, purity and the silence of Zen.

BEST PRACTICES

01 Campus Vivorum

Campus Vivorum in Süßen, Baden-Württemberg, is an experimental site showcasing future cemetery concepts. It promotes individualized mourning spaces, fostering emotional healing. The site encourages dialogue and offers inspiration, highlighting the importance of personalizing burial sites. This initiative marks a significant step in reshaping how society approaches grief and remembrance, emphasizing inclusivity and active participation in funeral preparations.

01

BEST PRACTICES

02 03

02 Ancient Ritual Arc Sauna

ARC revolutionizes the sauna experience, addressing overcrowding, privacy and maintenance concerns. Combining therapeutic infrared heat, ambient light and immersive sound, ARC offers unparalleled relaxation and healing. With guided meditation and breathwork plus AI software that adapts to your needs, it transforms biometric data into personalized analytics. ARC seamlessly integrates into home living spaces, enhancing well-being with every session.

03 Meditation Audio

Introducing the Mantle Meditation System: Inspired by ancient meditation practices, this innovative product brings tranquility into modern living. Simply insert themed meditation cards to access audio guides, eliminating the need for electronic screens.

BEST PRACTICES

04 Godpod

Godpod pioneers belief systems in the Metaverse through innovative NFT blind boxes, blending ancient and modern religious symbols into unique digital figures. It challenges the concept of belief as either material or spiritual, offering believers limitless possibilities. Is belief a tangible symbol or pure spirituality? This is the central inquiry of our groundbreaking project.

Cultural appropriation vs. cultural appreciation

Especially rituals that are drawn from non-European cultures such as yoga, Japanese tea ceremonies or Chinese sage ceremonies and certainly indigenous rituals often raise questions of **cultural appropriation** and privilege. Cultural appropriation is problematic when there is an imbalance of power, where culture is taken over without authorization, cultural elements torn out of sometimes sacred contexts and commodified as a mere lifestyle product for western desires.

It is not only the appropriation of cultural elements and rituals, though—their use can also be appropriation, and it raises critical questions about privilege. A yoga retreat vacation, after all, requires a certain amount of financial means, free time, freedom from caretaking responsibilities and other resources—just like a seminar on silence in a cloister. Not everyone can afford mindfulness in this sense.

Not every form of appropriation of a culture or ritual should be considered cultural appropriation, though, as cultures have shared elements of their culture and knowledge with each other through all of human history, often also on an equal level. Cultural Appreciation is the flipside of Cultural Appropriation in this sense. The key here, however, is that it is an appreciative exchange on an equal level.

The term **cultural appropriation** denotes taking over expressions, artifacts, knowledge or accomplishments from other cultures. It is currently being used increasingly in a negative context to describe and criticize unauthorized, exploitative and distortive appropriation of cultural goods from marginalized groups. The counter-term is cultural appreciation. It is used to mark appropriation that takes place on an equal level, often in the form of inspiration.

Cultural appreciation is driven by transformation **glocalization**.

Form and transcendence: Sensuality at all levels

Transcendental experiences are holistic in nature, taking place not only in our heads but comprising all our senses and prepared in our sense perception. Traditional examples for a design that supports transcendental experiences can be found across cultures in religious architecture. Whether it's a shrine, temple, pagoda or Gothic cathedral, spaces that are specifically oriented to our senses make the sensory experiences we are looking for in the Mindshift Revolution possible.

This holistic design approach is also taking place in non-spiritual spaces these days: Spiritual design elements are frequently also used in secular design projects to give places and experiences symbolic meaning. The spiritual design then often fulfills a specific function: *see next page*

NOUSAKU Taiwan Store

Form and transcendence: Sensuality at all levels

Brand design

- **Showrooms:** Showrooms often use parallels to spiritual architecture to emphasize the meaning of the products presented in them.
- **Symbols and colors:** Symbols and emotionally charged colors convey a sense of trust.
- **Storytelling:** Some brand messages refer to spiritual or transcendent experiences to underline the authenticity of a brand.

Example: PSLabs Showroom

Hospitality design

- **Spatial design:** Hotels, spas and retreats in particular use mystic interior decoration to promote a neo-spiritual experience for their customers. In addition to retreat areas and quiet areas, these could also include cultural quotes that originally served a spiritual purpose.
- **Sensory elements:** The use of soothing tones, scents and visual elements can promote relaxation and increase the quality of the stay.
- **Services:** Spas and retreats in particular combine the spatial offer with activities or services that involve spiritual practices such as yoga or meditation.

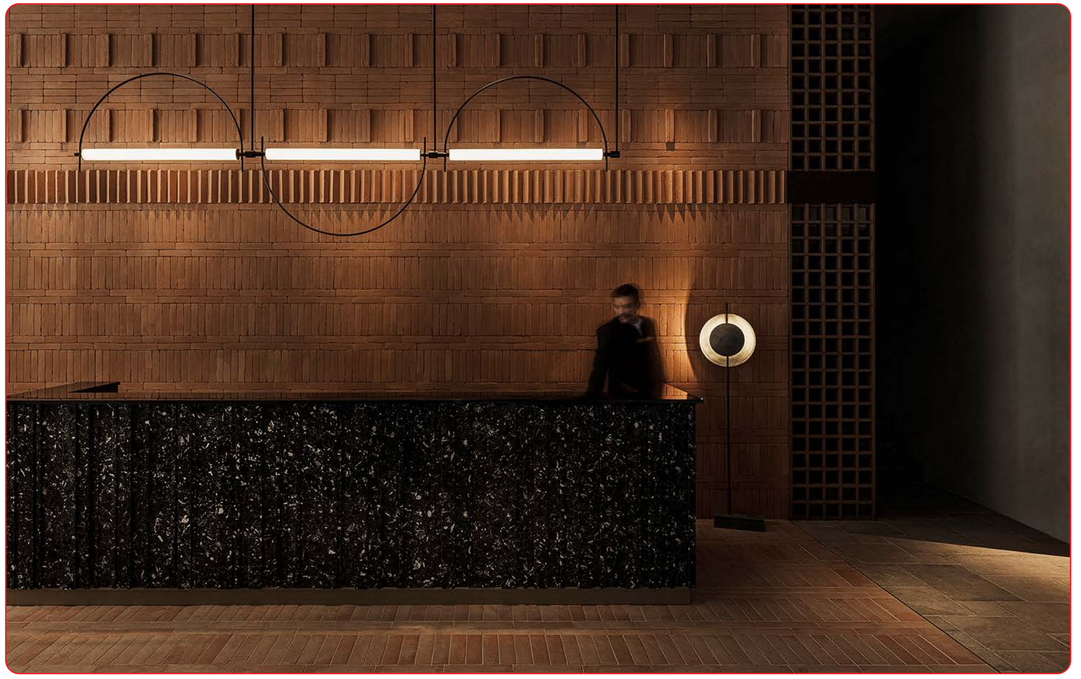
Example: Maroma Hotel

Healing spaces

- **Healing spaces** become places for community: community and social togetherness promote healing. Increasingly often, places that are intended for healing are connected with functions that are meant to promote a sense of community. Healing environments: Design of spaces that promote health and wellbeing.
- **Light and color:** The planning uses natural light and a relaxing color scheme to create a harmonious setting.
- **Integrating nature:** A connection to nature is created by bringing in plants, water and natural material. This is particularly beneficial for mental health, which also plays a key role in physical healing processes.

Example: Holistic healing center

BEST PRACTICES



01 HSS Hotel

The space embodies the hotel's local spirit, preserving its authentic appearance by emphasizing raw materials and textures. Metal, wood, cement and glass engage in harmonious dialogue, inviting travelers to immerse themselves in the hotel's natural ambiance while enjoying their stay.

02 Tea & Trends

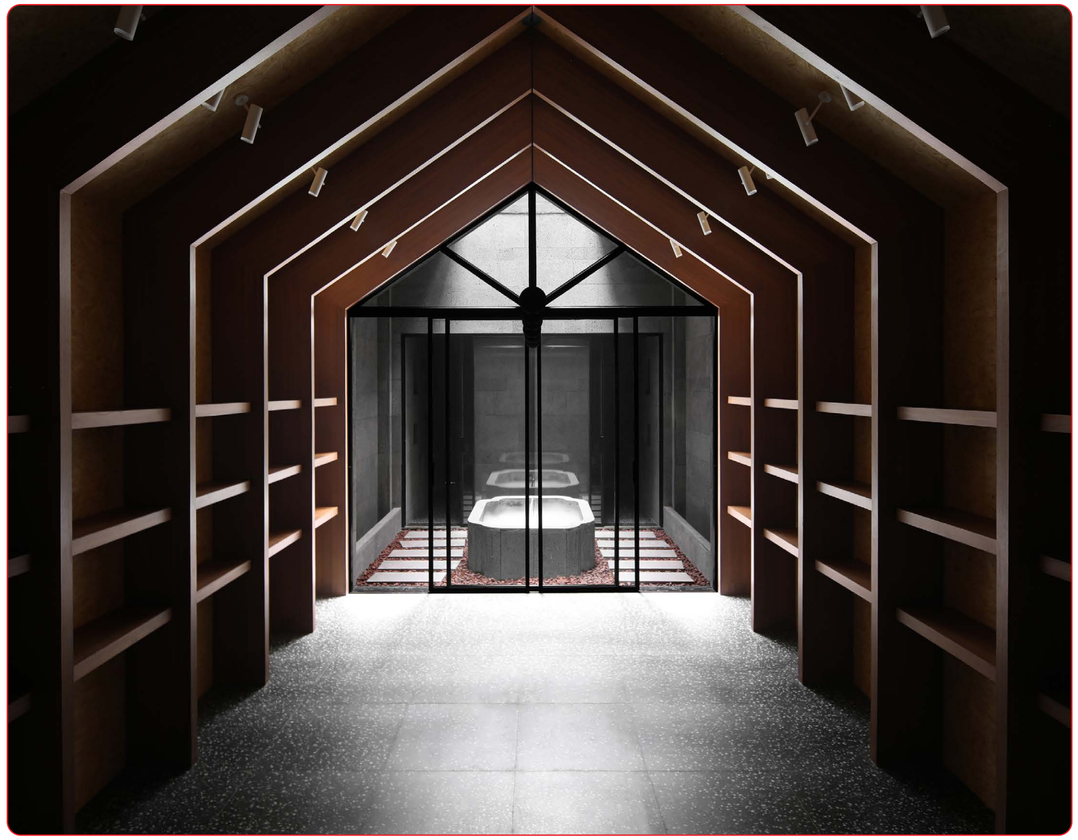
"Tea Trends" harmonizes ancient and modern elements, offering a space where history meets contemporary living. A glass tea room overlooking majestic landscapes evokes the spirit of ancient gatherings, blending traditional tea culture with modern aesthetics.

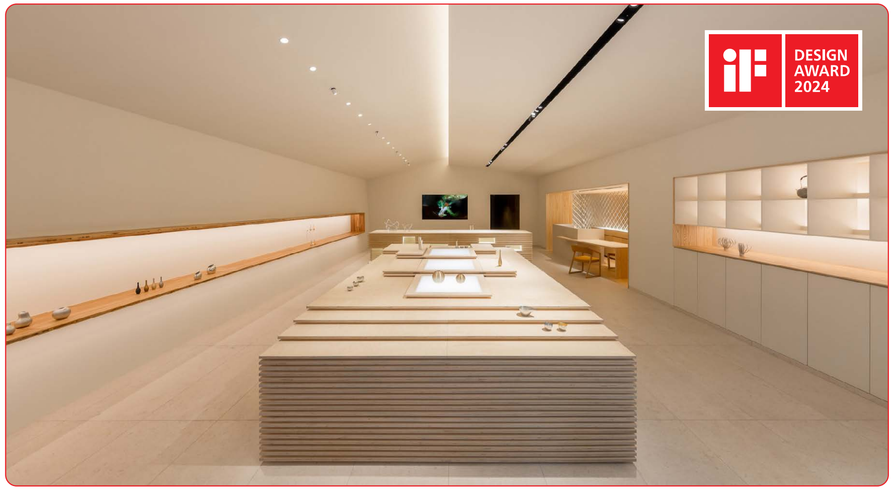
03 MonAsty

MonAsty, located in Thessaloniki, Greece, is inspired by the city's Byzantine heritage. The design seamlessly blends spirituality with luxury. Drawing from the nearby monastery's mystic ambiance, the hotel offers a serene retreat within the bustling city. With a focus on symmetry and natural lighting, the interior evokes the tranquility of Byzantine temples. Murky neutral tones and artisanal materials enhance the monastic atmosphere, creating a rich sensory experience for guests.

01 02
03

BEST PRACTICES





04 Tea And Zen-Dashao pu'er tea house

The tea house, 4.3 m wide and 20 m long, boasts a striking facade resembling a teapot, crafted with natural collage elements evoking the essence of a purple clay pot. Inside, black volcanic rocks, terrazzo and walnut accents create a serene, natural ambiance. The designer employs carefully arranged forms to evoke order and inspire a passion for design.

05 Otabe Arashiyama Shop

The "Yatsuhashi" sweet shop aims to reintroduce this traditional Kyoto souvenir to a younger audience. Utilizing cinnamon-infused walls and floors, the space evokes the essence of the product. Triangular coffered ceilings resembling Yatsuhashi shapes blend tradition with modern design. The use of natural materials ensures durability, making it a lasting and impactful space for brand immersion and product experience.

06 NOUSAKU Taiwan Store

The first NOUSAKU overseas store in Taiwan embodies the Japanese brand's rich history and craftsmanship. Using brass and tin, the main materials of NOUSAKU, for walls and ceilings creates a serene space where products harmonize with the environment. Collaborating with Taiwanese designers strengthens the connection with local consumers. Beyond sales, the store serves as a showroom to express NOUSAKU's values and increase brand recognition in Taiwan.

04 05 06

What if.... a look into the future

The small kingdom of Bhutan has been measuring Gross National Happiness since the 1990s, making it the only country in the world to consider not only Gross Domestic Product but also material, ideational and spiritual wellbeing as indicators of progress. The Mindshift Revolution, with its ideational, normative, spiritual transformation processes, already suggests a similar evolution of our standards today, prompting us to question what a Design for Happiness would look like and how it would operate. Under what conditions, assumptions and parameters would we design, interact with our clients and users if the goal were not to satisfy consumption-oriented needs or desires, but to contribute to the happiness and satisfaction of all inhabitants of the Earth, regardless of their species and kind? And this is equally expected from everyone.

In such a world, not only in design but also in economics and politics, the functional conditions would be expanded to include another variable, creating space for an entirely different kind of innovation beyond growth and efficiency.
While such scenarios may seem reminiscent of New Age esotericism and utopia, the circumstances and outcomes of transformation processes are currently uncertain. This makes a world like this just as likely as the apocalyptic visions of the end times that are currently being considered as a real possible future scenario, especially in the Western industrialized nations.

CHALLENGES

If design projects are meant to provide experiences that give a sense of meaning and purpose beyond material aspects, then designers are faced with the challenge of integrating spiritual experiences authentically into product design and branding.

Designing products and services that combine traditional spiritual elements with modern demands bears the risk of cultural appropriation through the use of traditional spiritual symbols and practices.

OPPORTUNITIES

Design solutions allow companies to interpret biographical milestones such as births, weddings or deaths in a new and secular way.

By consciously shaping routines, rituals and ceremonies, everyday moments can be ascribed a greater meaning and spiritual value.

Sacral design elements and holistic perspectives can be incorporated into the design, giving the experiences or products a new level of meaning.

GLOCALIZATION

GLOCALIZATION

Reintegrating “local” into “global” opens up new opportunities. Multinational corporations combine local knowledge with global expertise and address planetary challenges with regional solutions.

EXECUTIVE SUMMARY

Globalization faces limits due to increasing connectivity, leading to new risks and local consequences from global crises. Countermovements worldwide emphasize local values, marking the era of glocalization. This can be seen in a preference for regional products and revival of local values and handicrafts.

Glocalization is crucial in designing spaces, products and services, integrating local techniques in architecture and drawing inspiration from cultural heritage in fashion. UX and interface design, adapting to diverse systems and frameworks is essential.

Migration and globalization intertwine, fostering a continuous exchange of ideas and values. Design opportunities arise in response to forced migration, new nomadism and transformative travel, such as designing for arrival cities and transcultural tourist experiences.

Brands often adjust their appearance to local preferences, serving as cultural interpreters and fostering cross-cultural connections.

Globalization & connectivity, urbanization & mobility

Caught between needing to network and being susceptible to crisis

For many decades, globalization came with the promise that the international networking of trade would bring with it equality of living conditions and values. Globalization was meant to bring more prosperity, health and education for all. Now it is becoming clear that this promise was only partially kept—and that it created numerous side effects that make our lives more susceptible to crisis. The present is shaped by global power shifts and dependencies.

At a political level, power shifts and more dynamic forms of alliance-forming are evident. The group of superpowers is growing, and also for the emerging countries of the global south, new spaces are forming that offer new counterbalances through strategic cooperation and networking.

At the entrepreneurial level, while transnational digital and tech companies benefit considerably from globalization, these and the indispensability of their services also give rise to new dependencies and risks that are not limited to economic aspects but also bear a political and social component. Companies as well as individual megacities become global players that negotiate independently with federal governments.

At the societal level, driven by migration and refugee movement, numerous multiethnic societies are emerging in which customs, daily rituals and cultural techniques are being exchanged and developed further. An while the complex nature of migration movements means that there are no simple solutions to the existing challenges and uncertainties, a constructive approach to migration also offers new opportunities, especially for aging societies where demand for workers is high.

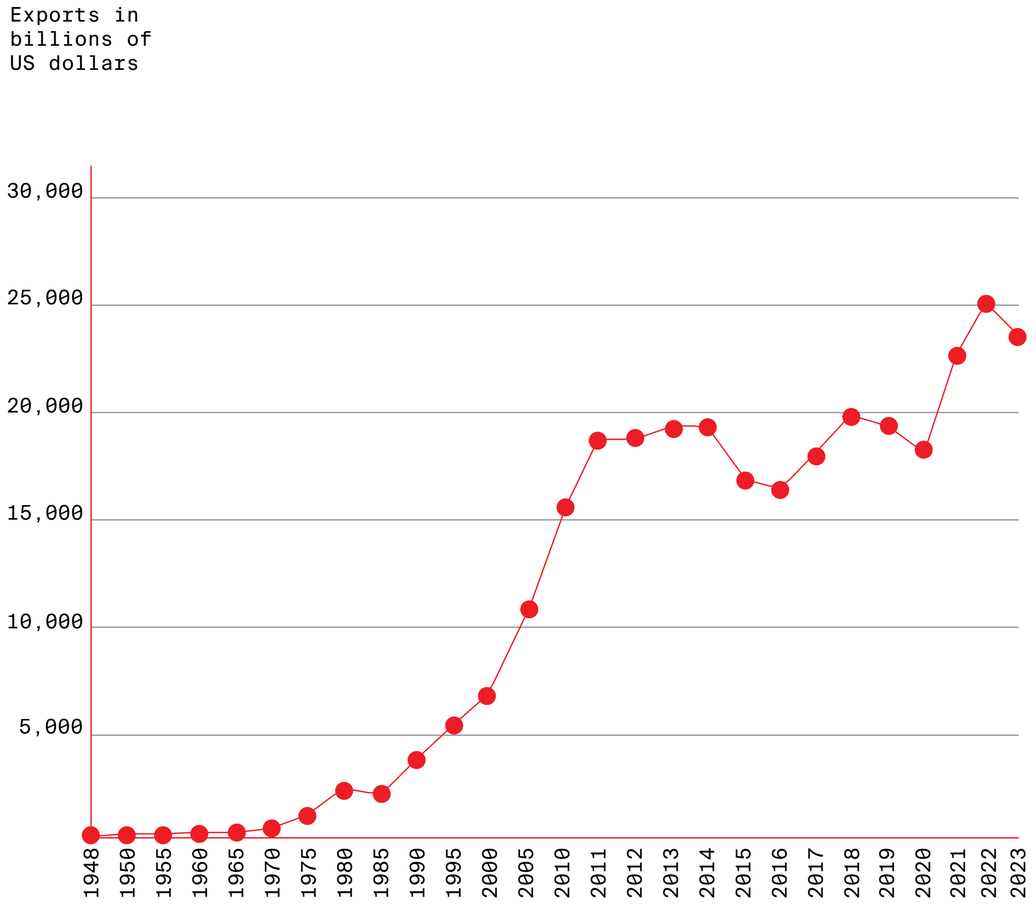
Globalization dismantles borders yet still meets its boundaries

Globalization dismantles borders—and yet it still meets its boundaries: The more closely knit the global networking becomes, the more often we are confronted with incompatibilities and new risks. The effects of global crises are becoming more palpable at a local level: Pollution, extreme weather as a result of global climate change, ecological damage and political instability are the price that (especially poorer) nations are paying for international trade and production chains.

Accordingly, countermovements are emerging around the world that emphasize the value of local aspects. These are expressed in very different ways: In industrialized nations, there is a newfound love for products produced regionally; in other countries, the development is leading to a return to local values, traditional knowledge and crafts as well as design approaches that follow non-western ideals. In this way, globalization also has the effect of increased importance of local aspects.

This leads to a merging of cultures and independent local forms: The döner, created in Berlin by Turkish guest workers, is a famous example that has now gained international renown as typical German fast food. The development of new cultural techniques and the design approaches that come with them are becoming transnational. (Beck 2008) The multiple crises of the early 21st century have revealed the fragility of globalization. From the cracks in the narrative of global growth and planetary homogenization, a new interplay of global structures and local networks is emerging.

Development of global exports in merchandise trade from 1948 until 2023



Source: wto.org

Cultural appreciation is driven by glocalization. You can find out more about this in the **Mindshift Revolution** chapter.

Global uniformity gives way to glocal diversity

The term glocalization stems from the 1980s, but it is more relevant than ever for some of today's discussions. **Mindshift Revolution** Glocalization describes the phenomenon that globalization does not lead to a global homogenization of practices, business models, value sets and political systems but that it also revives local practices, knowledge forms, value sets and traditions.
As glocalization primarily plays out through cultural techniques, design principles and new forms of commodity flows, the design of spaces, products and services plays a key role in its development.

