Rethinking UX Design: Take Nature Into Account

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Professor Scott Boylston
SUSD 704 Applied Theories in Sustainability

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PREFACE

As a designer, I am coded to observe the real-world problem around me and have the passion to find solutions for it. The reason to be a designer is very simple, I want to make the world a better place. However, when I equip with the designers' skill sets and creative minds, I feel hopeless that I still saw the heavy smog in my country, China, and don't have a solution to improve the air pollution. I have been in the US since 2016. The air quality is no doubt much better than China. But guess what happened, I have experienced hurricane every year and each time the government will order the mandatory evacuation. I suddenly realized that the Climate Change is everywhere no matter where I am. It makes me rethink the meaning of being a designer and what I can contribute to this situation. I didn't know the answer until I took the course Applied Theories in Sustainability at the Savannah College of Art and Design (SCAD). Professor Scott Boylston taught me the challenges we are facing and also the opportunities for designers to contribute. It keeps refresh my mind and pushes me to connect what I have learned in UX design with the theory in Design for Sustainability.

If you are a designer, a future game changer, a dreamer or a doer, please read this journal to get inspired. I am writing to inform you how design, especially UX design, can be sustainable and how designers can contribute to a sustainable planet.

As Thomas Berry mentioned that we are in trouble just now because we are in-between stories. It is inevitable for us to tell the new story, to improve the current behavior patterns, and to fit into a new world.

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INTRODUCTION

What Is Sustainability?

People hold different opinions on the definition of sustainability. I remember, as a high school student, our high school political science teacher taught us the strategy of sustainable development in China. The term sustainability is familiar to lots of people in my country. Most of us connect the term with the political issues or the governmental policy. However, few of us realize how sustainable development affects our daily lives.

There are several vital moments to explain the meaning of Sustainability. In 1987, Our Common Future- the Report of the World Commission on Environment and Development- provides a definition "a sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their needs." The world started to set long-term goals for sustainable development. In 2015, United Nations set 17 sustainable development goals (SDGs) for the envision of 2030.

Like most of the people, I realize the environmental issue and instantly believe that the climate change is the core obstacle to sustainability. However, United Nations set sustainable development goals to educate the public that sustainability is not limited to one issue. It has 17 goals that all groups and individuals are welcomed to deal with. John Ehrenfeld mentioned in his book Sustainability by Design:
"Sustainability has been seen primarily as an environmental problem and only secondarily as a social problem. I believe that this is backward. Sustainability is first a human problem and then an environmental problem. If we fail to address the unsustainability of the modern human being, we will not be able to come to grips with other aspects of sustainability."

In 1994, The International Union for the Conversation of Nature illustrates the relationship between human and ecosystem. As Ehrenfeld states that it is a social problem. The relationship between human being and the ecosystem is like the yolk and white of an egg in the Egg of Sustainability. Good egg contains good yolk and white. Neither of them went to a bad condition, the society will be unsustainable. In the meanwhile, the improvement of one side also benefits and improve another. Thus, the improvement of human wellbeing and ecosystem well-being ensures a sustainable development in the society.

Back in 1992, The United Nations The Earth Summit published the Agenda 21 report in Rio de Janeiro. The report aims to encourage a global partnership to change the unsustainable patterns of production and consumption into a more sustainable culture and provide suggestions for implementation. At that time, the human in some area of the planet already suffered from global issues like poverty, hunger, ill health and illiteracy, and the continuing deterioration of the ecosystems. Therefore, a call for a sustainable culture is of great values.

Even though the model of world economy still pay more attention to the economic growth instead of the human and ecosystem wellbeing, the Agenda 21 help global partners to take actions in developing sustainable policies and strategies for a better change.

Image from: https://www.kisspng.com/png-sustainable-development-goals-sustainability-unite-985347/

ART?
OR
SCIENCE?

What
is
Design?

"Everyone designs who devises courses of action aimed at changing existing situations into preferred ones."

— Herbert Simon

David Kelley said that "The only thing that is not designed by somebody is nature" Wherever you are, just look around you can find almost everything that is designed by human. This journal paper that you are reading is designed by me. The chair and table that you are using are designed by other people. The Sun, Earth, Water, and other natural, physical or material world are nature. But, don't get me wrong, even human is the part of our natural systems. Fruits, vegetables, or living creatures is designed by nature. But human also design food in order to get a better taste. Therefore, the motivation of design it to better serves human being in their daily lives. Again, Human are like birds live in and belong to the ecosystem. The design created by human aims to improve the interaction between human and any other objects or creatures in the universe. In 1969, Herbert Simon define that design is a new science of artificial. Natural Science is knowledge about natural objects and phenomena. The artificial, on the other hand, was about objects and phenomena invented by humans.

The history of design can track back to a long time ago. It is not easy to define when the design activity really happens, but it is obvious that the term "design" increasingly gains more attention from the current society. Richard Buchanan argued that design is new liberal arts. When talking about liberal art, it instantly leads people to connect it with traditional "arts and sciences". However, the scientific foundation of design is to connect and integrate useful knowledge from the arts and sciences alike, but in ways that are suited to the problems and purposes of the present.

There are two reasons that we call ourselves designers instead of artists or scientists. In the one hand, the main difference between art and design is the way we interact with the audience. For an artwork, the artists express themselves through their work and there is no way to critique the good or bad of an artwork. The evaluation process is too subjective to convince everyone. However, for a designed product, we have multiple principles to constrain the design process and several criteria to evaluate if the design is good or not. Good design creates innovative solutions to solve problems and meet human needs.

In another, as a designer, have you ever felt that you are an expert in your design project even though your topic will change for different subject? You don't have systematic training in that major at school. You start to doubt whether your knowledge is enough to provide compelling findings for the real expert and receive authority. Have you ever felt that designers are always able to find the gap and fill in with a creative solution? It is hard to explain why we are able to solve the problem in multiple subjects but still not belongs to any specific scientific field. If we think from another perspective, the in-depth research from scientists is not to solve practical issues, but instead, design can be applied theories of art and science. That is the reason why designer seems to have more opportunities to solve real-world problems.

Richard Buchanan identified four domains of design. The first area is the design of symbolic and visual communications. This includes graphic design, illustration, animation, visual effect, advertising, photography, film, and most of the digital media design majors. The aim of this area is to convey information or data by a visual display and improve the communication between human and information. The second domain is the design of material objects. Accessory, Industry, Furniture, Fashion, or Jewelry designs that create physical objects to meet human demands are all belonged to this area. The third domain is the design of activities and organized services, which include service design, design management, interaction design will fall into this area. It contributes to the overall experience and provides a strategy to decision-makers. The fourth domain is the design of complex systems or environments for living, working, playing, and learning. The majors like the design for sustainability, architecture, and urban planning. This domain defines the relationship between human and larger ecosystem by designing in a more sustainable way.

There is no hierarchy in the four domains of design. However, there is an opportunity for the previous three domains to transform into the fourth domain, as long as they take nature into account. There is not an obligation for designers to contribute to the fourth domain.

What
Is
User Experience Design?

The term "User Experience" was first devised by Don Norman when he was a designer in the User Experience Architect's office at Apple. Designers at Apple try to enhance the Apple product by improving the user's experience when they interact with the product and also meet users' needs throughout the design process. "User Experience" encompasses all aspects of the end-user's interaction with the company, its services, and its products. User Experience not just represents the experience of the digital product. Even though User Experience design originated from improving the experience of interaction between human and computer, but many design disciplines can be categorized as UX design. If we take the four domains of design into consideration, the UX design is more complicated and broad than we thought. You will notice that UX design can be the interplayed domains of design. Visual Design and Information Architecture belong to the design of Symbolic and Visual

Communication. Industrial Design represents the design of material objects. Interaction Design and Human-computer Interaction as the design of activities and organized services. Architecture can fall into the fourth domain. However, any of these disciplines can be described as Design of Complex Systems or Environments for Living, Working, Playing and Learning by designing for a sustainable development.