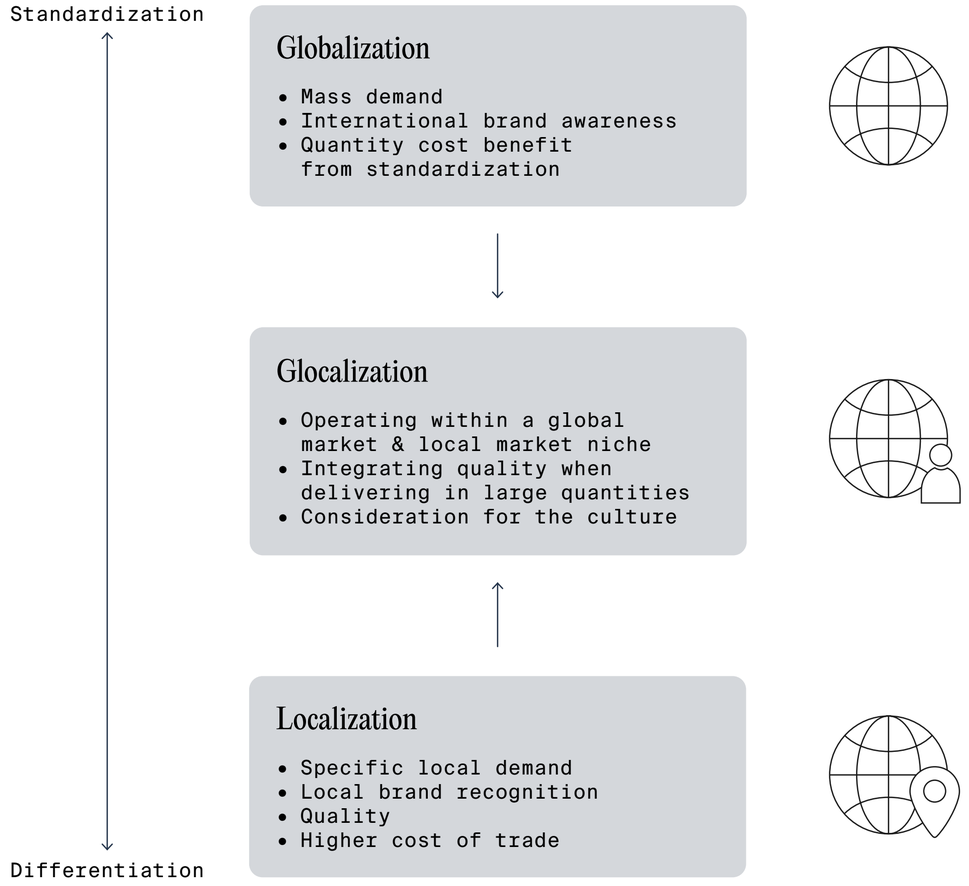
- In **architecture**, for example, this is evident in the way modern construction combines local building techniques with traditional manufacturing. This return to local knowledge can be found, for example, in the work of the Nigerien architect **Mariam Issoufou**, who finds sustainable solutions in the architectural traditions of her homeland.

- In **fashion design**, glocalization is giving rise to new platforms such as Industrie Africa Connect, which connects brands with African roots. IA Connect aims to highlight the diversity of African fashion designers and their different thought processes, perspectives and sensitivities. Each brand brings something new to the table and has its own unique voice.

- Glocalization can also be expressed in **leisure activities**. In China, an entire industry has grown around the trend among young Chinese women to switch out their workday outfits for traditional **hanfu** and explore their own cultural roots.

- In UX and interface design, glocalization is a downright necessity. After all, the different writing systems and reading directions alone require their own design approaches. The same applies to the different legal frameworks.

The impact of localized retail branded content in the automotive industry



Source: linkedin.com

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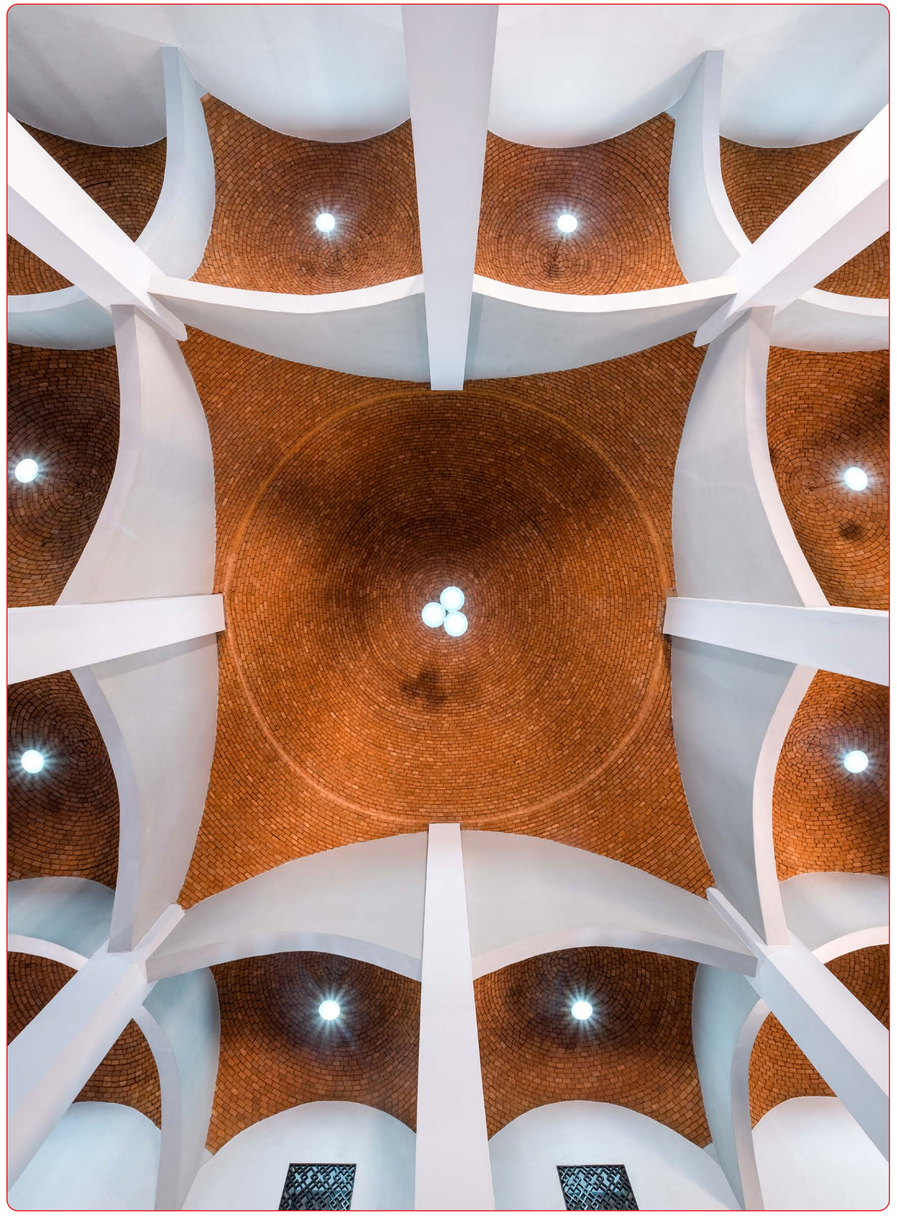
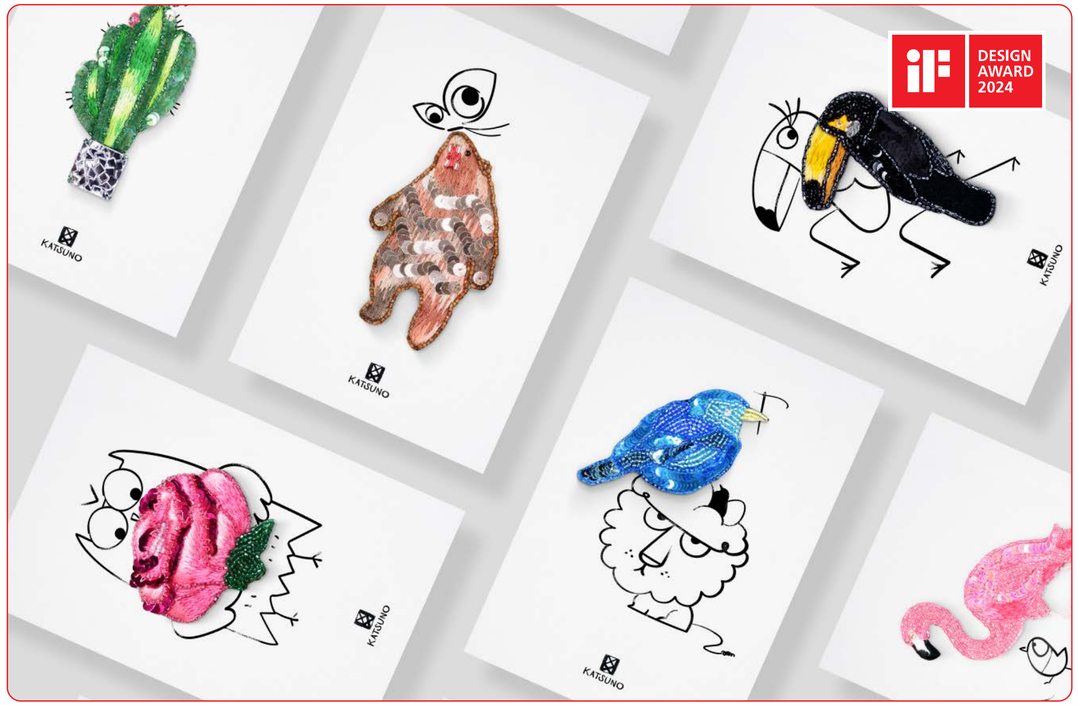


01 Mariam Issoufou Architects

Mariam Issoufou Architects pioneers architectural innovation by harmonizing modern design with local craftsmanship, exemplified in projects like Niamey 2000 housing. At the heart of Mariam Issoufou Architects' approach lies a profound commitment to sustainable development and community empowerment. By harnessing the rich cultural heritage and resources of Niger, the studio creates designs that not only respond to the needs of the present but also lay the groundwork for a more resilient and equitable future.

BEST PRACTICES



02 Katsuno Embroidery Starter Kit

The Katsuno Embroidery Starter Kit revitalizes traditional crafts, bridging tradition and modernity. Its goal is to empower individuals to create personalized artwork and meaningful gifts, showcasing the ongoing relevance of embroidery in today's world.

03 New Interpretation of Traditional Matcha

With a 1,300-year history, matcha had a traditional image until Super Matcha's innovative approach. Embracing "functional intuition," it redefines tradition for the modern era. The acronym SUPER represents "Why should I drink matcha?" Bold visuals and a vibrant green color highlight the progressive packaging design, blending tradition with contemporary appeal.

Age of migration

Beyond borders: the multifaceted connection between migration, design and society

Migration and globalization are directly connected with one another. People migrate for various reasons and motives across regional and federal borders—and in the process, they import and export ideas and values. These three forms of migration are particularly relevant for design:

- **Forced migration:** Leaving one's country occurs as a reaction to armed conflicts, a lack of economic or social opportunities as well as ecological crises.

- **New Nomadism:** This migration trend involves an elite demographic of knowledge workers for whom there is an international demand in particular. Moving often is part of a lifestyle and a new way of working that requires nothing more than a stable internet connection.

- **Transformative Travel:** The tourism industry is in an upheaval. Travel is increasingly combined with local customs and practices, and travelers are focusing more on a reciprocal resonance with their destination.

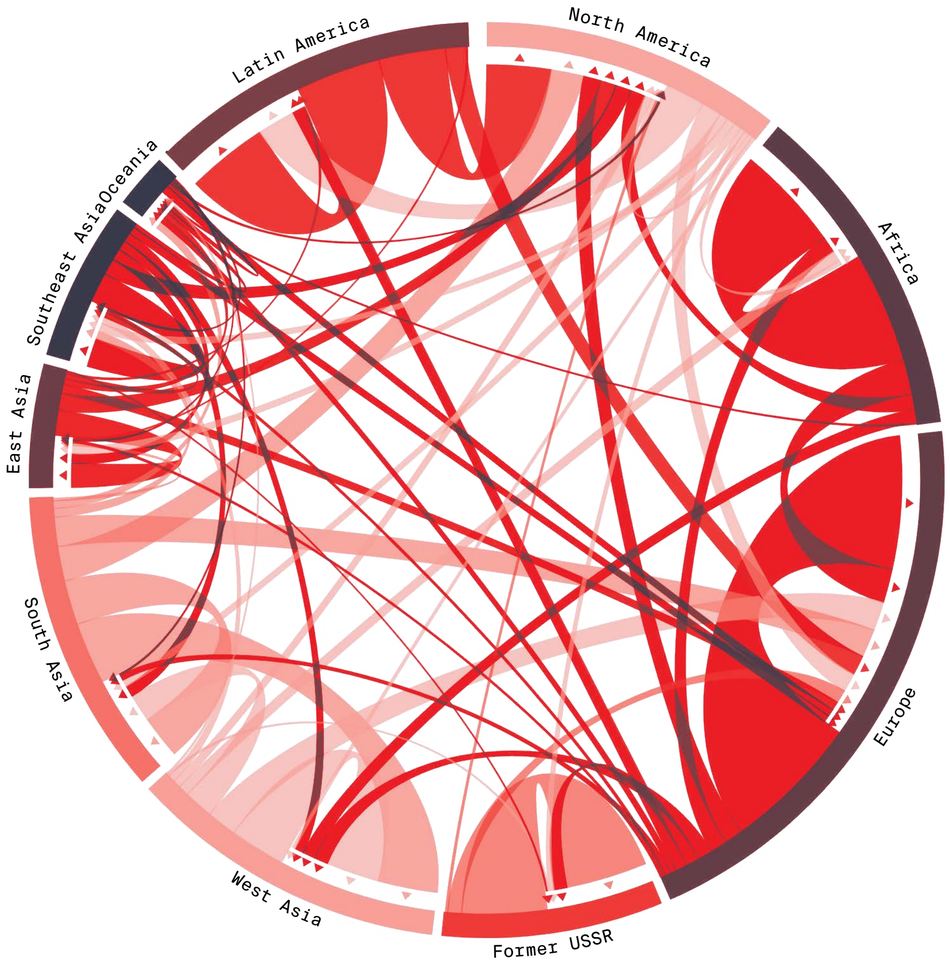
Making migration visible

The visualization of migration movements can be a powerful tool in showing the complexity and dynamics of the age of migration. It allows us to recognize patterns, trends and the extent of the movement of people across borders at a glance, and thus also to understand global intertwining and dependencies. Beyond this, a visualization of this type can also illustrate the causes and effects of migration, thus creating a fundamental understanding for political, social and economic correlations.

The following interactive graphics show migration movements around the world and thus provide an idea of the complexity of this phenomenon.

storiesbehindaline.com
themigrantsfiles.com
bib.bund.de

Global flows



Source: bib.bund.de

Post-migrant societies

Especially the industrialized nations of the global north are becoming migrant societies or post-migrant societies (Römhild 2015), with the debates and conflict lines that come with this. Here, though, it is only superficially about migration itself. Far more than this, important negotiation and recognition processes are taking place in the background of these conflicts, in which the central promises of modern democracies—equality, freedom, plurality—are being adapted to the new conditions of glocalization.

Post-migrant societies are in a constant process of negotiation, which grows from the friction between different cultures within a society. The central assumption here is that it is not about migration itself but about sociopolitical negotiations that take place after the migration, which are hidden behind the question of migration and go beyond migration (Forouan 2019)

- "In post-migrant societies, the focus is on the negotiation processes that take place following the recognition as a country of migration or immigration. The society reformulates itself in this context—also in terms of its identity.
- The matrix of the migration question lists relevant societal norms and debates about values. Behind the question of migration are often also other struggles for structural, social, cultural and identity recognition.
- The 'post' in post-migrant also indicates the migration line that separates: The established binary coding into 'native' and 'immigrated' is dissolving, as migration is increasingly weaving itself into the composition and self-image of society through all the friction, and because there are a variety of alliances for this agreement of societal cohabitation."

Consequently, in post-migrant societies it is no longer about whether a country is a country of immigration but rather of how this country of immigration is shaped. Alongside social, legal and political design processes, specific design tasks play a key role in this: The design of informational material for societal issues relating to migration and arrival, the design of multilingual digital services, the design of reception centers, the social design of integration projects and **transcultural meeting places**.

Post-migrant societies (from the Latin word 'post' meaning 'behind' or 'after') are societies that are shaped by the experience of migration. The prefix 'post' does not refer to a completed state but rather a process. The term applies to the political, cultural and social changes in society that result from the demographic shift due to immigration (or following immigration). In this perspective, migration is understood as a process that has a material effect on shaping society.

Transculturality, in contrast to interculturality and multiculturality, assumes that cultures are not homogenous, clearly delineable units, but rather that—especially as a result of globalization—they are increasingly linked and mixed. The cultures are highly interwoven with each other, infusing one another. The lifeforms no longer end at the boundaries of the national cultures, but they cross these and find themselves in other cultures as well.

Arrival cities — arrival made easy

Cities are of particular importance for the flow of migration. As transit places, they bundle a number of different resources: Temporary housing, casual labor, information and networking opportunities are exchanged here at the local level. In addition, cities serve as platforms of integration and cultural exchange for those who want to arrive there.

The journalist Doug Saunders dubbed neighborhoods where intercultural networking is particularly tight meshed as ‘Arrival Cities’ (Sanders 2010). These are characterized by a series of structures and offers that make it particularly easy for new arrivals to find their footing and create lives for themselves. The following elements play a special role in this:

- Easily accessible, affordable living space as well as affordable commercial space nearby that makes it possible to open a restaurant or business quickly.
- Social networking opportunities that represent a social security net for likeminded individuals and make it possible to exchange knowledge, offer help and maintain the culture of origin in a community. Often numerous associations dedicated to maintaining the heritage and culture as well as other communities spring up closely together.
- Accessibility of public spaces, offers and transportation: Often these become the places that decide how easy it is for people to integrate into a new culture and community.

The independent dynamics of arrival play a key role in the concept of the arrival city. Self-organization, building networks and forming local structures are carried out by the arrivees themselves. The city, meanwhile, makes this collective process possible through spaces and offers that allow for as much autonomous design as possible.

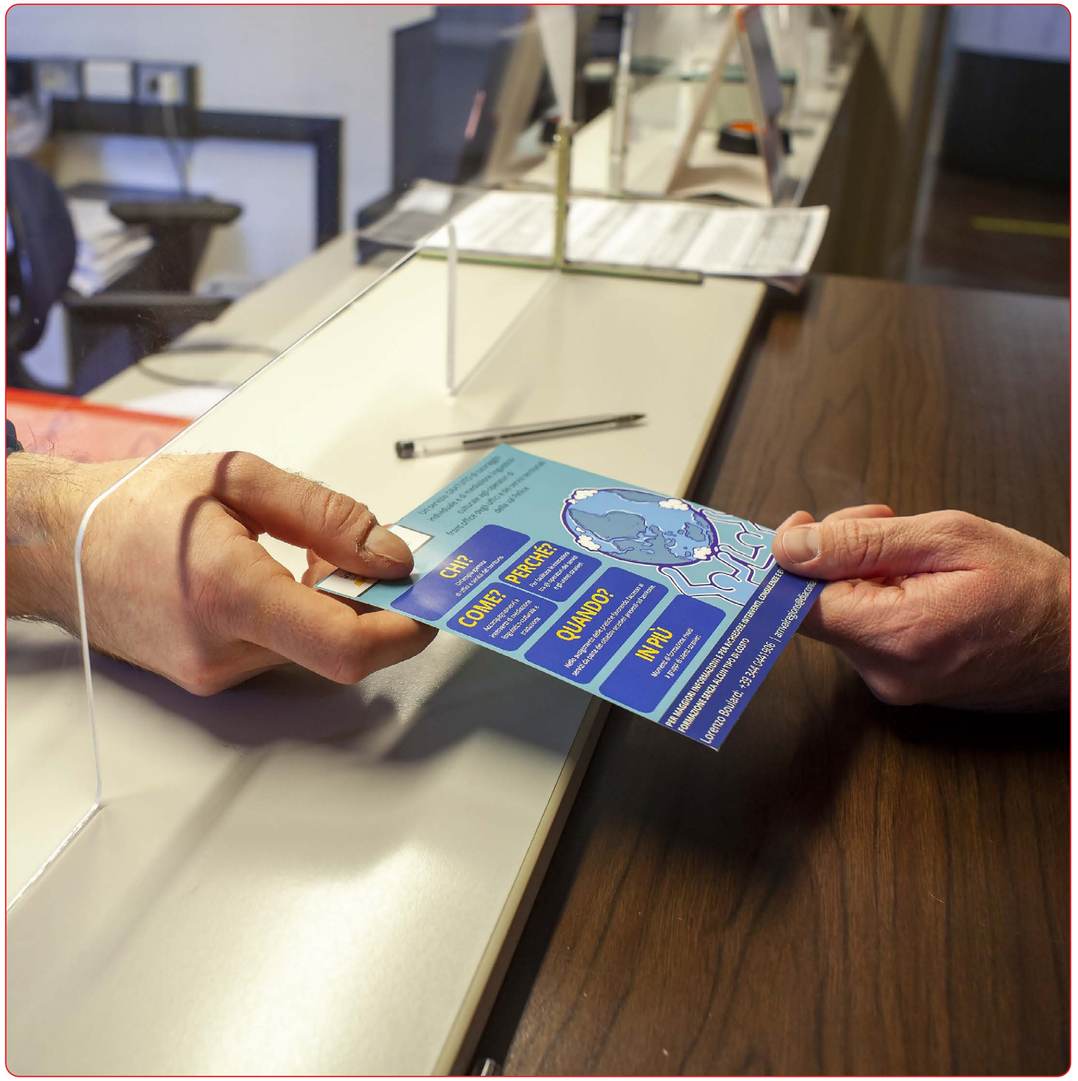
GLOCALIZATION

Cities often tend to project permanence and stability. Despite destruction or erasures, they can endure for centuries and, in some cases, even millennia. In contrast, migration is characterized by its transience and lack of fixity. It is ironic that cities are invariably the product of the movement of people.

Whether it be forced or voluntary, internal or international, circular, chain or step, cities would not exist without migration.

WORLD ECONOMIC FORUM 2017
BURCU DOGRAMACI, MAREIKE HETSCHOLD, LAURA KARP LUGO, RACHEL LEE, HELENE ROTH

BEST PRACTICES



01 OFlovesU

The website OFlovesU is an all-in-one platform for life in the German city Offenbach. New residents can discover spaces, people, stories and more. The “Raumfinder” helps to find living and working spaces without commission, and “Little Globe” features small shops in the city. OFlovesU is a compass for everything off the beaten path.