The history of User Experience can track back to 1950s. Bell Labs was one of the pioneers to do UX work and design of the touchtone keypad. At that time, we will notice that the layout of the keypad is a mystery because no one knows which layout is friendly to the user. That is the reason why designer in Bell Research Labs came up with 16 layouts and did user testing to decide the final design solution. We also see same number layouts that also applied to gate pad, mobile phone, remoter etc.
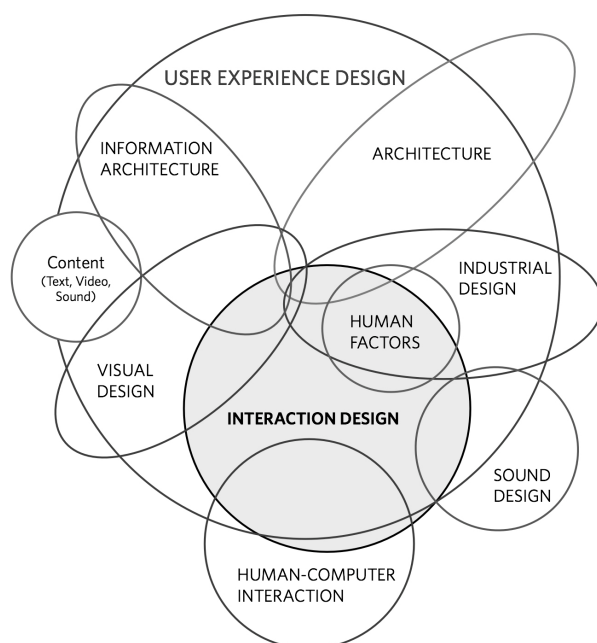

Image from 99pi

Image from Dan Saffer, Designing For Interaction

Why
UX Design
Is Becoming Popular?

There are several reasons for the popularity of User Experience Design in the 21st century.

New Technology increase the cost of learning. In the modern society, new invented technologies keep attracting more attention. The technology range from the invention of computer, smartphones, smart appliance to AR, VR, AI and to drones, driverless cars. Both companies and users are eager to try the new technology and to see how the new tech brings more benefits to company and users' daily lives. In order to make them learn new machines or technology in an efficient way, UX design is crucial to improve the popularity and productivity.

Design Thinking as a new business strategy. Traditional business plans cannot give birth to innovative ideas, this company don't have good product or services. Thinking like a designer is especially important because the idea is to learn from user, brainstorm many ideas, quick prototype and gain feedback from real users. UX designers are very familiar with the process. It is the same design process to create a better user experience. That the reason why company start to hire more and more UX designers, more and more company realize the role of design thinking in the business strategy. In other word, more job opportunities means more students and professionals are interested in becoming a UX designer.

Information Revolution. Everything is in a fast speed development. Internet makes the communication and information exchange faster than ever. At the same time, it requires industry not only to keep up the speed but also keep the users' loyalty by offering user-friendly products or services. UX design is able to create user-friendly systems that help enterprises improve the users' loyalty and appeal more customers.

Photo by Bence Boros on Unsplash
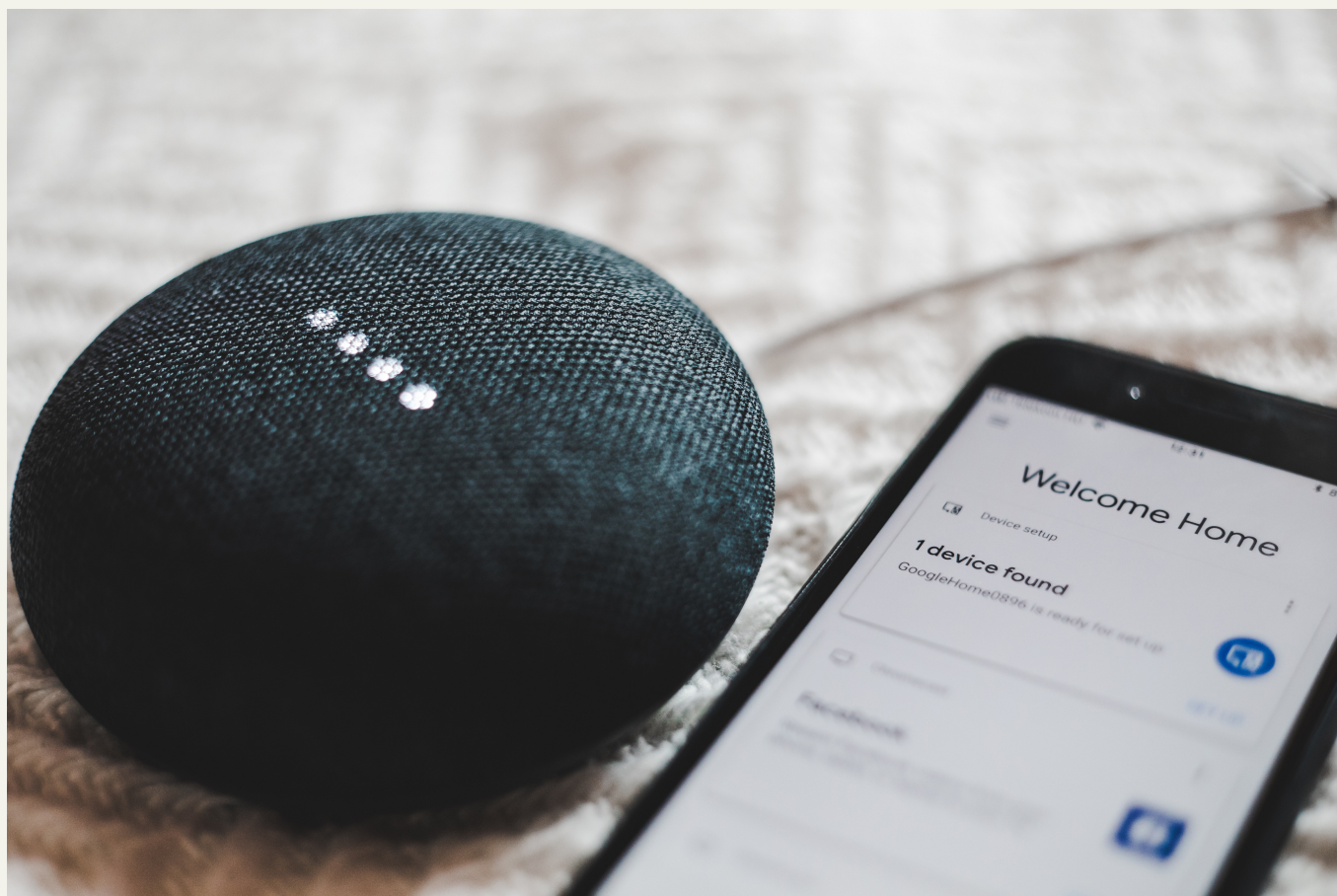
UX

SUSTAINABILITY

The Gap Between UX And Sustainability

It is obvious that UX design will still in high demand in the industry. The number of UX designers will keep increasing at a stable speed. The ultimate goal for UX designer is to design a better experience for the human being. For example, we designed GPS to bring directions, maps and most important convenience to users. We designed smartphones to help human connect others in a short time instead of waiting for the mailman to deliver the letters. We designed air conditioners to release the hot in summer and cold in winter. We designed lots of good things to human's life. However, we didn't realize