02 Arrival Regions – Interreg

The Arrival Regions projects by Interreg analyzed social innovation practices for non-EU national integration, forming local alliances to implement strategies in nine pilot actions during the pandemic. Peer-reviewed pilot actions led to a toolbox and policy recommendations. The results were utilized for Ukrainian war refugee arrivals in 2022, fostering public-private collaboration. Regular updates on the project website and social media, along with local dissemination events and video testimonials, promote awareness and further integration efforts.

01 02

New Nomadism

The on-going globalization of the past decades and the digital technologies that drive it are causing those who take the most detriment from this development to become mobile and—who could blame them?—strive to seek a better life or even a chance at survival. Mobile lifestyles are also developing among the privileged, though under very different auspices and conditions. In the interplay with new digital technologies, work concepts that are not tied to a location, and the proliferation of lifestyles, the infrastructural conditions for a nomadic life are born. This development is expressed by **New Nomads** in a reduced desire to spend one's whole life in one place. These self-selected digital nomads find fitting communities around the world and adapt their lives flexibly to their current life circumstances. Under the keyword 'workcation,' they create a setting for living and working that makes mobility possible on all levels.

While **Van Life**, as the preceding trend to workcation, is already part of differentiated tourist offerings and has become a part of national and tourism strategies, the world of hybrid working is characterized by a new social consciousness for sustainability. The temporary home of choice becomes more than just an idyllic backdrop for one's home on wheels—the focus is now on the curiosity in local communities, neighborhoods and social interactions.

More and more hospitality companies are also expanding their ranges to offer workcation opportunities by offering work environments that are close to nature for focused working away from it all (for example: neugrad-eifel.de) or even locations for entire teams where project sprints can be carried out (for example: Projectbay).

Roam America

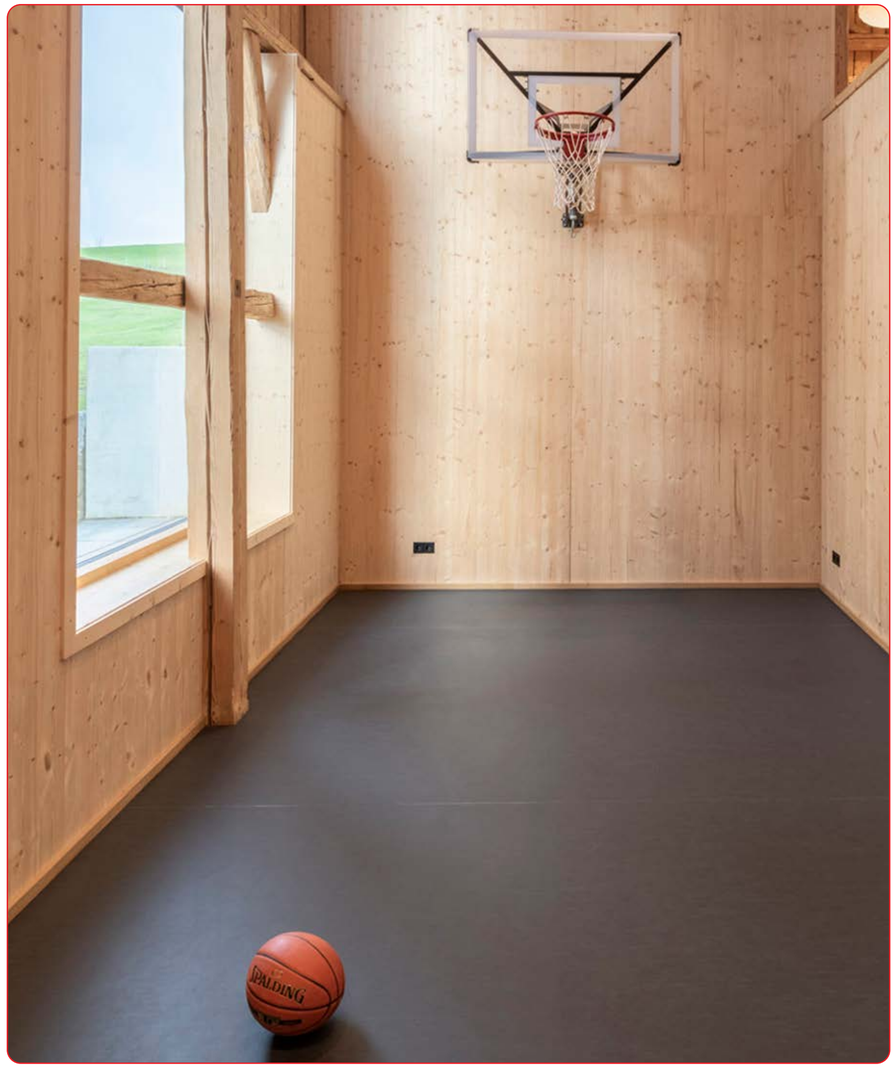
GLOCALIZATION

Office spaces for digital nomads should be designed to improve the collective. Spaces that are invitations for exchange. Open and flexible. Biophilic and technological.

Adding new digital technologies should also help to improve the experience. Hybrid architecture (physical + digital).

GUTO REQUENA
CEO, ESTUDIO GUTO REQUENA, BRAZIL

BEST PRACTICES

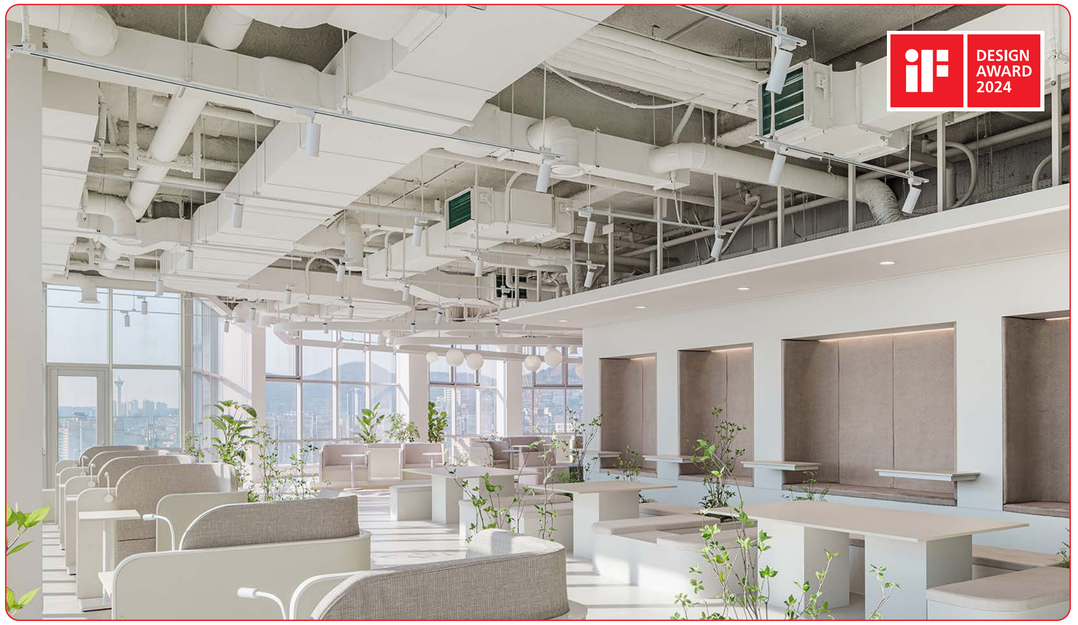


01 Tenne 9 – Allgäuer Flurküchenbauernhaus

Preserving tradition, Tenne 9, a 250-year-old Allgäuer farmhouse, integrates historic charm with modern functionality. Using knitted wooden block construction atop quarrystone masonry, it retains original materials wherever possible, showcasing a harmonious blend of old and new.
It was purchased as a holiday home, workcation and creative team space for an agency and offers work/life/travel experiences for workers.

01

BEST PRACTICES



02 Roam America

In response to the pandemic, Roam America's rail concept embraces the rise of nomadic lifestyles, catering to digital nomads and travelers seeking a flexible living space. Roam offers private rooms with lounge-style seating, dynamic lighting, ample storage and functional workspaces. Designed for accessibility, it accommodates wheelchair users and families, providing an immersive experience with panoramic views through floor-to-ceiling windows.

03 Busan Workcation Center

In response to the rise of remote work trends accelerated by the COVID-19 pandemic, 'workcation' has emerged as a popular concept, blending work and leisure. Recognizing its benefits for productivity and employee well-being, the Busan Metropolitan Government actively promotes workcation experiences in Busan. Professionals seeking a balance between work and rest are invited to explore the vibrant city while maintaining their work commitments, fostering a harmonious work-life blend.

04 Mobile Office Trailers

Minokamo City innovatively attracts urbanites seeking flexible work arrangements. Four prototypes of office trailers, meticulously designed and manufactured in Japan, offer a dynamic solution to accommodate modern work lifestyles, fostering creativity and productivity in natural surroundings.

02 03
04

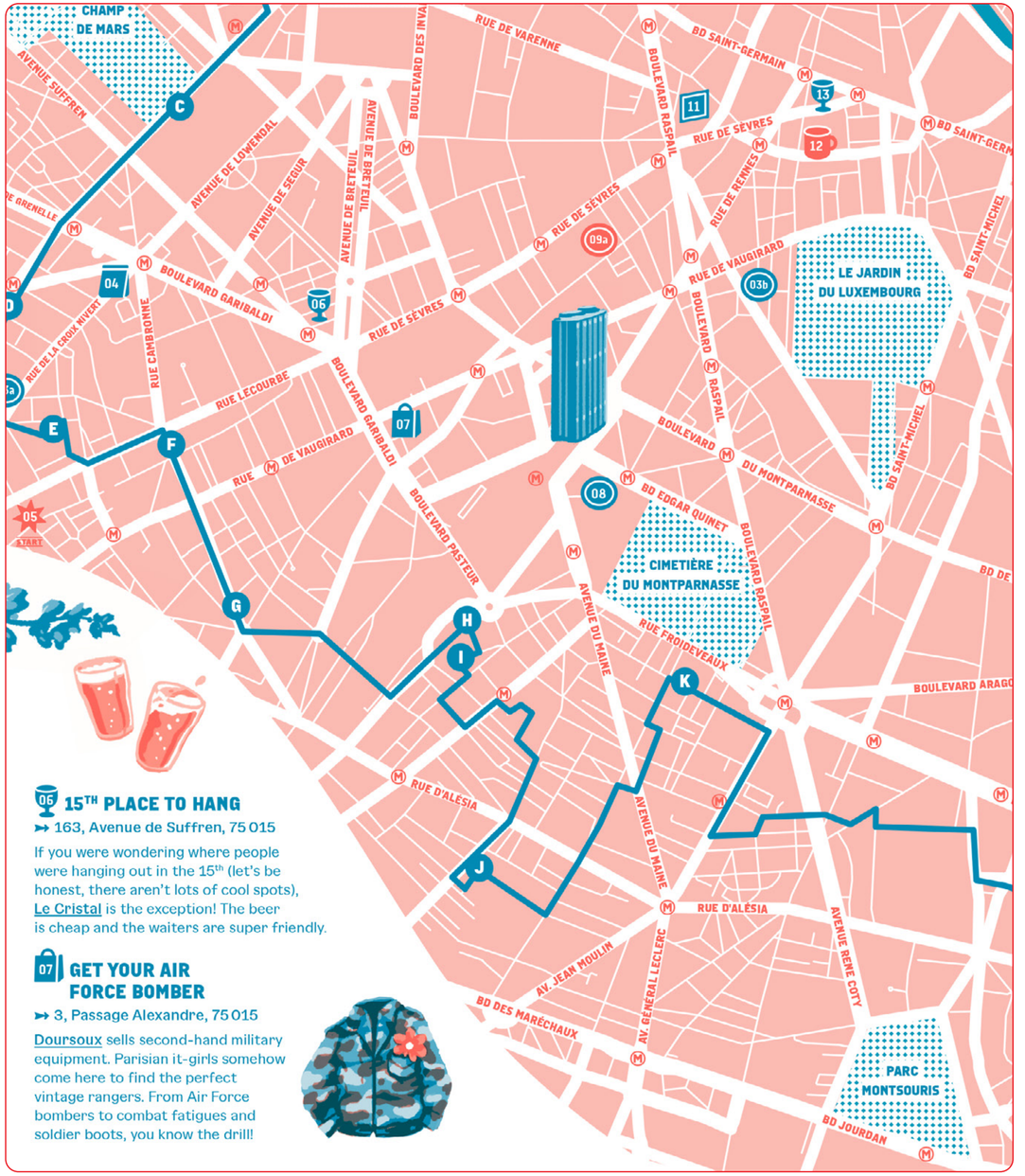
Transformative Travel

With the consciousness for the mutual conditionality of local and global influences comes a deep understanding for the cultural, economic and social impact of one's own (travel) habits. Those who travel change not only themselves but also the social fabric, nature and culture of the destinations. This new awareness for travel makes questions of ecological and social sustainability more relevant and leads people to question existing all-inclusive offers, products and behaviors. This gives rise to new forms of ecologically and socially compatible tourism that enriches both sides.

Design decides which aspects of a location are made visible, and which are not. This can be expressed, for example, in the fact that signage systems are interculturally functional and understandable. An example of this is **Hangzhou International Airport Signage**

Or in the form of service design, which is aimed at the differing needs of culturally widely divergent tourist groups. This is realized for example with **Incheon's Easy-to-Read Tourist Information System**

This form of creating visibility is also utilized by the organization USE-IT, which creates visually appealing maps in collaboration with locals to highlight local businesses, eateries and manufacturers instead of just showing the shortest path to the top sightseeing spots. The maps also show popular places and parks that locals enjoy, thus enabling social encounters between tourists and locals.



Source: USE-IT

BEST PRACTICES

01 Hangzhou International Airport Signage

Navigating HIA's terminals, especially the complex T4, can be daunting for passengers. This signage design prioritizes functionality, making it easier to find your way. Main and subsidiary processes are distinguished by color, with departures marked in yellow, arrivals in green, and transfers in pink. This color-coded system, combined with coherent guidance, ensures passengers can easily locate their desired destinations.

02 Incheon's Easy-to-Read Tourist Information System

Incheon's innovative project merges service process redesign with customer experience enhancements to bolster functionality and scalability. The goal is to optimize tourist information delivery and activate Incheon's identity and tourism resources. By establishing an integrated, standardized and user-centered system, the project aims to enhance the end-user experience while laying the groundwork for long-term expansion. This comprehensive approach integrates online and offline components to ensure a seamless and dynamic tourist information system for visitors to Incheon.

BEST PRACTICES

03 Environmental Graphic Design for Zhongxin River

The Dragon Boat Festival echoes tradition. In the signage design, the oar symbol takes center stage, paying homage to this cultural event. Appearing in various locations, from shaded areas to grassy slopes, these oar-shaped signs serve as both guides and captivating focal points. They blend seamlessly into the surroundings, offering a touch of intrigue while directing residents and visitors alike.

04 Signage System for KK-PARK

Yancheng City in China-South Korea Industrial Park exemplifies Sino-Korean cultural exchange. Formerly a playground, it is now a vibrant leisure block, blending modern visual elements to bridge linguistic and cultural barriers. Through innovative design featuring modern visual elements, the boundaries between signs and languages—whether Chinese, South Korean or English—are blurred, fostering seamless communication and cultural integration.

05 Experiential travel concept

Metropolitan areas in Japan attract 59% of inbound visitors annually, while rural towns face population decline and loss of traditional heritage. Traditional tourism strategies may offer short-term gains but risk long-term negative impacts. To counter this, the platform connects global creators with Japanese craftspeople to activate rural craft towns, fostering sustainable tourism. They reimagine object design, production and consumption, ensuring the preservation and promotion of Japan's rich cultural heritage.

03 04
05

Local cultural heritage as an attraction

Glocalization draws the focus to local distinctions and their value. The cultural heritage of that region thus receives special meaning. It is given a value of its own that is desired and must be passed on. Traditionally, this is the task of museums and other cultural institutions. However, these are also faced with the task of updating their collections to the age of **Human Digitality** and the diversity conscious **Mindshift Revolution** or developing new touchpoint concepts.

This development is leading to new concepts in cultural mediation and museum work, in which user experience designs with elements of gamification are used to take users on a journey into the Song dynasty, for example, and to encourage learning processes. Other concepts are based on making invisible cultural heritage tangible or combining local agriculture with digital experiences in one museum to create a tourist draw.

UX design and gamification in museums encourage learning processes.

BEST PRACTICES

01 Heritage Tourism Gamified Experience Design

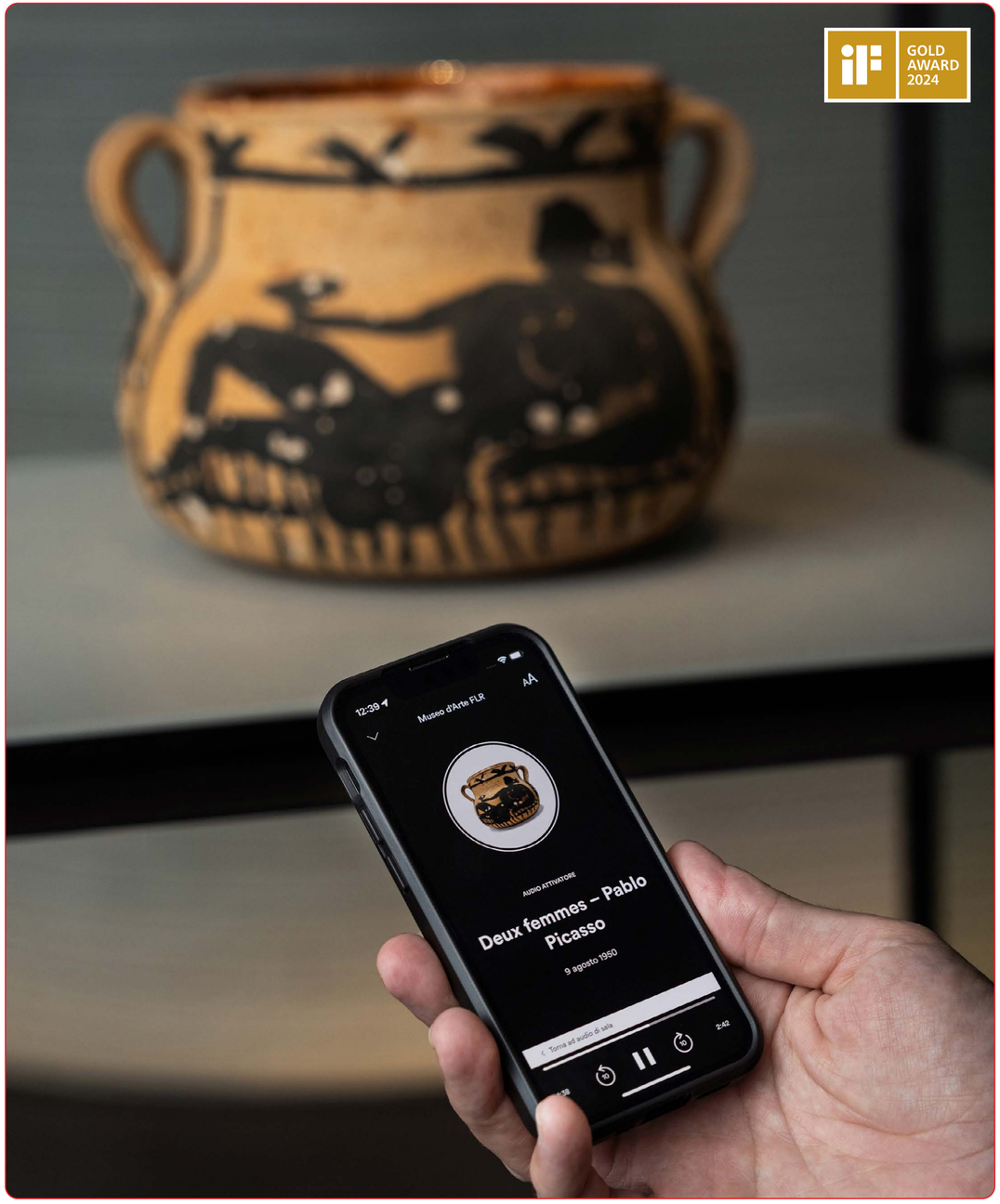
To tackle issues like lackluster journeys and scattered resources in traditional cultural heritage tourism, this project proposes a gamification experience design strategy centered on participant learning. By infusing the user journey with playful elements, it aims to make learning about local history and culture more enjoyable. An engaging experience can be created that seamlessly blends education and enjoyment, resulting in a positive outcome for participants.

02 Blended Experience Terminal and System of Liangzhu

This project addresses the challenge of preserving tangible information content in archaeological site parks using modular intelligent blended experience terminals and service systems. These terminals offer touchable cultural stories, effectively revitalizing and disseminating traditional culture. Visitors can interact with replicas, fostering self-understanding and cognition through active exploration. This innovative system transcends traditional static displays, offering a new paradigm in cultural digital translation.

01 02

BEST PRACTICES



03 Fondazione Luigi Rovati Platform

Traditional cultural institutions face challenges in meeting the diverse needs of their audience. While some operators offer mobile apps or audio guides based on context-aware systems, these solutions only partially address user services and lack integration with back-office activities. Additionally, there is a lack of digitization in museum processes.
FLR Platform offers a modular solution, integrating front and back-end activities to meet the needs of institutions and users. Customizable for various markets, it promises to revolutionize the cultural experience landscape.

BEST PRACTICES

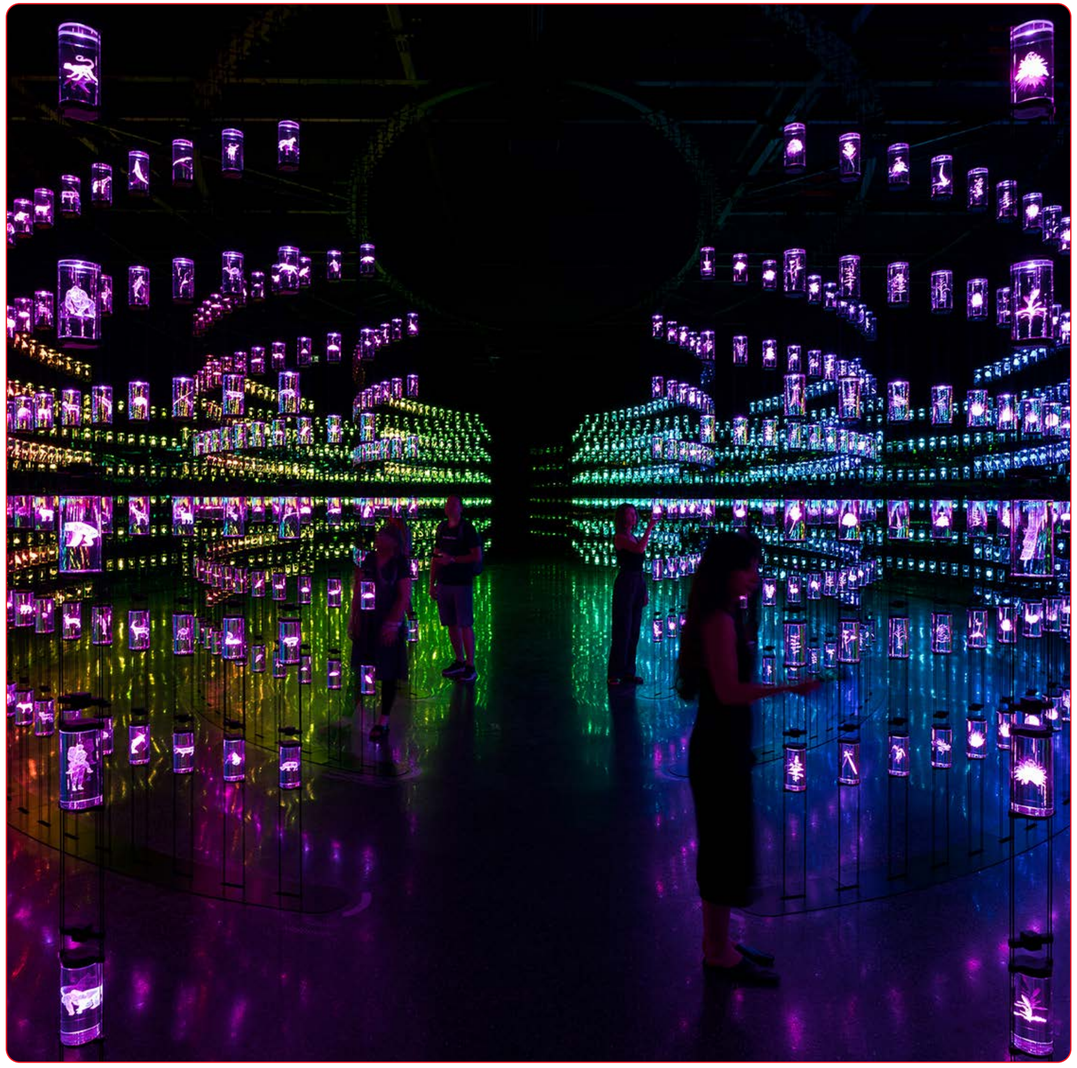
04 World Rice Terraces Museum

Introducing the World Rice Terraces Museum in Lishui, Zhejiang. It integrates cultural experience, research and tourism services to enhance commercial vitality. Through interactive exhibits, it promotes local agricultural culture and boosts tourism and economic development.

05 Life and Work of Frida Kahlo

ACCIONA Cultura presents an immersive audiovisual exhibition celebrating Frida Kahlo's life and work. Utilizing technology, it transcends conventional exhibition spaces, appealing to diverse audiences. The exhibition fosters emotional connections with Kahlo's story, sparking curiosity without lecturing. Designed as a traveling show, it adapts to various spaces while maintaining its core values, aiming to captivate a global audience.

BEST PRACTICES



06 Museum of the Future

The Museum of the Future shows the world in 2071. Visitors can explore three interconnected chapters: OSS Hope, Heal Institute and Al-Waha, showcasing humanity's endeavors in space, ecosystem regeneration and holistic wellbeing. Visitors engage in solving current challenges and projects, and are invited to contribute at recruitment stations. Concluding their journey, they drop wishes for the future into a basin, symbolizing the transition from Outer to Inner space.

Chi-Yi Chang

President, Taiwan Design Research Institute

Chi-Yi Chang is the President of the Taiwan Design Research Institute (TDRI) and professor at National Chiao Tung University. He has served in significant roles including Vice Magistrate of Taitung County and Board Member 2019-2022 at the World Design Organization (WDO). The author of works on contemporary architecture, Chang holds a Master's in Design from Harvard and a Master's in Architecture from Ohio State University.

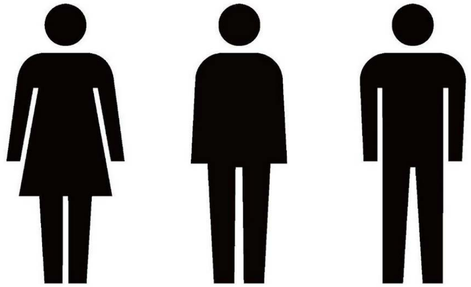
iF Design You have developed a series of gender-neutral and internationally understandable pictograms. What were the particular design challenges you faced? How did you address these challenges?

First of all, we faced some challenges in regulatory compliance. In Taiwan, various agencies issue public pictograms, each with its regulatory descriptions. Thus, a comprehensive analysis of regulations is crucial. Additionally, garnering support and clarifying regulatory interpretations requires meetings with multiple agencies.

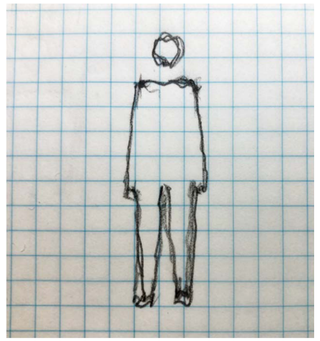
Our goal was to interpret basic human figures through human-centric thinking. Previously, Taiwan lacked a public pictogram system. The Taiwan Design Research Institute (TDRI) aimed to introduce a fundamental, neutral pictogram system for public reference. Collaborating internationally, TDRI ensured precision and forward thinking. The project pioneered the concept of a "basic figure" for gender-neutral pictograms. After a six-month exploration involving ten iterations, the final design featured a figure wearing clothing with natural hands hanging by the sides.

TDRI referenced international standards like ISO and JIS to validate the pictograms, distilling their strengths for the project. This process entailed significant time investment in analyzing methodologies and recruiting participants.

For this project, three types of human figure pictograms are proposed: a female figure, a basic figure and a male figure



The sketch by Akase Tatsuzo presents a neutral appearance without emphasizing gender traits



iF Design As a research institute, you embedded the development of the pictogram series within a design research process. How did you approach this and what insights did you gain from this process?

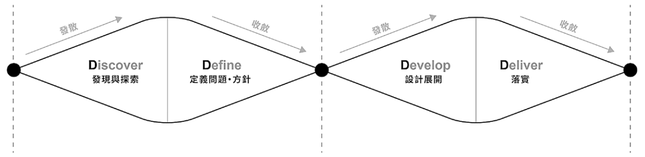
The Design Research Institute integrated the Double Diamond process, focusing on: discovering and analyzing trends and Taiwan's situation, defining key issues and setting design goals, developing concepts, delivering and refining designs, and open-sourcing the pictograms for wider use.

We reached the following key insights from the research: Taiwan previously lacked a systematic pictogram and unified icon system, which led to public pictograms that were unprofessional and not universally applicable. This presents an opportunity: Unlike established standards like ISO and JIS, Taiwan's flexibility allows for innovative adjustments, such as incorporating human-centric pictograms through human figures.

TDRI aimed to catalyze an overall enhancement through pictograms based on Taiwan's regulations. Research revealed a deficiency in accessibility guidelines and files in Taiwan. Therefore, to facilitate effective implementation and utilization, we released a user manual and online courses, enabling users to reference and use resources and therefore advancing basic public services through open sourcing.

Guidebook
Online courses

The Double Diamond process includes: Discover, Define, Develop & Deliver



The contents of the guidebook for public pictograms show important design features and applications

iF Design In a globalized world, pictograms are becoming increasingly important. They can convey information on a language-independent level. Can pictograms also be misunderstood depending on the cultural background?

We think that designing public pictograms should prioritize international universality. Pictograms serve as universal visual communication tools, conveying messages efficiently. While widely recognized pictograms require no textual support, others often benefit from additional explanation.

Designing new pictograms requires thorough comprehension validation, involving diverse user groups to ensure effectiveness, including different age groups, genders, disabilities and nationalities. Comprehension tests benefit from contextual scenarios, such as photographs showing pictogram application. For instance, a Russian respondent initially mistook the “Meeting Room” pictogram for a church, as it resembled an Eastern Orthodox church symbol. Upon reading the description, though, they accurately understood its meaning. Different cultures may develop unique pictograms reflecting their customs and regulations. While pictograms are valuable, they are not the sole communication method. Careful selection and usage are crucial, especially in public settings.

iF Design What design aspects help travelers and strangers orient themselves in public spaces—beyond pictograms?

Pictograms are one of the vital elements within a wayfinding system. They can be considered as part of the graphic and textual system within the system. In transportation hubs, the primary function of signage is to assist travelers in reaching their destinations smoothly. Wayfinding systems encompass strategies for movement, defining key decision points, constructing graphic and textual systems, and selecting signage carriers.

Signages developed within the wayfinding system are referred to as a signage system, typically characterized by attributes such as identification, directional guidance, positioning, explanation and safety. Practical validation during design is crucial to ensure clear communication and effective guidance with users. In conclusion, comprehensive wayfinding systems and well-designed signage are indispensable for assisting travelers and unfamiliar individuals navigate public spaces.

CHALLENGES

The design for a global or glocal target group requires an in-depth understanding of cultural differences and sensitivity for differing cultural backgrounds. This requires the ability to adapt designs so that they communicate appropriately and respectfully in different cultural contexts.

In view of the global challenges relating to the environment, social welfare and the economy, designers are faced with the challenge of taking environmental consequences as well as the ethical practices and social impacts of products, services and spaces in a global and local context into consideration.

OPPORTUNITIES

Integrating local and global influences allows designers to craft innovative solutions reflecting our diverse world. By blending cultural elements, they revitalize traditions and foster creativity.

Designing for a global or local audience encourages collaboration across cultures, enriching perspectives and addressing diverse needs.

Designers play a vital role in society by creating designs that support communities, preserve culture and drive positive social change, thereby improving quality of life and promoting cultural exchange.

Glocal Brands

Brands are becoming glocal and acting as cultural interpreters

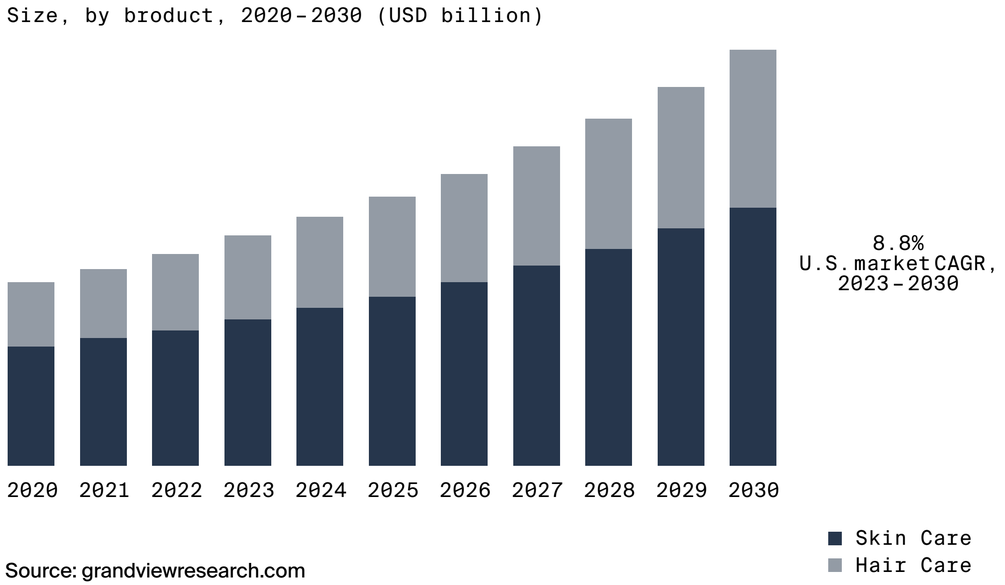
Globalization is often associated with the worldwide dominance of international brands. Coca Cola, Apple, Amazon or Uber: for a while, it seemed like the global triumph of a few was unstoppable.

And yet brands often have obstacles to contend with as they tap new markets in other cultures: Legal frameworks regarding working conditions and personal transportation prevented the Uberfication of German personal transportation, while federal regulations in China have limited the triumph of global tech companies and social media formats—and thus created the frameworks on which TikTok, Wechat, Alipay and Didi were created. The introduction of a brand often only becomes successful by adapting part of the product range to the local circumstances and preferences. Amazon, for example, adapts the design of its website to the country in question and also offers different payment systems for some.

Fast food franchises like McDonalds or Starbucks adapt some of their food products to local preferences, thus providing a cultural bridge to the rest of their products.

The success of the Korean cosmetics industry is a good example for the fact that specific local conditions can make an entire industry a global success under the right transformative conditions. Unlike western ideas of cosmetics, Korean cosmetics place the emphasis on natural-looking, unblemished skin that is in line with nature. In the age of the Eco Transition, this approach and the products it has given rise to have been hugely successful on the international market.

Korean beauty products in the U.S. market



Source: grandviewresearch.com

Glocalization is the conglomeration of global and local elements in a marketing strategy. Global brands use this strategy to adapt their products and services to the needs and preferences of local markets without losing their global identity.

Brand design works as a cultural interpreter

A key function of design when introducing a brand to the market in a new country is that of the cultural interpreter. Misunderstandings can arise quickly here, especially regarding symbols, if the design research does not take the local culture into consideration adequately.

- Symbols can have a different meaning in different cultures: In Japan, for example, the swastikas that had been used to depict temples on tourist maps were replaced with pictograms of a pagoda, as western tourists in particular misinterpreted these as the Nazi symbol.

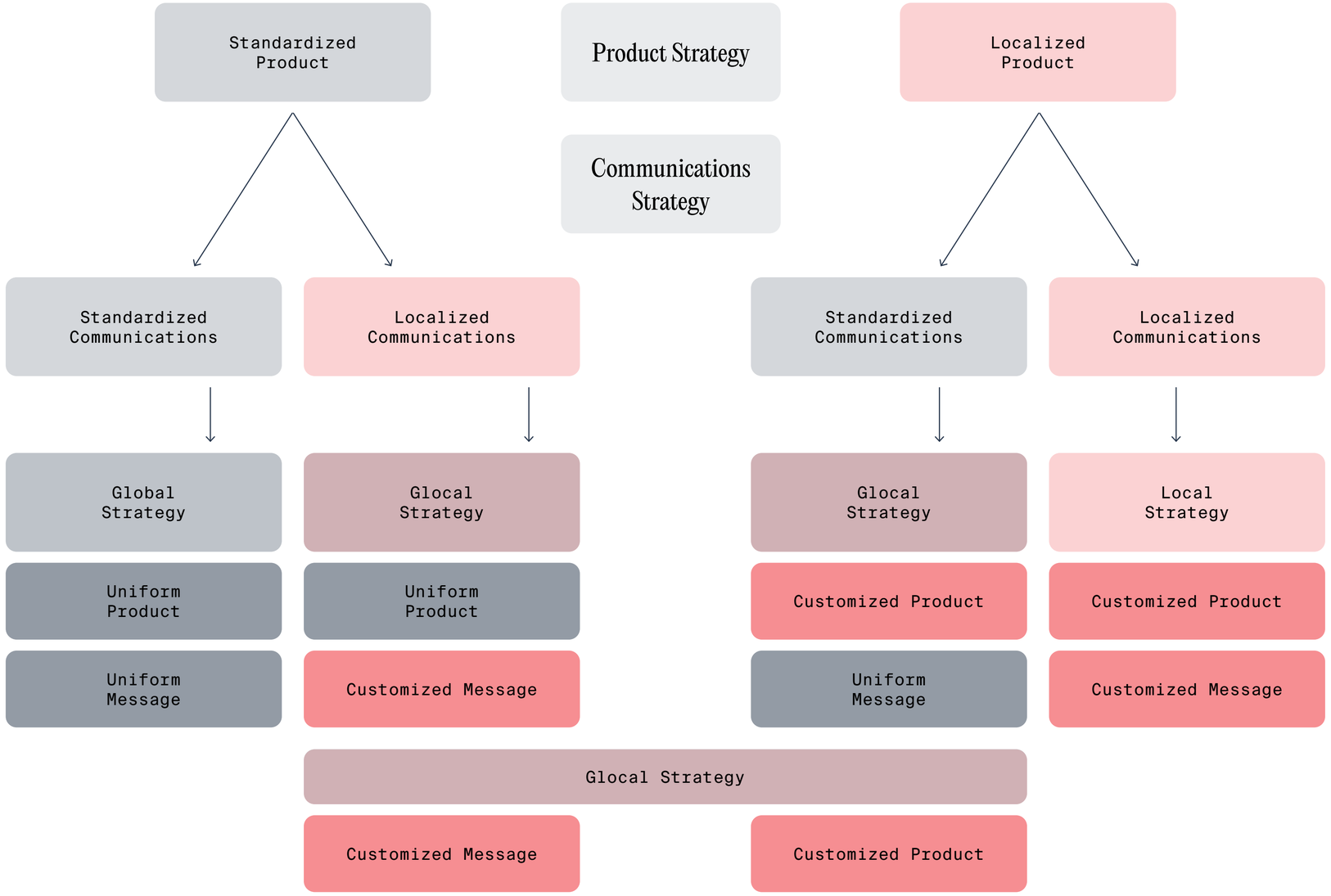
- Metaphors are not interpreted the same way in all cultures. The diaper brand Pampers, for example, had to adapt its packaging design when it introduced a product to the Japanese market in 1977. It had shown a stork bringing a child. This metaphor is widely used especially in European cultures, but it does not exist in Asian countries. These days, Pampers generally stays away from the stork metaphor. This case is still used as an example for the challenges that introducing a brand to a new culture can present.

- Colors have a different meaning and convey a different mood in different cultures. While green is often associated with sustainability and naturalness in Europe, for example, as the national color of Mexico, it represents independence there. In the Middle East, green is the traditional color of Islam.

Glocal brand design is especially important for global brands. Their goal is to create a brand identity that combines global consistency with local relevance. It involves maintaining a cohesive brand image across different regions or markets while also adapting certain aspects of the brand to suit the preferences, cultures and needs of specific local audiences. This approach allows brands to resonate with consumers on a global scale while also connecting with them on a local level.

It is therefore essential for designers and companies to take the cultural contexts of their target markets into close consideration and to analyze the symbolic meaning of design elements carefully. A sensitive approach and a profound cultural analysis can help prevent misunderstandings and ensure a successful launch. An example for this is Pepsi's "glocal" campaign in 2020. The campaign celebrates local cultures through limited edition cans that were designed using a "think local" approach. In Mexico, six regions were showcased, comprising diverse traditions and landscapes. The collaboration with local partners ensured authenticity and respect while avoiding stereotypes. An example for this is **Pepsi Mexico**

The Glocal Strategy Of Global Brands



Source: Dumitrescu/Vinerean 2010

BEST PRACTICES

01 IKEA

IKEA's Penang store campaign ingeniously leverages the local Hokkien dialect to resonate with the city's culture. By cleverly associating Hokkien words with IKEA products, like "Kay Kia" for "chick" and "Lo Kha Kia" for "tall guy," they create humorous and relatable connections. This localized approach demonstrates IKEA's commitment to immersing in local culture.

Another example for IKEA's localized approach is their ad campaign for ex-German chancellor Angela Merkel. Together with marketing agency Thjnk Berlin, they dedicated a farewell motif to the outgoing chancellor: Finally home.

02 Local Color Project at Telekom Shops

This interior design concept transforms Telekom shops into emotional experiential spaces, regardless of their size. It emphasizes local culture and the importance of community to attract customers and create unique brand experiences. Developed by GROSSE8, it was introduced in 2022 and aims to bring the magic of the city into retail.

01 02

BEST PRACTICES

03 Pepsi Mexico

The Pepsi Culture Can Series celebrates Latin American diversity with hyperlocal designs worldwide. In Mexico, Pepsi honored six iconic cities amid the challenges of COVID-19. Embracing art history and ethnographic insights, the brand crafted contemporary illustrations brimming with youthful energy, uniting communities in a time of global uncertainty.

04 Pepsi China

Pepsi collaborated with China's People's Daily New Media to honor frontline COVID-19 heroes worldwide. Through cans adorned with newspaper-style typography and iconic Pepsi colors, real quotes from People's Daily reporting paid tribute to the bravery and sacrifice of medical staff, workers, volunteers and delivery personnel. These cans served as a testament to resilience and unity in the face of adversity.

03 04

What-if scenario

Hyper-glocal brands: A glimpse into tomorrow's marketing landscape

In today's world, brands meticulously tailor their strategies and product offerings to suit local and cultural contexts. But what if the evolution of glocal branding transcended these boundaries, delving deeper into the realms of individual preferences and geographic nuances?
Enter hyper-glocal branding—a paradigm shift driven by AI and real-time data integration, revolutionizing how brands interact with their audiences. Imagine a world where brands dynamically adjust their marketing messages and product offerings based on real-time insights, seamlessly integrating into the fabric of local communities.

Hyper-glocal branding isn't just about aesthetics—it's about forging genuine connections with local communities. Brands actively engage with neighborhood events, support local causes and collaborate with artists and influencers to create meaningful experiences that resonate with their audience on a deeper level. Furthermore, hyper-glocal brands offer customized products and services, catering to the unique preferences and cultural nuances of each region. From locally sourced ingredients to language-specific messaging, every aspect is meticulously crafted to foster a sense of belonging and authenticity.

In this future landscape, hyper-glocal branding blurs the lines between physical and digital realms, seamlessly integrating into the fabric of our daily lives. It's not just about selling products—it's about creating meaningful experiences that resonate with individuals on a local, personal level.

CHALLENGES

Designers are faced with the challenge of creating designs that are globally appealing and also locally relevant. This requires an in-depth understanding of the cultural nuances and preferences of the target markets to avoid misunderstandings or inappropriate depictions.