that GPS somehow decrease the ability of human to find directions, smartphone updates frequently and produce tons of unusable parts and materials, and AC keeps emitting greenhouse gaps that mainly contribute to the climate change.
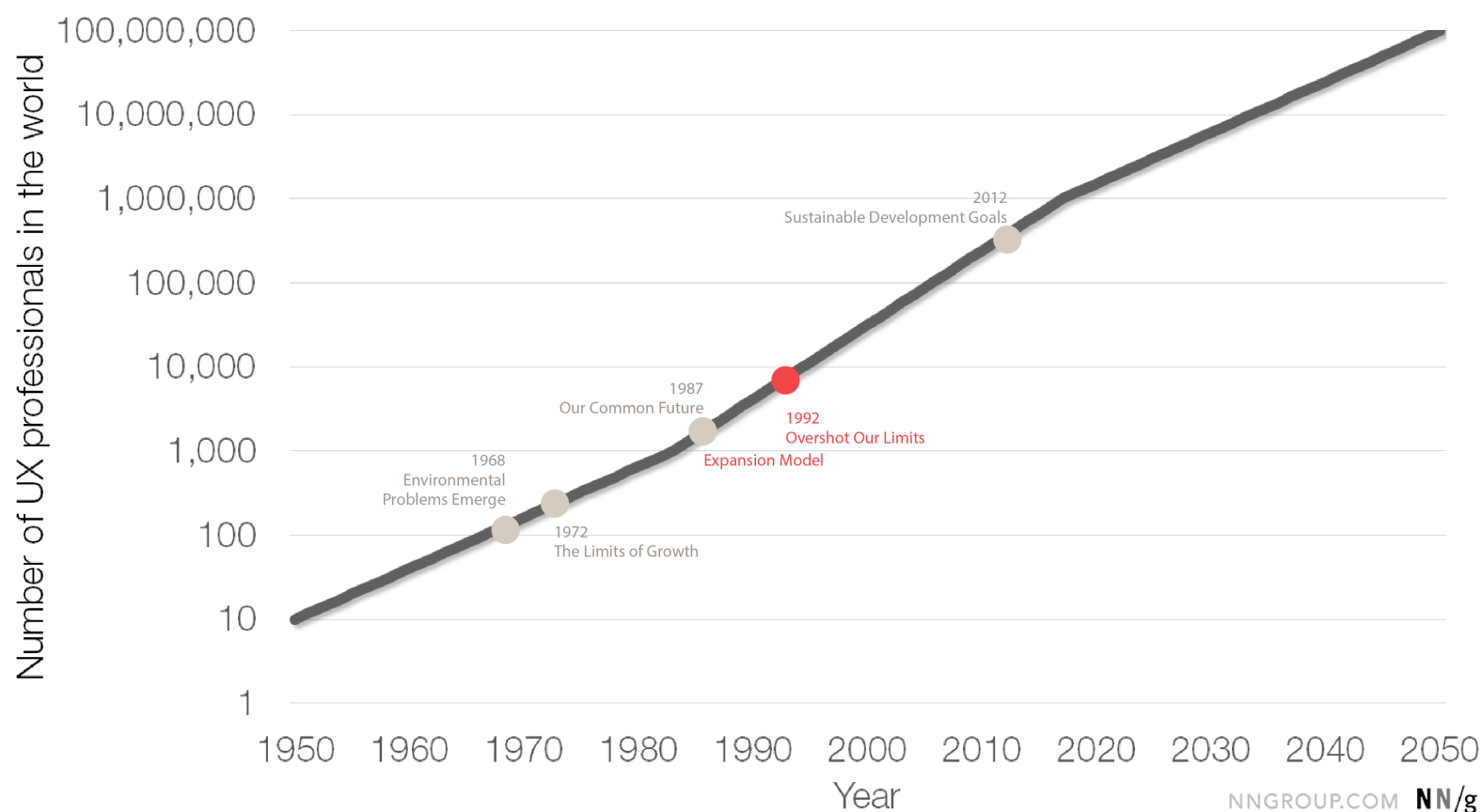
Jakob Nielsen published an article called A 100-year view of User Experience. From a UX designer's perspective, it is definitely good news. The industry is offering more job opportunities and UX will be a key driver of the world economy. By the year of 2050, it will totally pay for itself many times over to have 1% of the world's population become UX professionals. The other 99% will thank us as they will finally master technology instead of being oppressed by it.