Symbols, metaphors and colors can have different meanings in different cultural contexts. Designers must ensure that the design will not be misunderstood and that they do not convey unintended connotations that could damage the brand image.

When adapting products or services to local markets, designers must ensure that the core identity of the brand remains intact. This requires a balance between local relevance and global coherence to enhance the consumers' trust and maintain brand integrity.

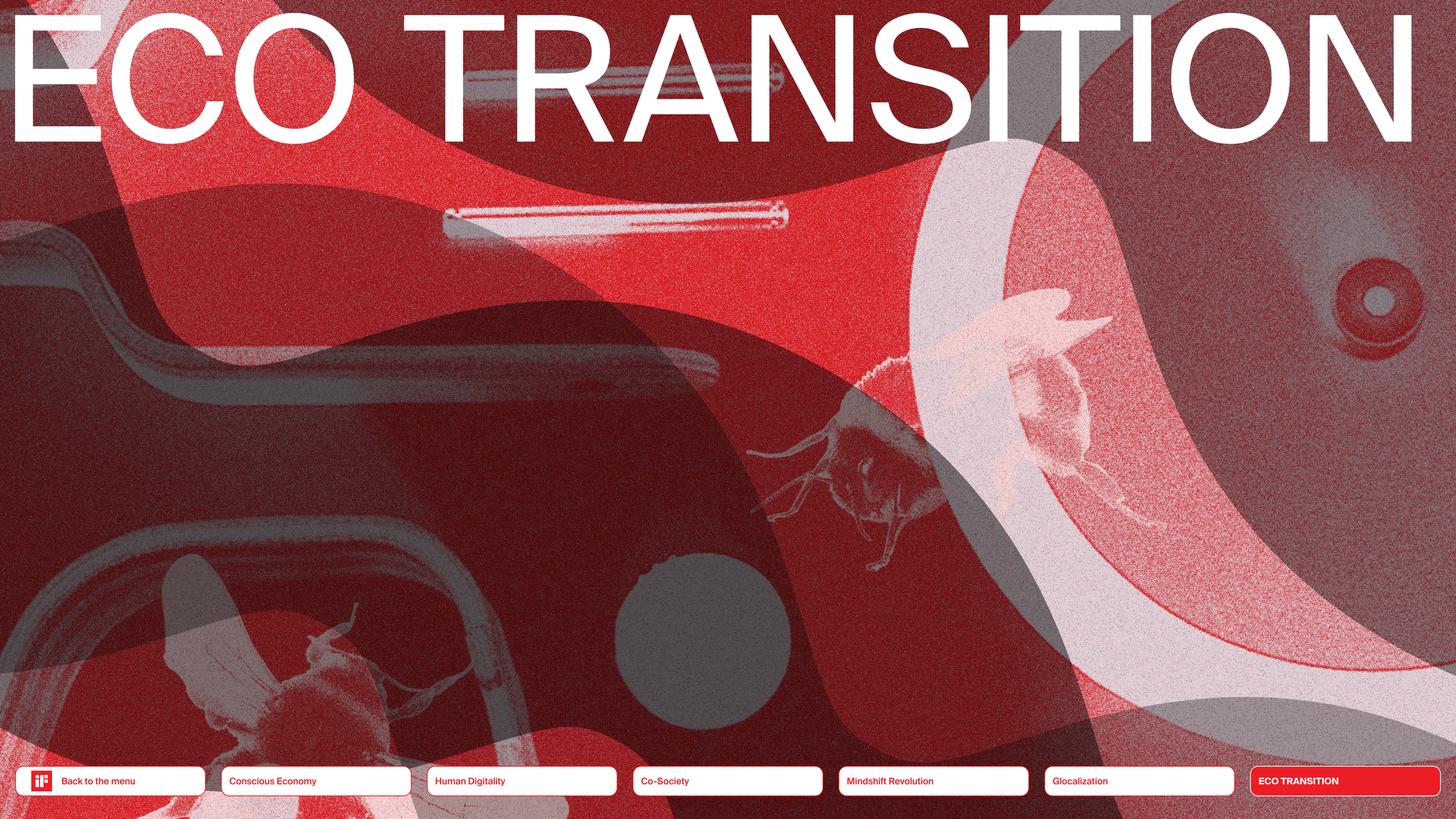
OPPORTUNITIES

The possibility to adapt products and services to local needs offers designers an opportunity to set themselves apart from the competition and develop unique solutions that are tailored to the cultural preferences of the target markets.

By considering local conditions and preferences, designers can build a deeper relationship with the consumers and increase brand loyalty. And by respecting cultural identities and needs, brands can gain the trust and loyalty of their customers.

Addressing various cultural contexts and perspectives can lead to creative innovations that go beyond local borders. Designers can learn from the diversity and dynamics of different cultures and generate new ideas that promote the growth of the brand and its global reach.

ECO TRANSITION



ECO TRANSITION

The global transformation to a holistic eco-systematic society goes hand-in-hand with the restructuring of infrastructures, production systems and cultural techniques. And to ensure future-proofness and quality of life in times of climate change, decarbonization, climate adaptation and regeneration will be the three guiding principles of design.

EXECUTIVE SUMMARY

The global shift to an ecosystemic society involves redesigning infrastructures, production systems and cultural techniques, guided by decarbonization, climate adaptation and regeneration principles for sustainable design in the face of climate change.

The Eco Transition, driven by grassroots activism and regulations, marks a significant contemporary transformation. Environmental activists and businesses grapple with differing perceptions of urgency, representing a societal tipping point in which ecological knowledge meets regulatory incentives.

Progress towards eco-friendly practices occurs through discourse, institutionalization and adoption of sustainable solutions, including material innovations, regulatory interventions and changes in consumer behavior.

Circular design aims to close the carbon cycle with decarbonization, infrastructural redesign and innovative materials. Climate adaptation strategies prioritize resilient urban planning, emphasizing designers' roles. Regenerative design aims to restore ecosystems through projects like urban green spaces and sustainable housing, aligning human needs with environmental goals.

The Eco Transition at the tipping point

How we are learning to act, think and design in an eco-systematic way

The Eco Transition is one of the most important transformations of the present day. Its configuration determines whether we will be able to maintain our quality of life in the long term and develop a sustainable, global way of doing business that protects vital resources and allows these to regenerate. The core task lies in transforming linear processes into circular ones. At present, numerous materials cycles are disturbed by human activity, which is causing the basis of our existence to falter.

It is telling that the perception of the timing of the Eco Transition varies greatly. Climate activists and researchers are despairing at the small amount of progress that has been made despite decades of effort. Many companies, conversely, seem overwhelmed by the regulations and processes these bring with them that require countries as well as individual companies to act sustainably.

This discrepancy in perception reveals a dynamic that is evident in many transformation processes: What was called for over decades by grass roots movements is now being implemented at the political level through restrictions and regulations.

A societal tipping point has thus been reached: Ecological knowledge and technological innovations that have been developed over many years are now also finding the regulatory and financial incentives that will encourage companies to actually implement them.

We have the efforts of the grassroots trailblazers and early green tech innovators to thank for the fact that there are now a variety of solutions available to make a transformation to a sustainable economy possible. And yet the Eco Transition still needs something that Rebecca Solnit refers to as “cathedral thinking” (Solnit 2024). Similar to building a cathedral, we are currently laying the foundation for a structure whose completion lies so far in the future that the technological and social conditions for it cannot yet be predicted. It is therefore all the more important that the foundation for the Next Society is viable and also adaptive.

Describing the slowness of change is often confused with acceptance of the status quo.

It’s really the opposite.

Rebecca Solnit
WRITER AND CULTURAL HISTORIAN, USA

The slow force of the Eco Transition

Making change visible and understanding trend developments

Transformations take time and go through numerous phases; they first take place at the discourse level. New findings and observations ensure that individuals or a small, dedicated minority recognize that something has to change.

The fact that there is an anthropogenic greenhouse gas effect that influences the global climate was discovered by Keeling already in 1958. The strengthening of environmental consciousness is not only the result of scientific discovery, though, but also spread by literature such as Rachel Carson's "Silent Spring" and the "Blue Marble" photo taken in 1971, which shows the thin atmosphere of the Earth.

The developments in the discourse have gone hand in hand with the foundation of institutions and organizations that make the communications of goals more professional, that bundle knowledge and that align suggestions for solutions with trends using catchy buzzwords. This institutionalization is also necessary to communicate scientific findings with the broader public. The visual representation of this complex content in appealing graphics is a particularly important design task in this process.

As the use of alternative materials and environmentally conscious production methods is initially connected with high development costs, the products gain a higher symbolic and moral value. Sustainability has therefore often been associated with high quality, durability and a moral bonus.

However, the Eco Transition requires a restructuring of energy production, manufacturing, logistics and sales—and thus massive investments to be made by companies and governments. Game-changing verdicts in favor of climate protection and governmental regulations are therefore a deciding way to steer the transformation and motivate companies to make the required changes. They also send an important signal to the financial markets and thus steer the direction of investments.

An important building block for the Eco Transition is the visualization of the complex consequences that climate change has for the global system as a whole.

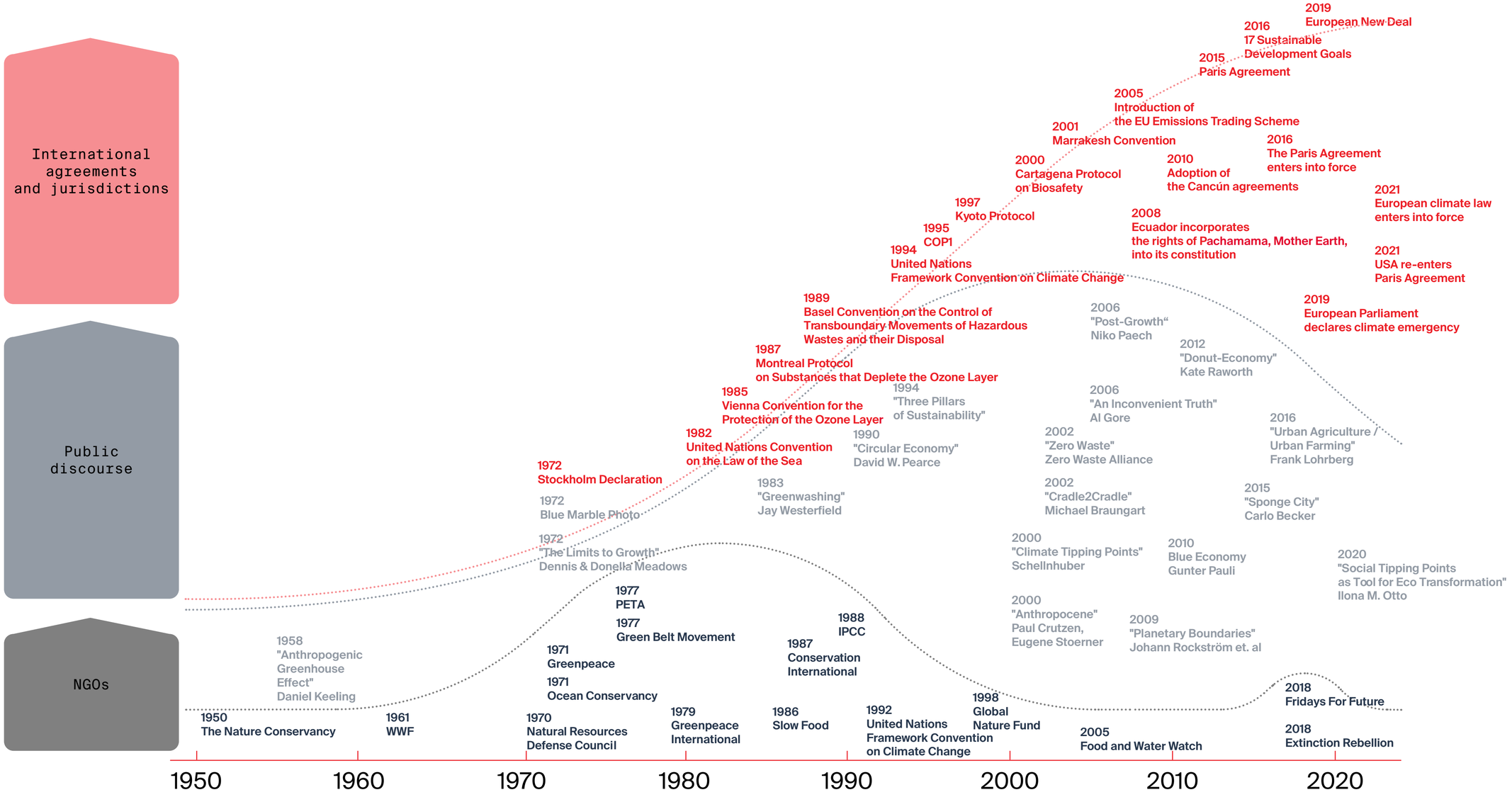
We can recommend the following three overviews, for example:

CLIMATE ENDGAME: EXPLORING CATASTROPHIC CLIMATE CHANGE SCENARIOS

ATMOSPHERIC CARBON DIOXIDE TAGGED BY SOURCE

CLIMATE IMPACTS ONLINE

The changing dynamics of the Eco Transition



Source: The Future:Project

Making the individual impact understandable

The ecological footprint played a deciding role in the discourse about the Eco Transition in the past decades. The concept aims to visualize the emissions that are connected with certain lifestyles and to illustrate to what extent the overall value is above or below the reference point of what the Earth can handle.
The concept has since been criticized for numerous reasons: First, it primarily places the responsibility on the consumers and less so on the producers, whose power to make changes is significantly greater.
Second, it also includes the emissions that are emitted by the local infrastructure—in industrialized nations, this value is so high that individuals hardly have any opportunity to achieve a footprint that is recommended. The result then has a hindering effect rather than a motivating one.

The Centre for Environment Education in India has therefore developed the concept of the climate handprint to go with it: It shows which opportunities there are to drive the Eco Transition forward besides sacrifices from individuals.

In a synergy with reflected consumption and a reconsideration of one's power to act, the Eco Transition is also bringing about a general shift in values and changed economic conditions.

The three major tasks of the Eco Transition

It has been shown that climate change can be stopped by complete decarbonization,(IPCC 2023) but until that can happen, global warming continues with each ton of CO_2 that is emitted. This is already having palpable effects on society. The changed climate is causing crop failures, damaging infrastructure and even causing entire cities and swaths of land to be lost. The results are weakened economies, destabilized nations, reduced life expectancies and more frequent resource shortages.

The risks to quality of life and security that come from this can be slightly lessened by intact ecosystems. Most intact ecosystems also bind large amounts of CO_2 and other greenhouse gases. Protecting intact ecosystems and regenerating damaged ones is therefore an important part of protecting societies from the effects of climate change.

Three principles are important for shaping the Eco Transition:

- Circularity: restructuring our production and logistics systems to a circular economy
- Climate Adaptation: restructuring the areas in which we live to be more resilient to climate change
- Regeneration: restructuring the way we live to promote the regeneration of damaged ecosystems

Design for circularity

Closing the carbon cycle

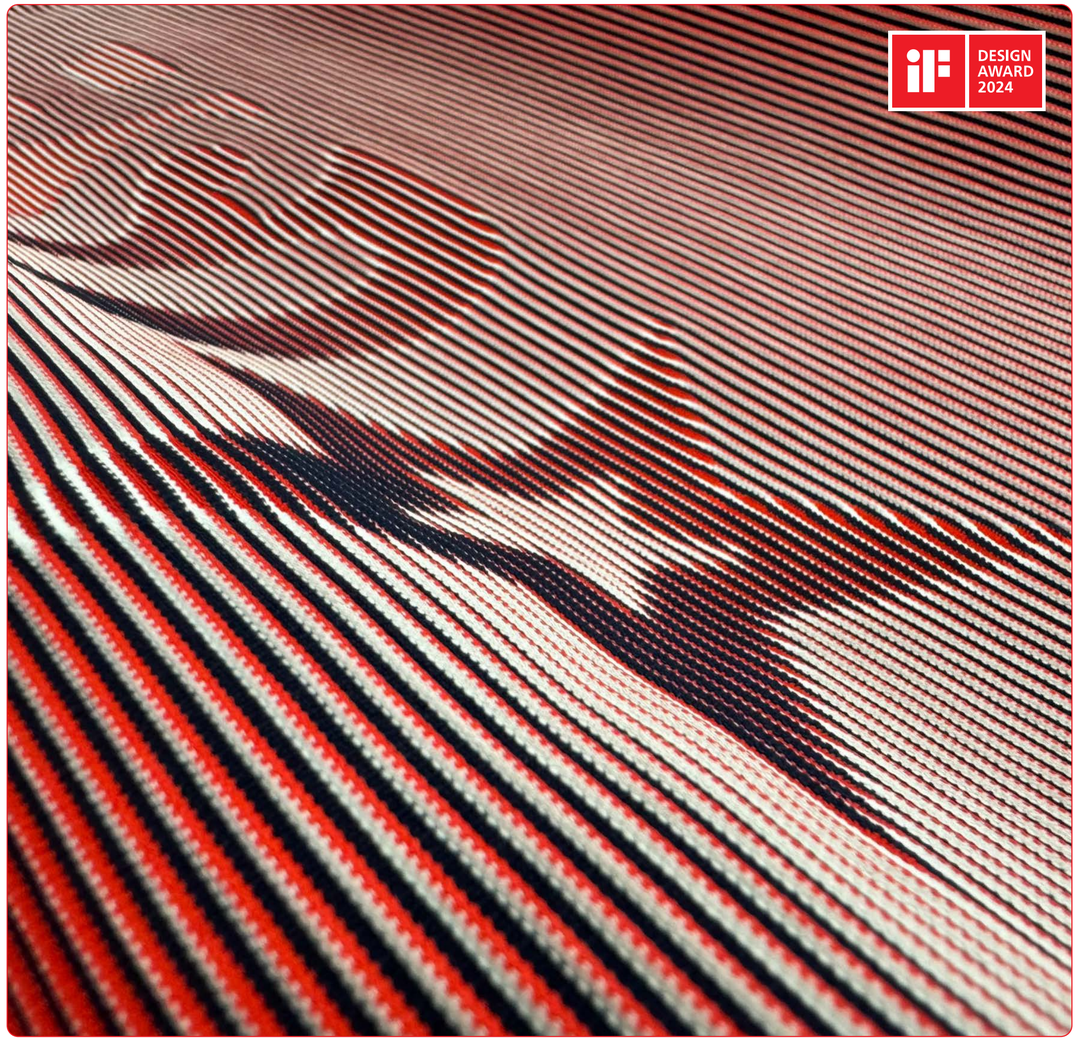
CO_2 is currently the most common by-product of many industrial processes. It is produced in almost every step of the production and supply chain and is thus directly connected to creating products and services. The effects these emissions have on the global climate have become undisputed. Under the keyword decarbonization, production systems and infrastructures are therefore being re-evaluated and services as well as solutions are being developed to help illustrate the emissions of transport routes, for example **EcoAdvisor**.

These services can make a key contribution to avoiding emissions—especially when attention is paid already in the design process of the products that the production creates as little gray energy as possible. The ecological transformation is largely taking place through a restructuring of the infrastructure. Factories are being renovated to connect machinery to renewable energy sources or to reuse the waste products that result from production. The heat that production generates can be fed into district heating networks, for example. The carbon can be filtered out and can also be reused; carbon engineering turns the noxious emissions into a resource.

This systematic conversion of industrial operations and infrastructures will affect the work of industrial designers: New production methods and the use of alternative materials also changes the knowledge designers need in order to adequately adapt products to the manufacturing processes. Especially when using new materials and designing products that are made of numerous materials, designers will need to continue to educate themselves in order to keep up with the transformation.

The term **gray energy** refers to the energy that is necessary for the manufacturing of all intermediate products, materials, production, transportation, storage and disposal. It is irrelevant here whether this is a physical product or a digital one, a service or a communication campaign.

BEST PRACTICES



01 02

01 FENC® TOPGREEN® Bio3

FENC® TOPGREEN Bio3 is a revolutionary sustainable textile design by FENC. Crafted from recycled waste gas PET, it achieves carbon negativity while minimizing environmental impact. Utilizing low-pollutant dyeing methods, it pioneers eco-friendly manufacturing. FENC's innovative 3D Knitting technology not only enhances aesthetics but also ensures all-day comfort.

02 Service to Decarbonize Hospitals

The Philips Environmental Sustainability Service aims to enhance sustainability in healthcare settings. By quantifying the carbon footprint and offering decarbonization strategies, it enables governance, decision-making and deployment. Holistically gathering data from various sources and conducting on-site assessments, it tailors solutions to each department's needs. Executive strategy sessions define the roadmap for sustainability.

BEST PRACTICES

03 Fire Department Tübingen-Lustnau

The fire station, constructed entirely from timber and powered by renewable energy sources, exemplifies a new era of sustainable architecture. With a focus on functionality, aesthetics and environmental responsibility, it sets a precedent for the construction industry. By utilizing renewable materials and holistic sustainability concepts, it significantly reduces CO_2 emissions compared to conventional structures. The innovative use of wood not only minimizes the carbon footprint during construction but also sequesters additional CO_2, showcasing its extraordinary environmental benefits.

03

BEST PRACTICES

04 **Apple Watch Series 9 Carbon Neutral**

The Apple Watch is the first carbon-neutral Apple product, marking a milestone on the path to making all Apple products carbon neutral by 2030. We reduce emissions through innovations in materials, clean energy and low-carbon shipping. Any remaining emissions are offset through investments in nature-based projects.

05 **Wooden balance bike for kids**

Plywood is crafted from legally sourced timber from sustainably managed forests. Its packaging is 100% recyclable, utilizing FSC-certified cardboard and one-color ink, without any glue in construction. Designed to be compact, it conserves space and fuel. Additionally, the packaging doubles as a board game for added enjoyment.

04 **05**

Circular design

A fundamental issue in the economic system is its linearity: We remove raw materials from the environment and change their state so much during the production process that they can no longer be used as a resource for nature, nor can they be reprocessed. The effects of this are evident on both ends of the production chain: At one end, we have to deal with a shortage of resources, and at the other end, we have a growing issue of waste disposal.

Equally serious—if not more—are the effects this linearity is having on the materials cycles of our planet: the water cycle, the carbon cycle, even the nitrate and phosphate cycles are becoming unbalanced due to our production methods.

The idea of the circular economy is about eliminating pollution, circulating materials, and regenerating nature in order to decouple growth from extraction and redesign products, services, experiences, and businesses to generate value through reuse.