However, UX designers should not ignore the facts that there exist obstacles to a sustainable culture and most of the UX designs are helping the industry to make it worse:

1. Economic models fail to account for environmental and societal costs of patterns of production and consumption. Simply improve world economy by creating new user-friendly products will lead to endless needs from users and continuous updates of products.

2. A concept of wellbeing fails to inform philosophical and spiritual reflection on values and needs. It is common for people to dream of buying more and expansive products without considering the real value of the product and the necessity of owning the product. UX designers are good at making innovative but expensive products in the market.

Introducing Sustaina

HUMANKIND
AND
NEXT GENERATION

NATURE-INSPIRED
TECHNOLOGY

DOUGHNUT
ECONOMICS
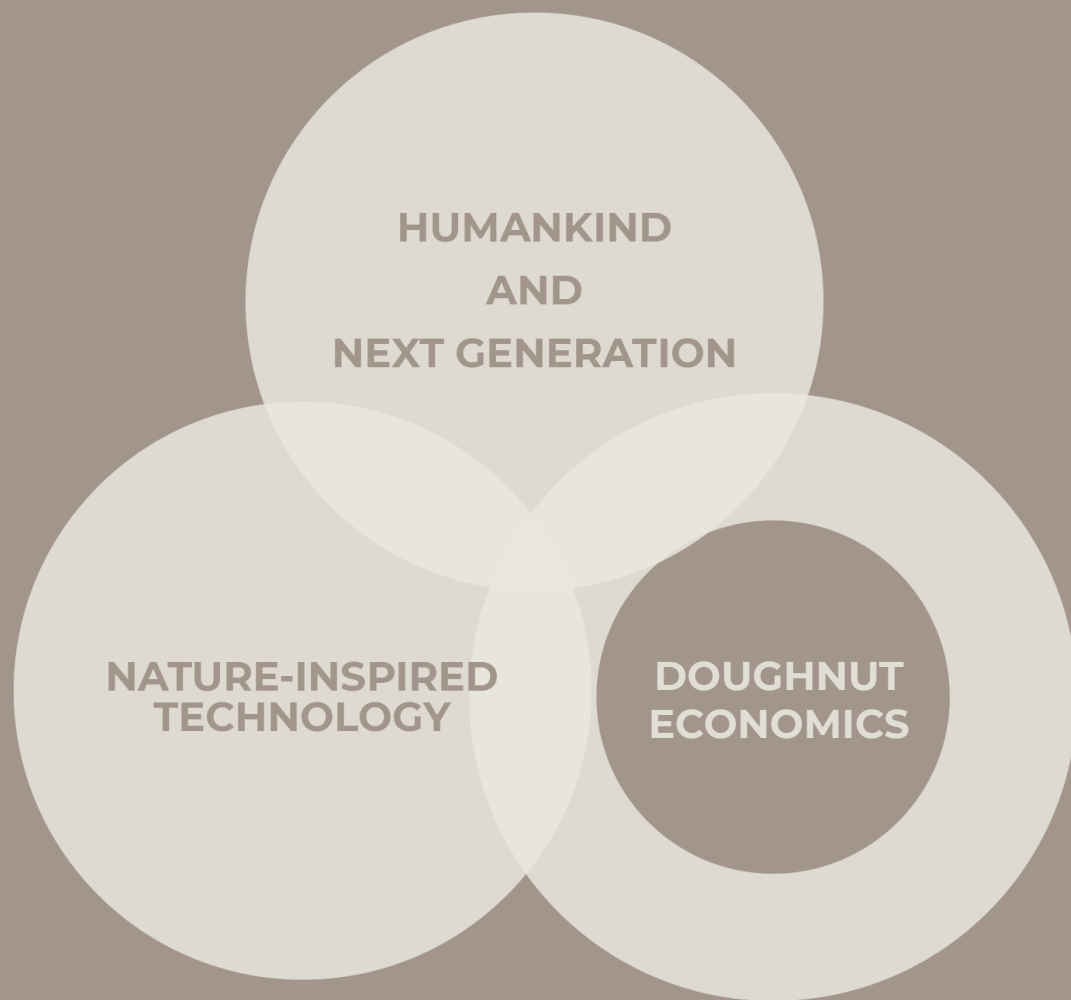
bility-Centered Design

Sustainability-Centered Design requires designers, economists, and engineers to equip with sustainable mindsets and understand the three elements of the concept.

Principle 1: Humankind and Next Generation
When we try to get answers from users, we shall consider if our decision will have a negative impact on the next generation. If we ask the same questions to the next generation, how the answer would be different from the present.

Principle 2: Doughnut Economics
Business models require dramatic change by considering the nine boundaries, twelve social foundations to create new business models to get industry ready for a changing world. The responsibility of economists is more than the economic growth.

Principle 3: Nature-Inspired Technology
The society is addicted to the artificial intelligence. The technological innovations in some large Internet companies such as Google are all in AI. We need to think how to let technologists learn from nature to break the limit of learning from the human.

Mindsets

01

Most of problems that designers try to solve are Wicked Problems. In 1973, Horst Rittel developed the idea of Wicked Problem in Dilemmas and General Theory of Planning. Rittel and Webber argued that the problems that planners deal with-social problems-are inherently different from the problems that scientist and perhaps some classes of engineers deal with. Planning problems are inherently wicked.

Image from CMU Transition Design, Based upon Rittel and Webber(1973)

Sustainability-centered Design aims at tackle the planning problem or wicked problem. Rittel also mentioned that most of the problems of societal systems couldn't be solved by a classical paradigm of science and engineering. That is the reason why Richard Buchanan defined design as a liberal art. Design either not belongs to any individual subject in arts and sciences or cannot borrow paradigm from these traditional subjects to find solutions. The problem not belongs to any specific sciences or arts. We take account of the society as a whole. We combine knowledge of scientific research with emotions and aesthetics of art to provide an elegant solution and applied it into a real world.

02

What makes UX design more powerful and meaningful? The answer is to realize that human being is one part of the ecosystem.
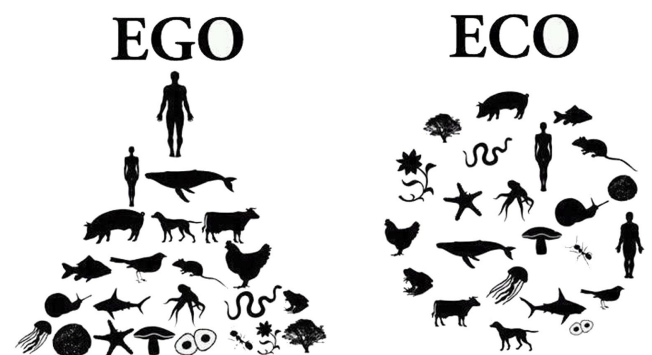

Image from https://philosophersforchange.org/2013/10/29/economics-social-ism-ecology-a-critical-outline-part-2/

In 1973, Arne Dekke first claims the phrase "Deep Ecology". There is no hierarchy among living beings. At present, however, designers create good products or services by putting human in the center. It is not because the human has a higher level than other living beings in the planet, it only represents the misunderstanding of our ecosystem and misapplied theories lead designers to believe that human is the center of the ecosystem and Earth is the center of the universe.