But as easy as the concept seems at first, it is highly complex in its implementation: It requires producers to have comprehensive knowledge of all intermediate steps of production and its effects on the local ecology as well as a restructuring of the supply chains. The design of the products plays a deciding role: The materials that are used and how they are combined with one another are decided during the design process. Composite materials, for example, are difficult to recycle, and some materials can be recycled easily in one country but not in another country.

Returning products to the cycle after their use presents a particular challenge as it requires users to change their behaviors. Ideally, the products would not be thrown away but would be returned to the manufacturer or to specialized collection points.

This problem can be solved by services (such as Loop or Algramo) or through top-notch packaging design that encourages refilling, e.g. practiced by **Meadow Daisy Top**

BEST PRACTICES

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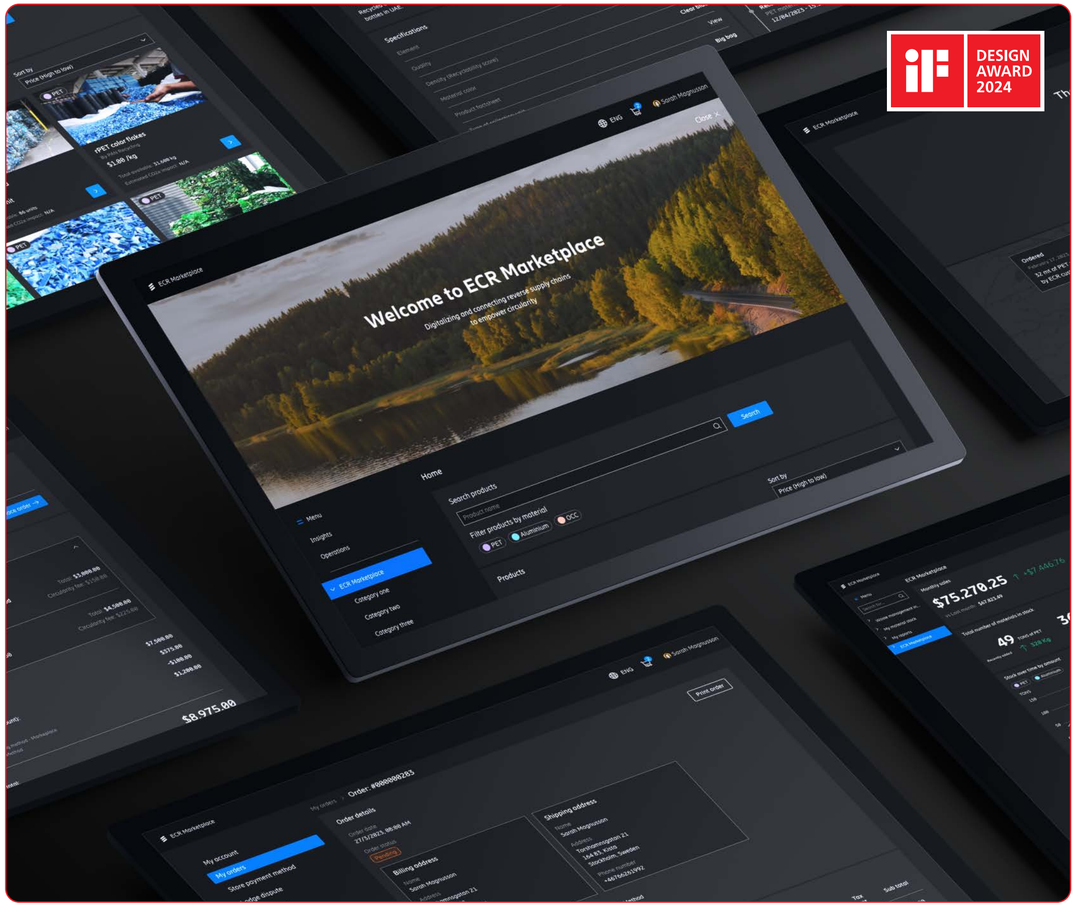


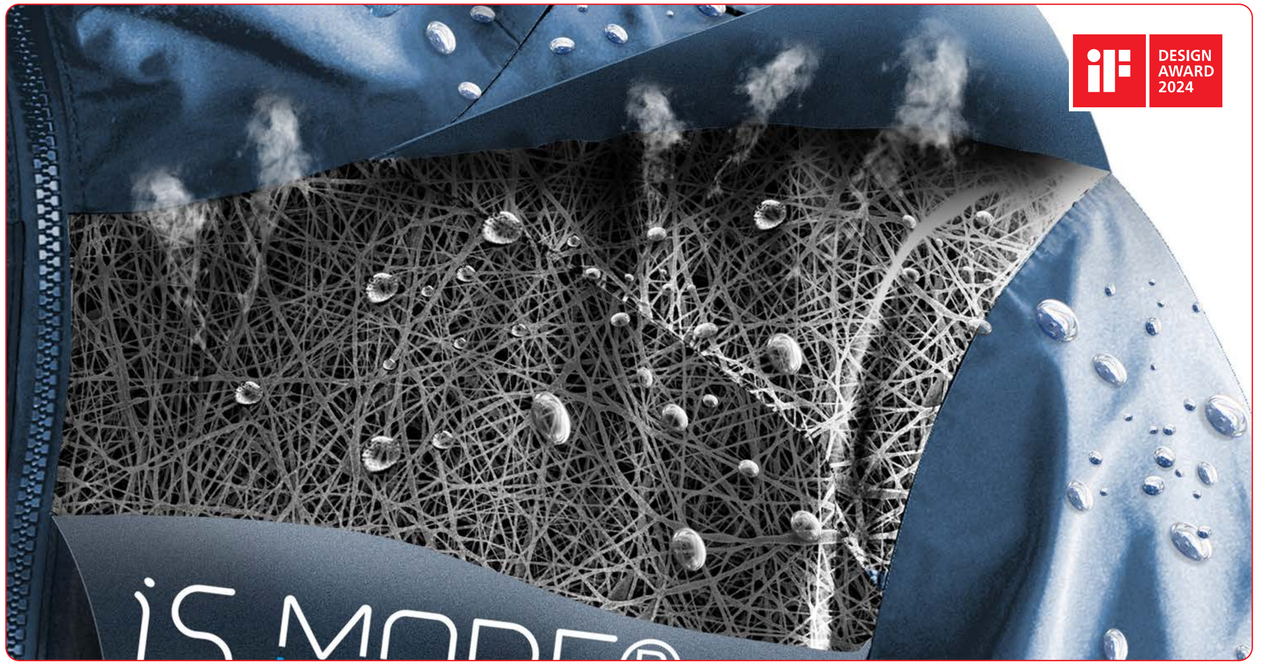
01 Meadow Daisy Top™ Circular Packaging System

The Meadow Daisy Top™ introduces a circular packaging solution using the ubiquitous aluminum beverage can. With a modified end, it enhances the user experience for liquid products while promoting circularity. Easy to use and infinitely recyclable, it aligns with household recycling systems. The dispenser, customizable to brand aesthetics, features the Daisy-Top™ opening technology for a safe and memorable user experience.

02 Ericsson Connected Recycling

ECR is a pioneering SaaS platform revolutionizing waste management by promoting digitalization in recycling ecosystems. It facilitates Digital Deposit Refund System (DRS) markets, Extended Producer Responsibility (EPR), and Environmental, Social and Governance (ESG) reporting. By providing recycling insights, ECR optimizes operations, boosts circularity and reduces environmental footprint, driving financial success for environmentally conscious entities worldwide.

BEST PRACTICES



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03 Circular Design Baby Stroller

True sustainability necessitates both commercial and environmental viability for companies to flourish. ReGen embodies this ethos with its fully circular business model, offering a practical, innovative and high-quality baby stroller. Crafted from sustainable materials, it is designed for at least five generations of use. High-wear areas can be refurbished after each cycle, extending its lifespan. Available for lease or with a buy-back option, ReGen promotes reuse and circulation, allowing families to return it for refurbishment or refurbish it themselves for resale or gifting.

04 Ultra-Thin Membrane for Outdoor Jackets

iSMORE® revolutionizes outdoor apparel with its triple-action nanofiber membrane, offering water-repellency, moisture permeability and air permeability in one. PFCs-free and lightweight, it is ideal for sustainable outdoor jackets. Its circular economy design ensures easy recycling without fiber separation, promoting environmental friendliness and reuse. Additionally, iSMORE® boosts membrane strength, extending the product lifespan to ten years for enhanced durability.

05 Sustainable Switch Program

The Busch-Art linear /ALBA series embodies sustainability with its use of recycled and recyclable materials. With plastic parts made of 92% to 98% recyclate, it sets a new standard in eco-friendly design. Following the cradle-to-cradle philosophy, it aims for regenerative productivity like nature. Committed to the UN Sustainable Development Goals, it aligns with climate and social justice objectives.

ECO TRANSITION

As designers, our goal is to ensure that every product we design not only serves its function effectively but also adheres to the principles of a circular economy.

That's why we maintain a holistic approach in our design process: We adapt materials, production methods, assembly processes and even packaging and transportation to create products that emphasize durability, easy disassembly for recycling, and the use of renewable, eco-friendly materials.

This is often challenging. Many companies still prioritize short-term profitability over long-term sustainability. However, it is crucial to continue advocating for and working toward more environmentally responsible design practices.

INMA BERMUDEZ
CEO, STUDIO INMA BERMUDEZ, SPAIN

Materials for the future

Bio design on the rise

Which material is used in a design often determines how long-lasting and sustainable the product will be. Materials research and material design therefore form an important pillar of sustainable design.
As part of the Eco Transition, the “Materials for Future” often pursue one of the following goals:

- they make circularity possible by being recyclable
- they can be produced using very little energy, supporting emissions neutrality in production
- they can be manufactured using regenerable raw materials

Often these new materials don’t just fulfill one of these goals, they also open up new functional and aesthetic playing fields. On pages like tocco.earth, designers can find bio-based materials that are ready to use for their design.

There has been a wave of innovation in material design in the past years in cultivating and processing algae in particular: Companies like Notpla show that this regenerating resource promotes biodiversity and can be cultivated under fair working conditions, and that a wide range of different packaging materials can be produced using it.

In material design, designers don’t only use materials that have already been developed—they view searching for new materials as part of the design research. University students are able to experiment with the development of biological materials in biolabs and agencies such as

Atelier LUMA are developing natural materials specifically for use in a certain project. For example, Atelier LUMA has developed Mur du Sel, a wall of salt crystals extracted from sea water, for a wall installation.

Source: Atelier LUMA

BEST PRACTICES

01 BAZZA Superleggera

This luggage is 100% recyclable with a 90% lower carbon footprint than traditional luggage. Its fully bio-based material, made from natural seeds, reduces reliance on petroleum. Patented construction streamlines production, minimizing weak connections and assembly time. Produced in Italy, its low price of €149 is possible thanks to automated, waste-free production and direct-to-consumer sales.

02 HONOKA Material Development & Furniture

The “TATAMI ReFAB PROJECT” reintroduces Tatami into modern living through 3D printing. Furniture is crafted from recycled tatami and biodegradable plastic, harnessing tatami’s benefits such as fragrance and humidity control. With 40% of raw materials from traditional production wasted, this initiative repurposes Tatami into functional and culturally significant furniture pieces.

01 02

BEST PRACTICES

03 Multi-Way Outfits in PALF Pineapple Leaf Fabrics

PALF Pineapple Leaf Fabrics pioneers the creation of multi-way outfits from discarded pineapple leaves, utilizing a locally sourced and sustainable trial production line. The innovative fabric minimizes carbon emissions and water waste, surpassing conventional materials like cotton grown solely for economic purposes.

04 Vegan Leather from Recycled Tea Leaves

Tea leather is an eco-friendly solution that harmonizes manufacturing with environmental sustainability.
By integrating stable tea powder proportions into a non-solvent-based PU leather base, water usage can be reduced by 92%, energy consumption by 80% and volatile organic compounds by 32%. With a dry manufacturing process that eliminates residual DMF and avoids high-pollution additives, the company is dedicated to shaping a brighter future for humanity.

Living Materials

Living materials will be used more and more in the coming years. Organisms such as plants, fungi, bacteria or algae are used without them dying during production or use, keeping their characteristics as living entities. Similar to smart materials, they are able to perceive certain characteristics in their surroundings and adapt to changes. While smart materials require a data processing unit and an external energy source for this, living materials are able to adapt to the changes in the environment, regenerate and supply themselves with energy.

Living materials are able to react changes in the environment by repairing themselves like self-healing polymers (Marinow et al. 2021) or through the use of photosynthesis, for example, using sunlight to turn CO_2 and water (Fraunhofer INT 2021) into oxygen and energy, thus creating the basis for the building materials of the future. Conversely, living materials also require care from users and thus more interaction: The green façade of a house wants to be cared for, after all!

Biodesign is the expression of a fundamentally changed relationship to nature and to the role we have taken in the world. While in modern Western society this was still characterized by a utilitarian and anthropocentric understanding, in which nature and non-human creatures had to bend to suit human needs, the focus is now shifting toward coexistence, interdependency and relationality. (Latour 2008) This, in turn, shifts how and what we consider active stakeholders. Living materials thus also become stakeholders whose needs must be considered.

BioMatters

ECO TRANSITION

Biodesign — design with living materials — is obviously looking to the future, as living matter is becoming a stakeholder and not just a resource. It's a vision that is no longer anthropocentric.

On March 26, 2021, the Charter on the Rights of Living Things was proclaimed. In my view, this is an approach that questions the rights of nature and animals. It is totally disruptive. It's biocentrism. We can imagine that tomorrow
there will be no design without bio-inspiration, with bio-inspiration becoming an approach that enables humans to better engage in dialogue and work with living things. In this case, nature would not be a catalogue of "virtuous technological practices" but a culture of doing.

KATIE COTELLON
HEAD OF DESIGN & UX, SAINT GOBAIN RESEARCH, FRANCE

BEST PRACTICES

01 02
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01 Mogu

Mogu has extensively researched mycelium-based technologies across various sectors, yielding materials ranging from soft and foam-like to dense and robust. Leveraging their aesthetic potential, Mogu now introduces the first commercial mycelium-based products for interior design applications, marking a milestone in sustainable innovation.

02 BioMatters

As a biodesign studio, BioMatters merges microbiology and computational design with 3D printing and robotic fabrication of biomaterials. Their focus is to unveil the elegance, intelligence and intricacy of microbial life through design in order to craft products that mitigate natural resource depletion, fostering sustainable environmental wellbeing for the future.

03 Porosity

This pavillon represents an innovative approach to architectural design, blending the concept of "engineered wood" with natural materials, specifically bamboo composites. By layering thin bamboo veneer sheets both vertically and horizontally, the pavilion achieves a remarkable balance of lightness and durability. This reinterpretation of bamboo's capabilities opens up exciting possibilities for architectural creativity, allowing for the creation of lightweight and curved structures that were previously challenging to achieve.

Kenny Arnold

Circular Designer, Ellen MacArthur Foundation, NY

Kenny Arnold is a designer who is passionate about leveraging the power of play and sustainability to unlock our collective ingenuity and drive positive change. As the Senior Manager of Service Design at the Ellen MacArthur Foundation, he supports organizations in their effort to embed circularity into their products, services, and teams by conducting research, developing pilot programs, and advising on sustainability strategies.

Prior to joining the Foundation, he worked as an innovation consultant and industrial designer across industries from toy design and social impact to biomaterials and consumer goods. Whether leading a team or working independently, Kenny is committed to delivering solutions that accelerate the transition to a circular economy.

iF Design What is a Digital Product Passport? What role does it play in the transition to more sustainable production and consumption practices?

I often explain Digital Product Passports (DPP) as an Industry 4.0 technology and like a type of smart PDF. It helps me to think of it as a digital document that is paired with a machine-readable digital record, and an individual product. DPPs comprehensively document a product's entire lifecycle, potentially including specifications, usage history, environmental impact, recycling guidelines, regulatory compliance and ownership details. Data is collected throughout the product and supply chain and shared with relevant key actors across the value chain. The aim of these digital records is to provide the relevant information that helps extend the life of materials and products as long as possible to reduce the embodied carbon emissions.

iF Design What effect do Digital Product Passports have on product design?

I think DPPs will have a subtle but significant impact on how we design and experience objects in use. Depending on the stage in a product's lifecycle, users will be able to view relevant pieces of information such as its origin, where it has been, its previous owners, its material composition, and depending on condition, potentially its next destination. Just as a passport for people contains different records in its pages, a DPP will, too.

While I was trained as an industrial designer, today I identify as a circular designer. It aligns with the impact I want to have through design and leverages skills in all of the disciplines. To design in a circular way, a product cannot exist by itself. It must exist within a product-service system that has both analog and digital touch points.

iF Design What is the biggest barrier to broad adoption? (i.e. corporate mindset, supply chain, accreditations, etc.) Which global companies are leading the transition?

Currently, governments and institutions from around the world are looking to the EU for clues on how DPPs will be implemented. Today in the EU, the Battery Regulation has already entered into force and companies have until February 2027 to implement a DPP solution. Another barrier to adoption is demonstrating to organizations how DPPs will benefit them instead of being framed as an expense compliance. This is a critical barrier to overcome particularly if a region is averse to mandating regulation. However, numerous organizations are already providing DPP platforms while others are adjusting their priorities to implement this technology. Several cross-sector collaborations are already underway with providers and platforms from organizations like AUDI, Amazon, SAP, Microsoft, Twaice, Twintag, Atma.io and many others.

iF Design How and where can designers learn more about sustainable product development and receive further training about circular design principles?

Fortunately, there is an increasing amount of resources available as more people experiment with trying the circular way. The Ellen MacArthur Foundation has an extensive library of articles, case studies, podcasts, videos, activities and other educational material (www.emf.org). There are also material libraries and databases like the Circular Material Library Materiom that make available different types of circular materials via purchase or open source recipes that designers can use (circularmaterialibrary.org). I also would recommend following Leyla Acaroglu's newsletter called Sustainability in Action.

In addition to forecasted long-term cost savings and benefits for supply chains, DPPs are also a key enabling technology that inherently connects the product to a business model that can benefit from resale marketplaces.

iF Design The idea of reuse is not new. Indeed, longevity and durability are at the heart of design traditions like Bauhaus and fundamental to generally accepted sustainable production. Yet, one still gets the feeling many industries have to catch up. What do you think will help bridge the gap the most?

Reuse has been around since humans have been making tools. Unfortunately, most industries have fallen under the spell of planned obsolescence. However, it does feel like different industries and organizations are finally waking up to the fact that we don't have 100 years to fix the climate crisis. It's exciting to see the rise of investments into climate tech solutions in energy and transportation, applying the circular economy to food and the growing adoption of regenerative agricultural practices. What I am most excited about is how AI is rapidly transforming every industry and has the potential to enable a massive redesign of our products and supply chains to make them far more efficient and operate in harmony with nature. For example, ChatGPT can identify items in a photo of waste and generate ideas for potential byproducts. Imagine what that could do when applied to industrial waste streams.

iF Design Do you think the Passport's implementation will affect designers' creativity? If so, how?

I would argue that constraints always lead to better design, so I hope that digital passports, like any new technology, will provide an opportunity for designers to exercise their creativity. I think that DPPs will further reinforce the multidisciplinary nature of design professions and encourage a greater hybridity of skills.

CHALLENGES

The shift to a design that is focused on circularity requires an in-depth understanding of production processes and materials cycles. Designers need to familiarize themselves with the challenges of different recycling standards and global supply chains.

Selecting materials for products is becoming more complex as designers have to ensure that they are either fully recyclable or can be returned to the materials cycle. This requires extensive research and cooperation with materials researchers.

The use of living materials such as plants or algae brings challenges regarding their maintenance and integration onto the design process. Designers need to understand the needs of these materials and consider these in their designs.

OPPORTUNITIES

The transition to a circular economy and decarbonization opens up new opportunities for innovative design approaches. Designers can research and develop new materials that are environmentally friendly and aesthetically pleasing.

By developing services and products that promote return and reuse, designers are able to positively influence the behavior of users. High-quality packaging design and incentive systems can help support the circular economy.

The transition to sustainable design requires close collaboration between designers, engineers, materials researchers and manufacturers. This interdisciplinary collaboration offers designers the opportunity to develop innovative solutions that are in line with the needs of a sustainable future.

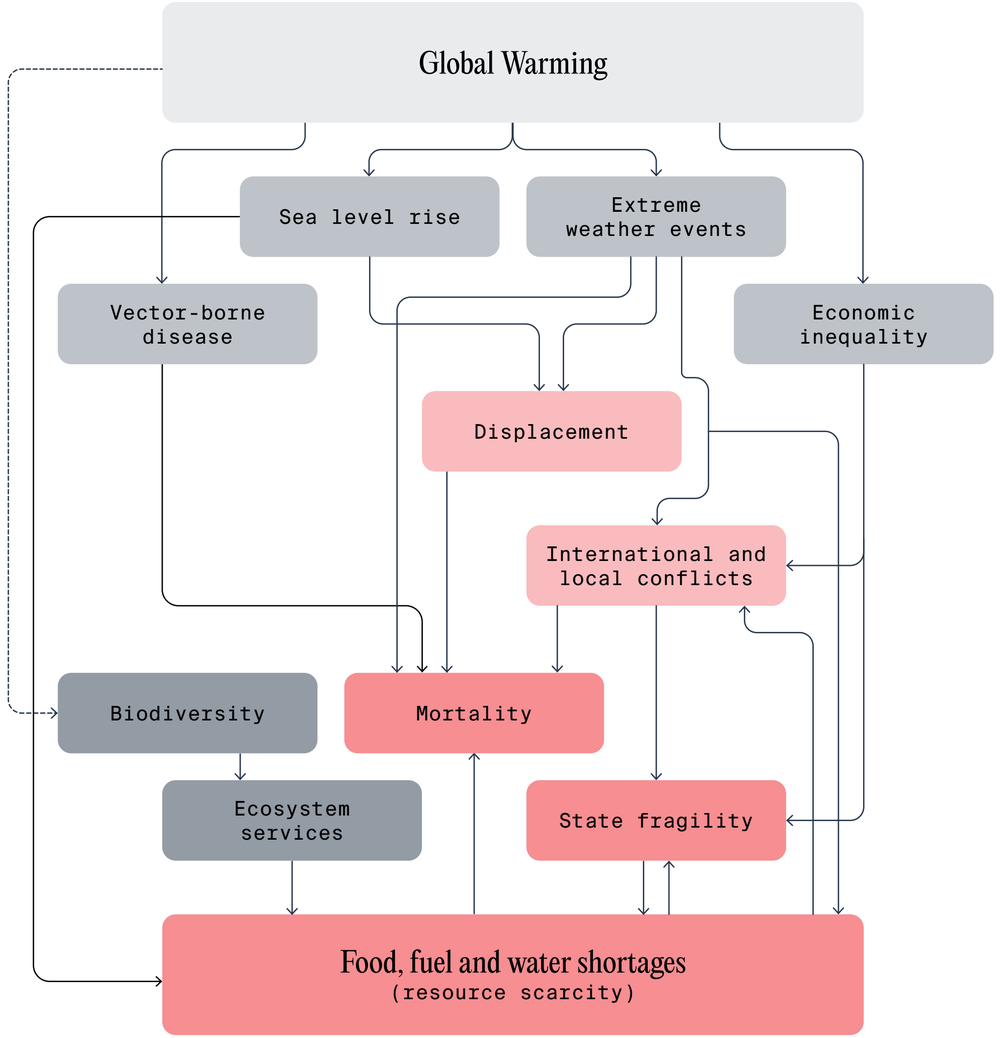
Design for climate adaptation

Adaptation strategies for a warmer world

Adaptivity is one of the most important factors for success for people. Cultural development and technological innovations have allowed humanity to settle in almost every area of this world over the past millennia. This adaptivity will be particularly necessary as a result of climate change. While large parts of the world have to deal with increasing heat, many coastal cities are threatened by rising sea levels. The security of supplies of food, stable energy and clean drinking water is also increasingly under threat.(Luhmann 2008b) The consequences of this have a negative impact on life expectancy and the stability of nations. The changing environmental conditions create pressure to evolve that is calling into question many of the concepts, behaviors and conditions for success that we have become accustomed to.