"A class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with confusing values, and where the ramifications in the whole system are thoroughly confusing."

— Horst Rittel

03

Changing human behavior gradually in a good way is more powerful than telling people what to do. Traditional way of advocating sustainability to the public seems to have a negative impact. People feel overwhelmed by the term "sustainability" and not take actions because there is nothing happened after they heard about the term. In addition, the human behavior has a great impact on the ecosystem in Deep Ecology. The interrelationship between human and other living beings encourage us to lead a better behavioral change in a sustainable UX design practice.

The challenge of changing behavior by design is the gap between the attitude and actions. What people say is not what they will do, even though they realize the problem, it still take times to let them take actions in the reality.

04

Human wellbeing is more than a user-friendly interaction or product. Human wellbeing is the recognition that everyone around the world, regardless of geography, age, culture, religion or political environment, aspires to live well. Wellbeing is not necessarily bound by income, rather, it is an individual's thoughts and feelings about how well they are doing in life, contentment with material possessions and having relationships that enable them to achieve their goals.

05

Thinking in Systems. A system is a set of things- people, cells, molecules, or whatever- interconnected in such a way that they produce their own pattern of behavior over time. The system can be changed by outside force, which means designers have the opportunity to understand the interconnection between each elements, interfere with a innovative solutions and move the system into a creative and bright future.

Principle 1:
Humankind and Next Generation

The Past

Human will easily fall into a trap called The Tragedy of the Commons. We utilize our natural resources without considering people on the other side of the earth are in high demand of our wasted water or food.

After World War II, Club of Roman is one of the first pioneers to consider human issues in a global and broad vision. They take on a project "to examine the complex of problems troubling man of all nations: poverty, degradation, loss of faith, uncontrolled urban spread, insecurity of employment, alienation of youth, rejection of traditional values; and inflation and other monetary and economic disruptions."

In 1899, Thorstein Veblen coined the conspicuous consumption pattern in the society. Human wants to buy expensive items in order to display the wealth rather than to meet the real needs. It seems obvious that rich people have more money to buy expensive products. The symbol of richness represents owning more and more products. The mindset and behavior have lasted for a long time.

"Design for Need" was a conference held in London. At that time, designers were encouraged to design product or services to meet the need of consumers. Designers, in order to meet users' demand, create new products for mass production. Consumers were forced to buy a new product to replace their old ones. That is also lead to a phenomenon that the repair store decreased. When I was a little girl, I can still find a shoe-repair shop around the corner. However, it's hard to find a repair store that can fix the more expansive watch nowadays.

The demend from human is endless especially when designers keep meeting their needs in various ways. Human demands have exceeded nature's supply since the 1980s. The Limits of Growth utilizes the Computer Model to calculate the ecological footprint of humanity and carrying capacity of the Earth. The authors conclude that humanity is dangerously in a state of overshoot. The state of overshoot is getting worse and continuing increase until today.

THE TRAP: THE TRAGEDY OF THE COMMONS

When there is a commonly shared resources, every user benefits direct;y from its use, but shares the costs of its abuse with everyone else. Therefore, there is very weak feedback from the condition of the resource to the decisions of the resource users. The consequence is overuse of the resources, eroding it until it becomes unavailable to anyone.