Adaptation to the new environmental conditions takes place largely in the design and structure of spaces and supply offers. Designers and architects play a central role in rising to this challenge.

Cascading global climate failure: Global warming is leading to higher mortality and state fragility



Source: pnas.org

Urban living spaces are particularly threatened and particularly adaptable

Climate adaptation especially affects the way our cities and villages are conceptualized and built. The current methodology leads to heat islands, flooding and often also drinking water shortages as too much ground water is extracted in that area. Increasingly often, infrastructures and structures reach their limits, and quality of life decreases as well.

In some cases, such as in Jakarta, where the northernmost part of the city is projected to be permanently flooded in ten years already due to the rising sea level, a city will be entirely abandoned in order to build a new capital in another location. The planned city that is now being constructed, Nusantara, is meant to avoid mistakes that developed as Jakarta grew. Mobility should be electric, public spaces will have many trees and plants so that smog and traffic are not such a major issue.

Abandoning a city entirely is an extreme measure, though, that places a financial and social burden on the nation. Often climate adaptation is a sensible alternative for cities, one that can use the urban setting as an opportunity: With the close-knit infrastructure and a new form of designing public spaces, an adaptation measure can have a positive influence on a relatively large number of people's lives.

One example for this is the concept of a sponge city. This was developed in China in 2015, when a series of floodings caused a great deal of damage in cities. Adaptation measures like leaving spaces unsealed, greening public spaces and creating water reservoirs can soften the effects of extreme weather events. Sponge cities were conceptualized as flood protection, but the measures also help mitigate the effects of heatwaves.

Often many environmental effects can be mitigated even by smaller measures such as greening and planting roofs and creating plant installations.

Public space also plays a decisive role for **co-society**.
Find out more about how collaborative design processes contribute to a thriving urban street life.

Resilience as a principle of design

Climate adaptation requires a more resilient design orientation. Functional and aesthetic requirements are expanded to include ecological and adaptive requirements as well. The modern idea of *form follows function* and the postmodern idea of *form follows fun* are being replaced by *form follows ecology*.

Often an ecological design strategy has numerous positive effects: Trees in public spaces cool the area, clean the air, provide noise protection, divert water in the case of torrential rain, promote local biodiversity and bind large amounts of carbon.

The same is true for alternative construction methods such as wooden architecture. As a construction material, wood can bind large amounts of carbon in the long term, and it also improves the condition of the air in the room and has antibacterial properties. For architects, it also offers new scopes for design. The architectural firm of Michael Green has fully committed itself to wooden architecture and is even taking this a step further: With the project FIVE, the firm is exploring additional alternative building methods and searching for materials that are even more environmentally friendly and versatile than wood. An important approach here is the search for constructions that provide as much stability as possible while using as few materials as possible.

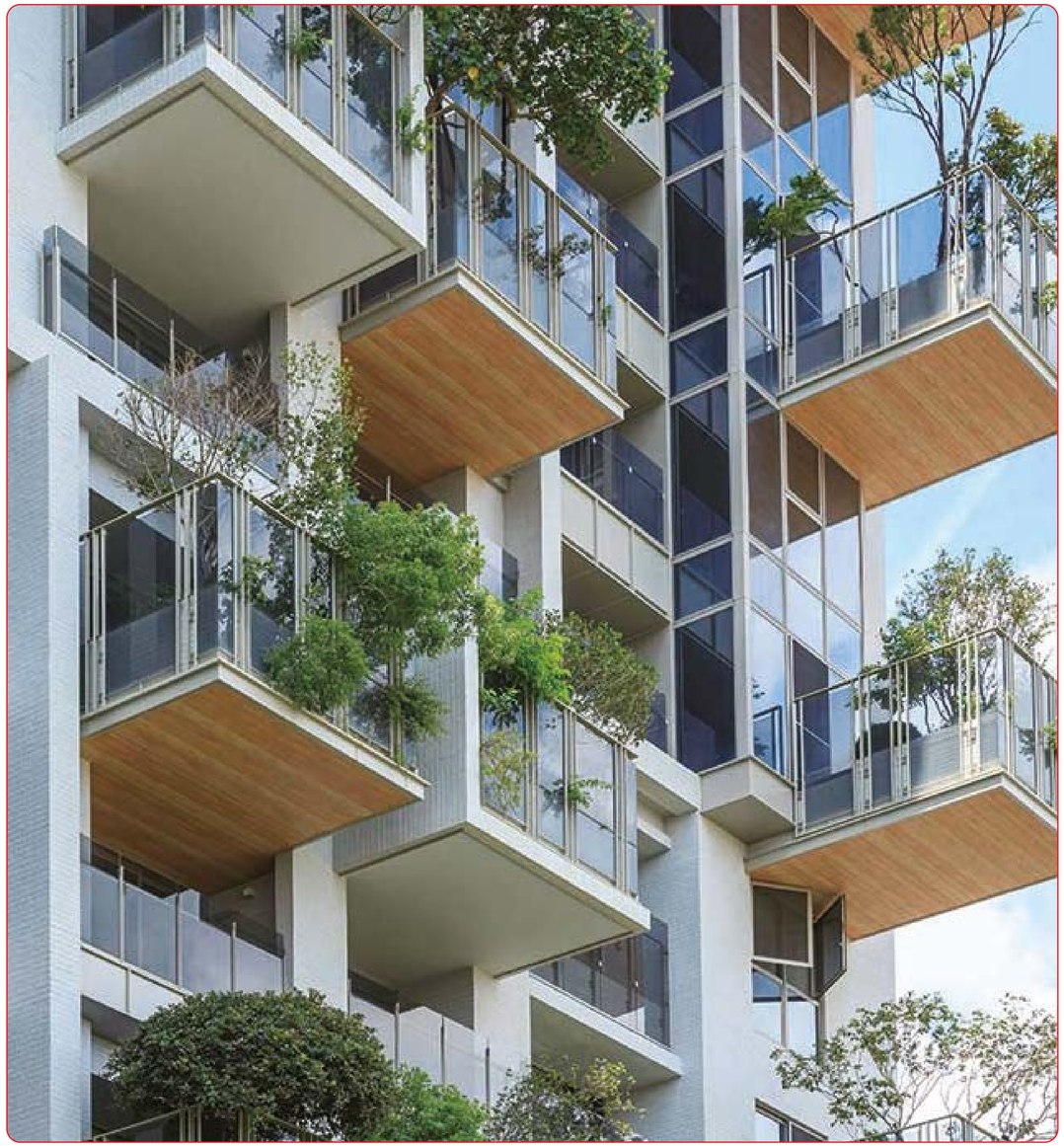
Third Nature has shown that climate adaptation can also create new spaces for urban quality of life with Enghaveparken, a park in Copenhagen. The park serves as a water reservoir during floods and protects the surrounding residential areas from high water. When it is dry, it offers numerous spaces to relax and interactive fun. Its usability changes when water levels are high, but it remains an aesthetic and appealing place.

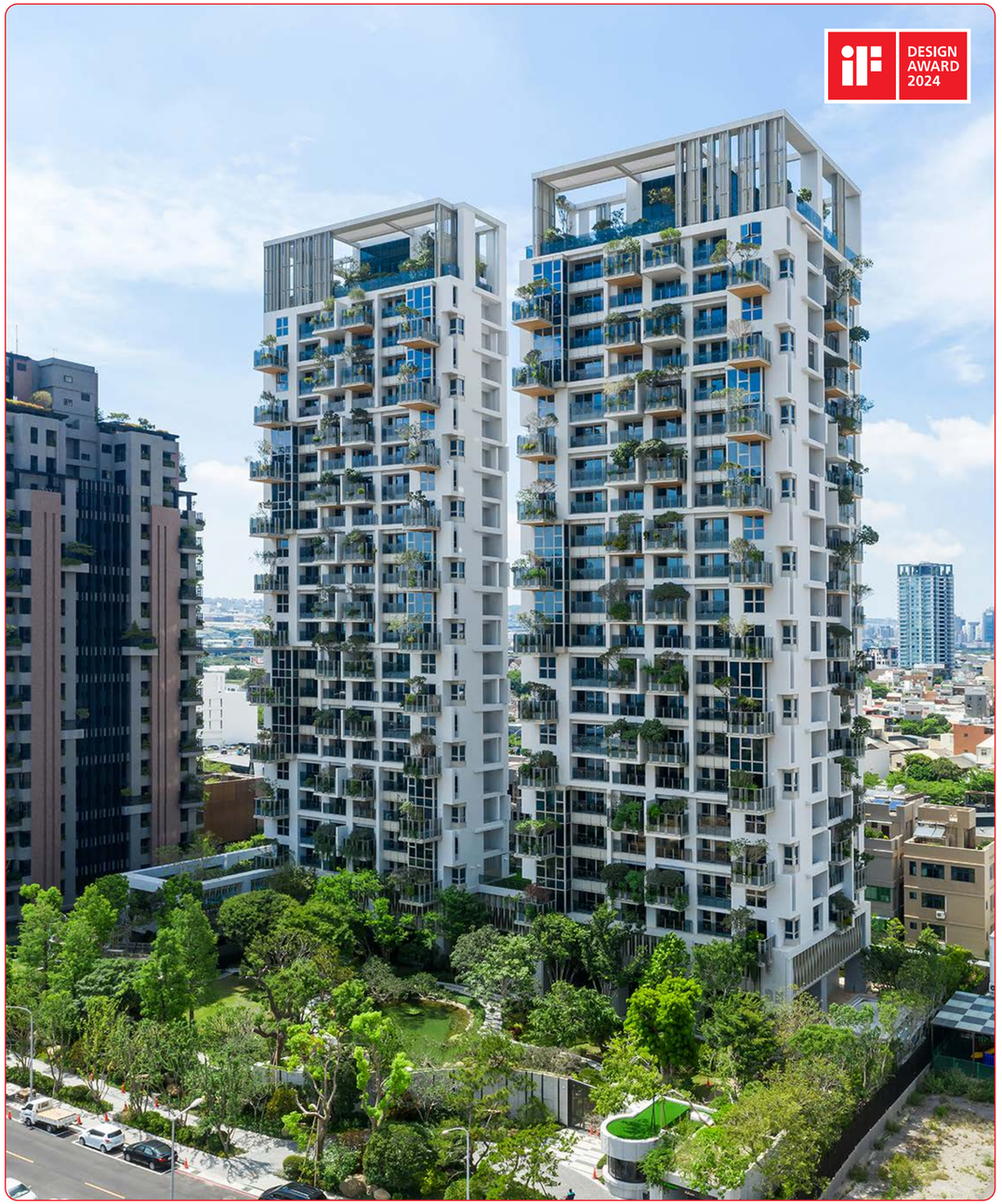
BEST PRACTICES

01 THIRD NATURE

THIRD NATURE transformed Enghavepark into Copenhagen's largest climate project, featuring a 22,600 m^3 water reservoir to address water challenges. The park combines recreation with handling extreme rain, incorporating rainwater for irrigation and street cleaning. Architectural restoration and new pavilions blend seamlessly with climate-adaptive innovations, offering a green urban space for all.

BEST PRACTICES





02 Garden One

Garden One, situated in Taichung, Taiwan, is a pioneering residential complex merging urban living with lush greenery. Positioned at the intersection of old and new communities, it addresses the lack of green space while setting a precedent for future development. Emphasizing environmental quality, the base features minimal construction, maximizing green areas to combat the urban heat island effect. The aim is to cultivate an urban oasis within the forest garden, offering residents Chinese-style courtyards for enhanced greenery, heralding a new era of garden city living.

02

BEST PRACTICES

03 Artsy Hotel

A property development in São Paulo transforms into an artistic masterpiece, transcending its former hotel function. It symbolizes paradigm shifts and defies conventional norms, emerging as an iconic urban oasis. Its architecture and experiences redefine consumption, offering a unique blend of art, culture and politics. This disruptive fusion of architecture and art reinterprets our beliefs and vision, creating an immersive optical experience unlike any other.

04 Dolce Gusto Neo Flagship Brazil

The Dolce Gusto Neo Flagship design embodies innovation, sustainability and architectural prowess. Utilizing algorithm-generated forms and 3D-printed biodegradable materials, it stands as Latin America's pioneering structure. Created alongside the Dolce Gusto Neo launch, it showcases a commitment to sustainability by incorporating ocean-recovered recycled plastic and biodegradable capsules. Its architecture prompts contemplation of future possibilities amid the urgent climate crisis we confront.

03 04

BEST PRACTICES

05 National Centre for Cultural Study Australia

The NCCS in Gungahlin celebrates Aboriginal heritage and environmental sustainability. Inspired by Ngunnawal traditions, its design resembles the Kurrajong Flower, housing educational, cultural and residential areas. Embracing eco-sustainability, the project incorporates native flora and wetlands to address urban challenges. More than a building, the NCCS embodies cultural respect and environmental responsibility, setting a new standard for sustainable architecture in Australia.

06 Near-Zero Carbon and Sustainable Community China

The Near-Zero Carbon and Sustainable Development Demonstration Community in Shenzhen is a model of low-carbon living and sustainable urban development. With a focus on people, it integrates clean energy, green buildings and resource reuse. Through energy and environmental renewal, it aims for high-quality urban redevelopment. This community exemplifies the joint pursuit of human and environmental well-being, offering innovative solutions for sustainable living.

CHALLENGES

Designing cities and towns to adapt to climate change requires an in-depth understanding for the many challenges, including heat islands, flooding and water shortages. Designers must develop complex solutions that take the different aspects of the urban environment into consideration.

Measures for adapting to climate change, such as abandoning cities and rebuilding them elsewhere, can cause considerable financial and social burden. Designers need to develop solutions that are ecologically as well as economically feasible and that take social justice into account.

The shift to a more resilient design requires new ways of thinking in terms of aesthetic and functional requirements. Designers need to be familiar with ecological principles and develop innovative approaches that are ecologically and aesthetically appealing.

OPPORTUNITIES

Adaptations for climate change offer new opportunities for innovative design concepts that improve the resilience of urban living spaces. Designers can contribute to making cities and towns more resistant to the effects of climate change.

By integrating ecological design principles, designers can help mitigate the negative effects of climate change while also improving the quality of life in urban spaces.

Overcoming the challenges of climate change requires close collaboration between designers, architects, engineers and other specialists. Designers can develop innovative solutions by combining their expertise with other disciplines and forming interdisciplinary teams.

Design for regeneration

Designing so local ecosystems can recover

Already now, numerous countries and cities are dealing with the destructive effects of global climate change. The extent of the damage will continue to grow until the world's economy has managed to stop creating more emissions than ecosystems can absorb.

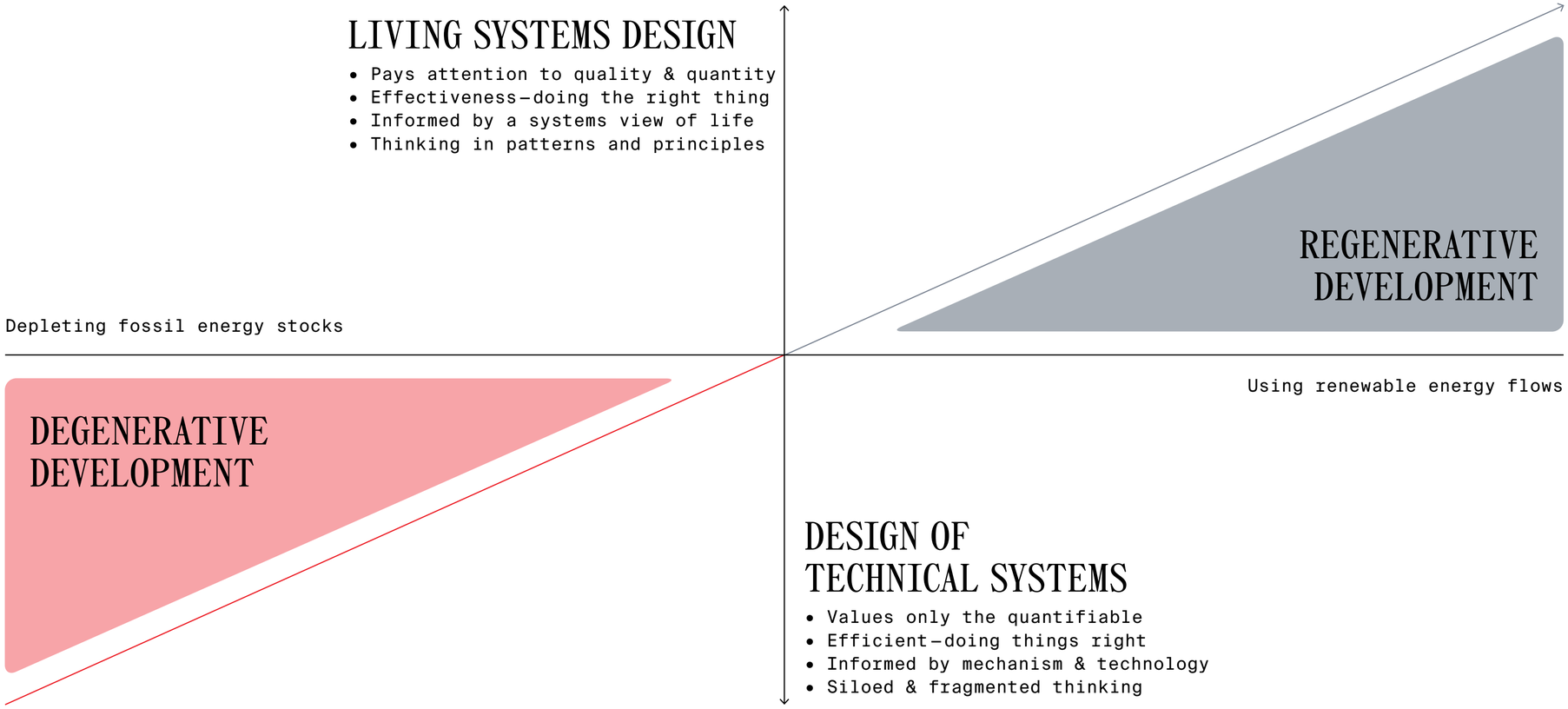
Parallel to decarbonization and climate adaptation, a new design paradigm is therefore moving into the foreground: Design for regeneration. In places where the landscape has already been damaged, design approaches can help turn arid land back into livable places. A massive-scale regeneration project is the King Salman Park in Riyadh: an area of 4102 acres will become the largest urban park in the world. Because the thin topsoil of Saudi Arabia has largely been destroyed by over-farming, large areas of native soil are being enriched with minerals and compost so that 1.2 million trees and 30 million plants can be planted. One of the planned projects is a "moon garden" with plants that bloom at night as the temperatures are often so high during the day that only few people like to go outside then. The park will be watered using non-potable water. King Salman Park is an attempt to green a space that is big enough to create its own microclimate. While the effort is considerably smaller in the initiative Justdiggit in Africa, the ambitions are at least as great. Its strategy needs only two elements: crescent-shaped trenches that help arid land hold water longer, and time.

Future living in regenerative environments

Regenerative design is changing the way we live through a holistic approach to designing houses and buildings. It combines ideas on circularity, uses regenerative materials and takes the local ecological conditions into consideration to integrate itself into the surroundings and, ideally, enhance these. A house is thus not just a place for people to live but a home for numerous plants and animals. In addition, residences are increasingly linked: They are connected to the business model of the residents or a service offer that is tailored to the needs of the residents. This holistic approach leads to a new understanding of sustainability in which buildings do not only consume resources, they also actively contribute to the regeneration of the environment.
New production technologies such as 3D printing play as much of a role in this as self-sufficient supply systems that can provide energy or food.

Regenerative design offers solutions for the present ecological challenges, and it also opens up a path to a future where buildings are not only sustainable but actively contribute to the regeneration of the environment.

Beyond sustainability: designing regenerative cultures



Conventional	Green	Sustainable	Restorative	Regenerative
staying within the law	a little less negative impact	adding no additional harm	humans doing things to nature	humans doing things as nature
DEGENERATIVE CULTURES			REGENERATIVE CULTURES	

Source: danielchristianwahl.com

BEST PRACTICES

01 Sebastian Cox

Sebastian Cox is a renowned furniture designer, craftsman and environmental advocate. His designs are deeply rooted in a nature-first ethos, crafted in his zero waste, carbon-conscious workshop in South London. Working exclusively with British wood sourced from family-run timber yards in the South of England, most within 100 miles, Cox ensures sustainability throughout his process. Each piece undergoes a life cycle assessment to measure its environmental impact, with a focus on carbon neutrality.

02 TECLA

A pioneering eco-sustainable housing prototype, 3D printed from raw earth, inspired by Italo Calvino's Invisible Cities. Developed by MCA and WASP, it integrates vernacular construction practices and bioclimatic principles, aiming to address housing emergencies worldwide while minimizing environmental impact and using local resources.

01 02

BEST PRACTICES

03 THIRD NATURE, Regenerative City

THIRD NATURE envisions Dokken in Bergen, Norway, as a regenerative city, aiming for zero-emission, nature-based climate adaptation. The plan includes a new urban allmenning and a nature-based loop, expanding urban spaces while emphasizing Bergen's fjord and mountainous landscape. Three pioneer districts kickstart the development, focusing on marine research, public engagement and entrepreneurship. The project integrates sustainability into all aspects of city life, correcting past mistakes and reuniting the city with nature.

04 HOLYCRAB!

HOLYCRAB! is a sustainable business transforming invasive species into culinary delights. Their innovative approach solves ecological issues while also fostering biodiversity. With a focus on regenerative economics, they set a compelling example for businesses seeking to harmonize economic growth with environmental stewardship.

Giulia Frittoli

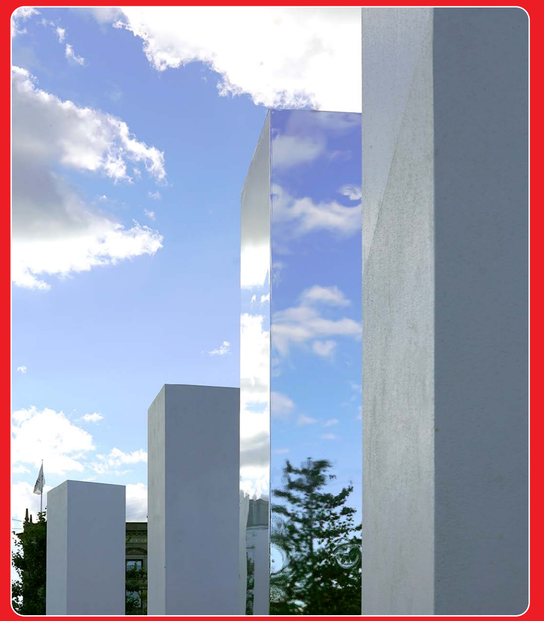
Partner, BIG — Bjarke Ingels Group, Copenhagen

Giulia Frittoli was named as BIG Landscape Partner in 2021 and is a key leader within the BIG Landscape, joining BIG Copenhagen in 2020 after three years at BIG NYC. A Senior Landscape Architect with a multi-disciplinary background in urban design, architecture and landscape architecture, Giulia led the proposal for Toyota Woven City, investigating how recent technologies will shape the future of cities in regard to new forms of mobility, sustainability, ecology and human connectivity. Giulia first joined BIG in 2017 as project lead for the design of the Islais Hyper-Creek proposal for the Resilient by Design competition, exploring solutions to adapt and protect the Bay Area from rain flooding, rising sea levels and other environmental risks.

iF Design The inclusive design of products, services or the built environment aims to take into account the needs of all people in a society and to break down social barriers and discrimination. In what way do urban development and third places play a decisive role?

Urban development is a means for change and brings people together. Similarly, third places such as public squares, libraries and community centers make space for social interaction, and nurture a sense of belonging to a neighborhood, a city, a society. Our Superkilen parc in Copenhagen exemplifies designing spaces that are inclusive of all cultures, genders and ages. The intention was to design a unifying parc in one of the most ethnically diverse neighborhoods of Denmark. We divided the park into three color-coded areas, each with a distinct atmospheric and functional condition, and integrated more than 100 objects from 60 cultures. Similarly, our site-specific installation 50 Queens explored social equality in the public realm by looking at gender representation in public monuments. Both projects feature objects and landscaping details that spark reflection by shaping urban spaces where nature and cultural realms not only intertwine but also mutually serve and enhance each other. Cities of the future will be designed to improve the quality of life for humans, flora and fauna, recognizing how environmental and social systems have evolved and will continue to evolve.

Cities of the future will be designed to improve the quality of life for humans, flora and fauna, recognizing how environmental and social systems have evolved and will continue to evolve.



50 Queens

Superkilen

iF Design The climate crisis is already having a significant impact on people's health and quality of life. Climate adaptation describes measures that increase resilience to severe weather events and climatic extremes at a local level. In the future, cities in particular will implement adaptation measures in order to adjust to the consequences of climate change. Which measures will be particularly effective?

Cities can employ a variety of strategies, but how to enhance resilience, mitigate risk and improve wellbeing will vary depending on the context. We recently developed a masterplan for a new city development in Bhutan, the world's first carbon-negative country, which implements climate resilience measures and combines them with flexible programming and placemaking tools. Located in the town of Gelephu in the south of the country, the 1000+ km^2 masterplan protects existing and future development against flooding in the monsoon season by framing the city around its rivers and expanding existing corridors for water and wildlife. This gives rise to a series of bridges that connect the city across rivers and protected forest. Occasionally, the bridges are combined with civic and cultural facilities, creating a series of 'inhabitable bridges' that include, for example, a market, a university and a spiritual center.

Gelephu Mindfulness City

iF Design There are still numerous barriers to all-round sustainable design. In your opinion, which obstacles and barriers are currently particularly serious? What framework conditions would have to change to enable architects and designers to work sustainably?

In general, public policy can pose barriers for sustainable design, be it by regulations, limited financial incentives or lack of public awareness. To foster more resilient, less carbon-emitting designs, authorities can encourage companies and architects by aligning building codes with this mission. How authorities plan and adapt our urban space can unleash financial incentives for green construction as well as promote education and awareness campaigns. Long-term collaboration and supply chain development are also crucial to empower architects and designers to integrate sustainability into their projects effectively.

Long-term collaboration and supply chain development are also crucial to empower architects and designers to integrate sustainability into their projects effectively.

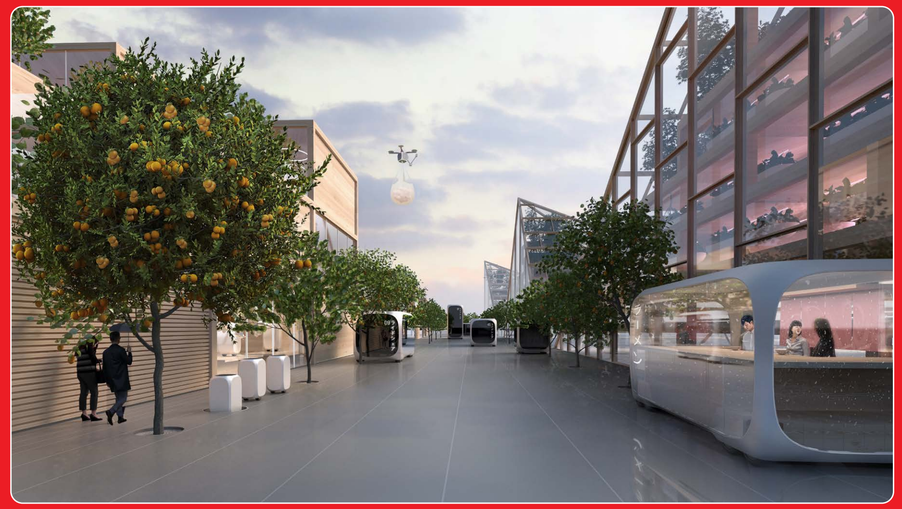
iF Design Circular design often requires new or reinterpreted materials. Which materials do you consider to be particularly forward-looking in urban development and architecture?

At BIG, we base material choices on the design challenge of the specific site and project at hand. This entails analyzing existing infrastructure and building mass as well as considering modular construction and design for disassembly to allow for buildings to evolve and change over time. Recently, we developed a masterplan for regenerating 200 ha of surplus land adjoining Australia's largest steel manufacturer, southwest of Sydney. We managed to preserve 75% of the site's existing building mass, historic structures and industrial artefacts. The remaining 25% will either be retrofitted or dismantled and reused in developments—including a restaurant on top of the furnace, an industrial lift turned into an elevated garden, and steel, a long-lasting material, repurposed in new building structures. By transforming factory facilities and warehouses, the industrial heritage of the former steelworks lives on, while building sustainably and efficiently into the future.

iF Design How are technological and social changes changing urban development?

Technological advancements and social changes are some of the developments that contribute to the reshaping of our cities. Technologies like smart infrastructure, data analytics and renewable energy systems improve quality of life but also challenge the way we have traditionally planned our cities. Add to this shifts in demographics, lifestyles and cultural preferences, which drive demand for mixed-use developments, walkable neighborhoods, green spaces and sustainable transportation solutions. The way we plan our cities needs to be resilient and for the many, but also responsive to evolving needs and aspirations of residents, businesses and communities.

In Japan, we are developing Toyota Woven City at the foothills of Mt. Fuji, which is envisioned as a living laboratory to test and advance mobility, autonomy and connectivity, aiming to bring people and communities together in a future enabled by technology yet grounded in history and nature.



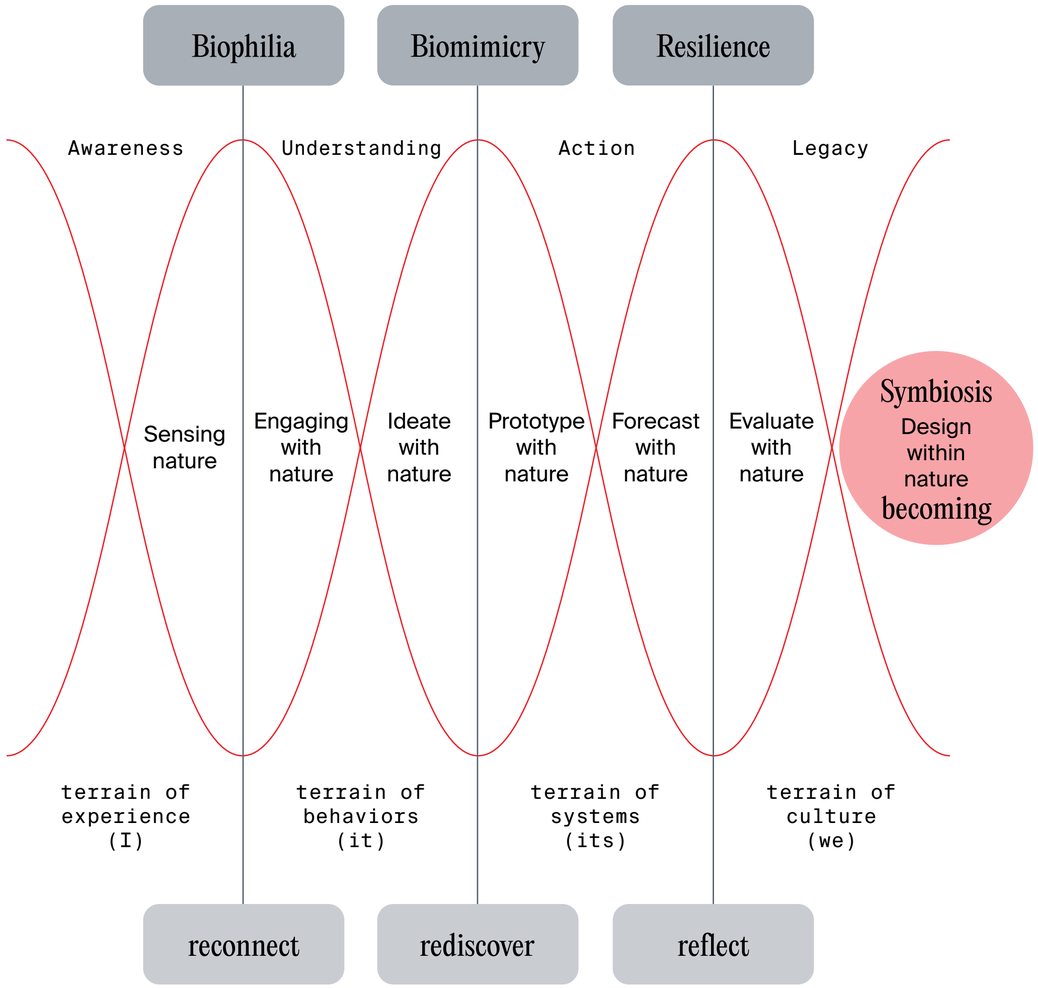
Toyota Woven City

What if.... a look into the future

Human-centered design and Design Thinking were successful strategies for a relationship to the world that we leave behind us in the Eco Transition. In the future that lies ahead of us, the rules of the game have changed, as have the conditions, in such a way that a purely anthropocentric approach has become obsolete. Moving forward, interdependencies between humans and nature and society, technology and the environment must be appreciated and used as a starting point for innovation. Ecological Design Thinking, in which the emphasis is on our symbiotic relationship to the world, could be helpful here (graphic on following page).

In the process, we will learn in the first step (Reconnect) to see ourselves as part of nature, and to no longer see our technologies, designs and products as artificial antipodes. Instead, we need to generate innovative ideas as we engage with nature (Rediscover) and test the prototypes that emerge from this (Reflect).

Symbiotic Design Process



Source: Sanchez Ruano 2019

CHALLENGES

Transforming arid land into something livable requires complex design approaches and solutions. Designers are faced with the challenge of finding innovative ways to take the diversity of ecological, social and cultural aspects of a regeneration project into consideration.

Regenerative design projects often require vast amounts of resources such as water, ground improvement and plants. Designers have to find ways to use these resources efficiently and to ensure that their solutions are scalable so that their influence is greater.

The shift to a regenerative design requires a new way of thinking in terms of the relationship between people and nature. Designers are faced with the challenge of developing design concepts that take not only the needs of people into consideration but also the ecological processes and functions of the natural environment.

OPPORTUNITIES

Regenerative design offers designers the opportunity to develop innovative solutions that help restore arid land and promote ecological diversity. With creative approaches, designers are able to make a positive contribution to the regeneration of ecosystems.

Integrating regenerative principles into the design of houses and residential buildings provides new opportunities for holistic living space design. Designers can help create living spaces that not only appeal to the needs of inhabitants but also contribute to the regeneration of the surrounding nature.

The introduction of Ecological Design Thinking allows designers to better understand the interdependencies between humans and nature and to integrate these into their design processes. Using a holistic approach, designers can develop innovative solutions that are ecologically and also socially sustainable.

LITERATURE DIRECTORY

BAECKER, DIRK (2007):
Form und Formen der Kommunikation.
Frankfurt am Main

BAECKER, DIRK (2007b):
Studien zur nächsten Gesellschaft.
Frankfurt am Main

BCG (2023):
AI at Work: What People are Saying.
www.bcg.com, June 7, 2023

BECK, ULRICH (2008):
Weltrisikogesellschaft.
Auf der Suche nach der verlorenen Sicherheit.
Frankfurt am Main

BIELING, TOM (2019):
Inklusion als Entwurf. Teilhabe orientierte Forschung über, für und durch Design.
Berlin

BUNDESINSTITUT FÜR BEVÖLKERUNGSFORSCHUNG (BIB) (2023):
The Global Flow of People 2.0.
www.bib.bund.de, 2023

CANADIAN COUNCIL FOR REFUGEES (N.D.):
Anti-oppression. Power wheel.
www.ccrweb.ca

CHUGH, NIKIL (2023):
Driving Growth: The Impact of Localized Retail Branded Content in the Automotive Industry.
www.linkedin.com, Dec 1, 2023

CRENSHAW, KIMBERLEY (1989):
Demarginalizing the Intersections of Race and Sex:
A Black Feminist Critique of Antidiscrimination Doctrine.
Chicago

DELOITTE (2018):
Beyond Touch – Voice Commerce 2030:
Wie Voice-assisted Interfaces den Handel in Europa revolutionieren werden.
www2.deloitte.com, Nov 2018

DESIGN JUSTICE NETWORK (2018):
Design Justice Network Principles.
www.designjustice.org, 2018

DUMITRESCU, LUIGI/VINEREAN, SIMONA (2010):
The glocal strategy of global brands.
Studies in Business and Economics 5(3), Jan 2010

EMERGEN RESEARCH (2023):
Digital Human Avatar Market, By Product Type (Interactive Digital Human Avatar and Non-Interactive Digital Human Avatar), By Industry Verticals (Gaming, Retail, IT & Telecommunications, Education, and Others), and By Region Forecast to 2032.
www.emergenresearch.com, Jul 2023

FOROUTAN, NAIKA (2019):
Die postmigrantische Gesellschaft.
Ein Versprechen der pluralen Demokratie.
Berlin

FRAUNHOFER INT (2021):
Trend-News Living Materials.
www.int.fraunhofer.de, Dec 2021

FUTUREMARKETINGINSIGHTS (2023):
Gesture Control Market, Market Survey.
www.futuremarketinsights.com, Aug 2023

GRAND VIEW RESEARCH (2022):
K-beauty Products Market Size, Share & Trends Analysis Report By Product (Skin Care, Hair Care), By End-user, By Distribution Channel (Supermarkets & Hypermarkets, Online), By Region, And Segment Forecasts, 2023 – 2030.
www.grandviewresearch.com, 2022

HAASE, JENNIFER/HANEL, PAUL (2023):
Artificial muses: Generative Artificial Intelligence Chatbots Have Risen to Human-Level Creativity.
Journal of Creativity, Volume 33, Issue 3.
www.sciencedirect.com, Dec 2023

HÄUSSLING, ROGER (2010):
Zum Design(begriff) der Netzgesellschaft. Design als zentrales Element der Identitätsformation in Netzwerken.
In: Mützel, Sophie/ Fuhse, Jan (Hg.):
Relationale Soziologie. Zur kulturellen Wende der Netzwerkforschung.
Wiesbaden

IPCC (2023):
Sections.
In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.
Geneva

JUNIPER (2020):
Number of Voice Assistant Devices in Use to Overtake World Population by 2024.
www.juniperresearch.com, Apr 2020

KARAMPELAS, ANTONIOS (2023):
The emergence of AI-natives.
www.medium.com, 2023

KOTLER, PHILIP/SARKAR, CHRISTIAN (2017):
Finally, Brand Activism!
www.marketingjournal.org, Jan 9, 2017

KRIPPENDORFF, KLAUS (2006):
The semantic turn: A new foundation for design.
Boca Raton (FL)

LATOUR, BRUNO (2008):
Wir sind nie modern gewesen.
Versuch einer symmetrischen Anthropologie.
Frankfurt am Main

LE JOURNAL DE L'AFRIQUE (2021):
Künstliche Intelligenz und Patentanmeldung: die südafrikanische Revolution.
www.lejournaldelafrique.com, Aug 9, 2021

LUHMANN, NIKLAS (2008):
Ideenevolution. Beiträge zur Wissenssoziologie.
Berlin

LUHMANN, NIKLAS (2008b):
Ökologische Kommunikation. Kann die moderne Gesellschaft sich auf ökologische Gefährdungen einstellen?
Wiesbaden

MARINOW, ANJA ET AL. (2021):
Materialien für die "Ewigkeit": selbstheilende Polymere – auch rezyklierbar!
In: Chemie in unserer Zeit, 55:6, Jul 26, 2021

MAU, STEFFEN/LUX, THOMAS/WESTHEUSER, LINUS (2023):
Triggerpunkte: Konsens und Konflikt in der Gegenwartsgesellschaft.
Berlin

MCKINSEY (2020):
In: Diversity wins: How inclusion matters.
www.mckinsey.com, May 19, 2020

MCKINSEY (2021):
Psychological safety and the critical role of leadership development.
www.mckinsey.com, Feb 11, 2021

MCKINSEY (2022):
A new approach to fighting fraud while enhancing customer experience.
www.mckinsey.com, Nov 8, 2022

MORDORINTELLIGENCE.COM (2023):
Marktgrößen- und Marktanteilsanalyse für Emotionserkennung und -erkennung – Wachstumstrends und -prognosen (2024 – 2029).
www.mordorintelligence.com, 2023

MORRIS, WILLIAM (1890):
News from Nowhere.
Mansfield (CT)

PNAS (2022):
Climate Endgame: Exploring catastrophic climate change scenarios.
www.pnas.org, Aug 1, 2022

RECKWITZ, ANDREAS (2017):
Die Gesellschaft der Singularitäten.
Berlin

RÖMHILD, REGINA (2015):
Jenseits ethnischer Grenzen. Für eine postmigrantische Kultur- und Gesellschaftsforschung.
In: Yildiz, Erol/Hil, Marc (Hg): Nach der Migration.
Postmigrantische Perspektiven jenseits der Parallelgesellschaft.
Berlin.

SÁNCHEZ RUANO, DAVID (2019):
Ecological Design Thinking for the 21st Century.
www.researchgate.net, Apr 2019

SAUNDERS, DOUG (2010):
Arrival City. How the largest migration in history is reshaping our world.
New York.

SELECTSOFTWAREREVIEWS.COM (2024):
81+ Troubling Workplace Stress Statistics [Q1 2024 Data].
www.selectsoftwarereviews.com, Jan 19, 2024

SIMON, HERBERT A. (1968):
The Sciences of the Artificial.
Cambridge/London

SOLNIT, REBECCA (2024):
Slow Change Can Be Radical Change.
www.lithub.com, Jan 11, 2024

SUSSEBACH, HENNING (2021):
"Ich bin sehr offen und leicht geht Frau. Ich mag Kunst und Kultur und Fotografieren. Ich suche nach einem gereiften Mann mit jungen Seele und gutes Herz".
zeit.de, Oct 10, 2021

THE FUTURE:PROJECT (2023):
Future:System – Transformation beyond Megatrends.
Frankfurt am Main

UNCTAD (2024):
Merchandise: Total trade and share, annual.
www.unctadstat.unctad.org, Apr 10, 2024

VREDENBURG, JESSICA/KAPITAN, SOMMER/SPRY, AMANDA/KEMPER, JOYA A. (2020):
Brands Taking a Stand: Authentic Brand Activism or Woke Washing?
In: Journal of Public Policy & Marketing, 39(4)

WAHL, DANIEL CHRISTIAN (2019):
How do you distinguish between regenerative and sustainable design?
www.medium.com, Dec 21, 2019

WTO (2022):
Evolution of trade under the WTO: handy statistics. Trade growth.
www.wto.org

WORLD ECONOMIC FORUM (2023):
Future of jobs 2023: These are the most in-demand skills now – and beyond.
www.weforum.org, May 1, 2023

W3C (2023):
WCAG 2 at a Glance.
www.w3.org, Nov 29, 2023

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