THE WAY OUT

Educate and exhort the users. Restore or strengthen the missing feedback link by privatizing the resource or by regulating the access of all users to the resource.
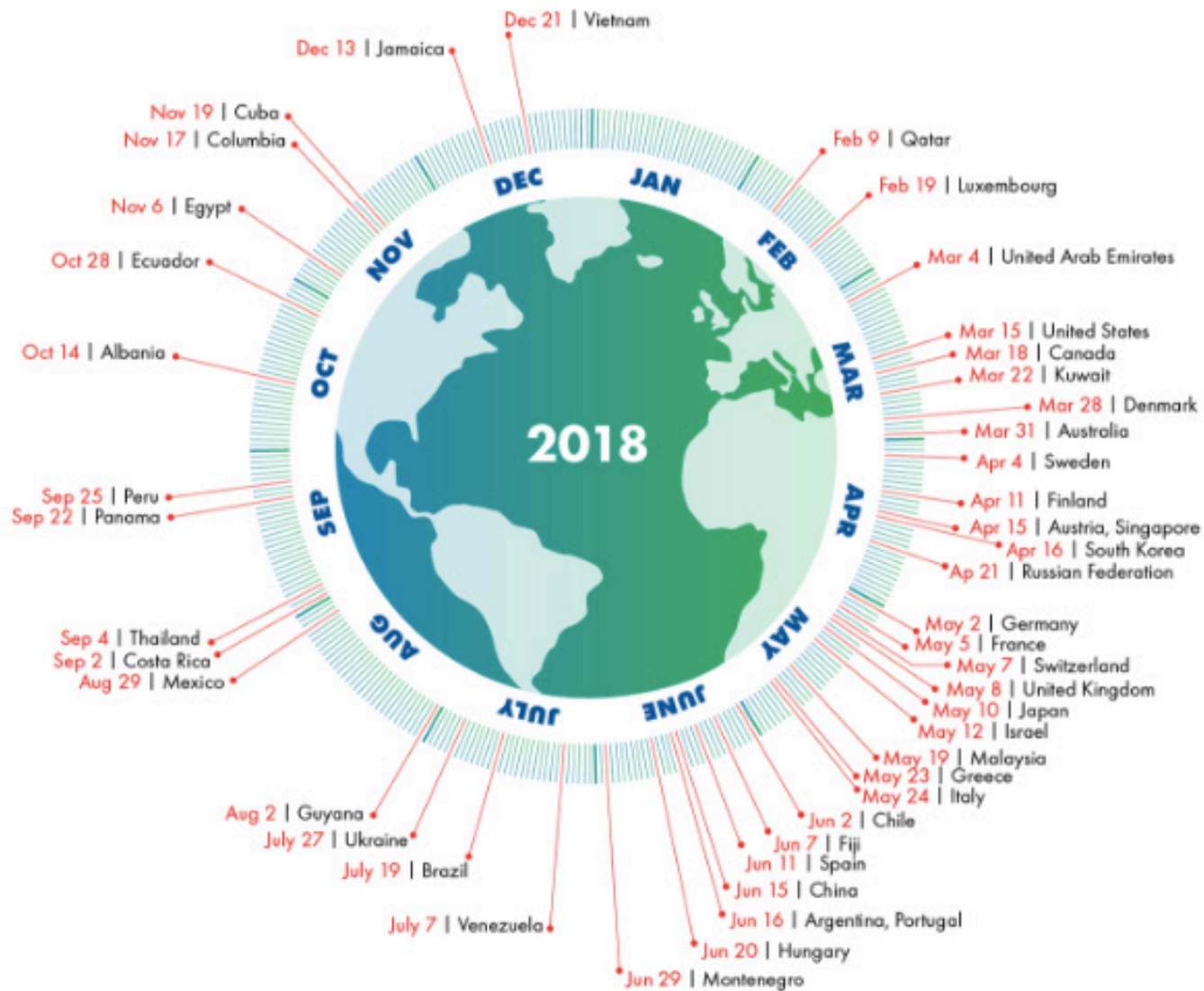
Image from Country Overshoot Days website: https://www.footprintnetwork.org/

The Present

In the year of 2018, if you visit the footprint calculation website to test your own ecological footprint, it is easy to see that you are currently consuming 3-5 Earth, especially if you are living in a developed country. The Country Overshot Day is calculated by Global Footprint Network with Global Footprint Network's National Footprint Accounts. I come from China, my country overshot the capacity of Earth on June 15th, 2018. After that date, all we do is consistently overuse our current natural resources and pre-use the resources from the next generation. Our kids or grandchildren will face more serious issues such as lack of resources than we did.

Innovation means new and none previously existed products. The company wants innovative products to earn profits. Designers come up with innovative ideas to get the reputation. Users purchase new and fashion items to show wealth and seek happiness. However, the company current strategy cannot be used for future generations. Designers won't gain reputation if the product will not benefit for younger people. Users will lose happiness if they keep increasing their own asset without giving to people who are in high demand.
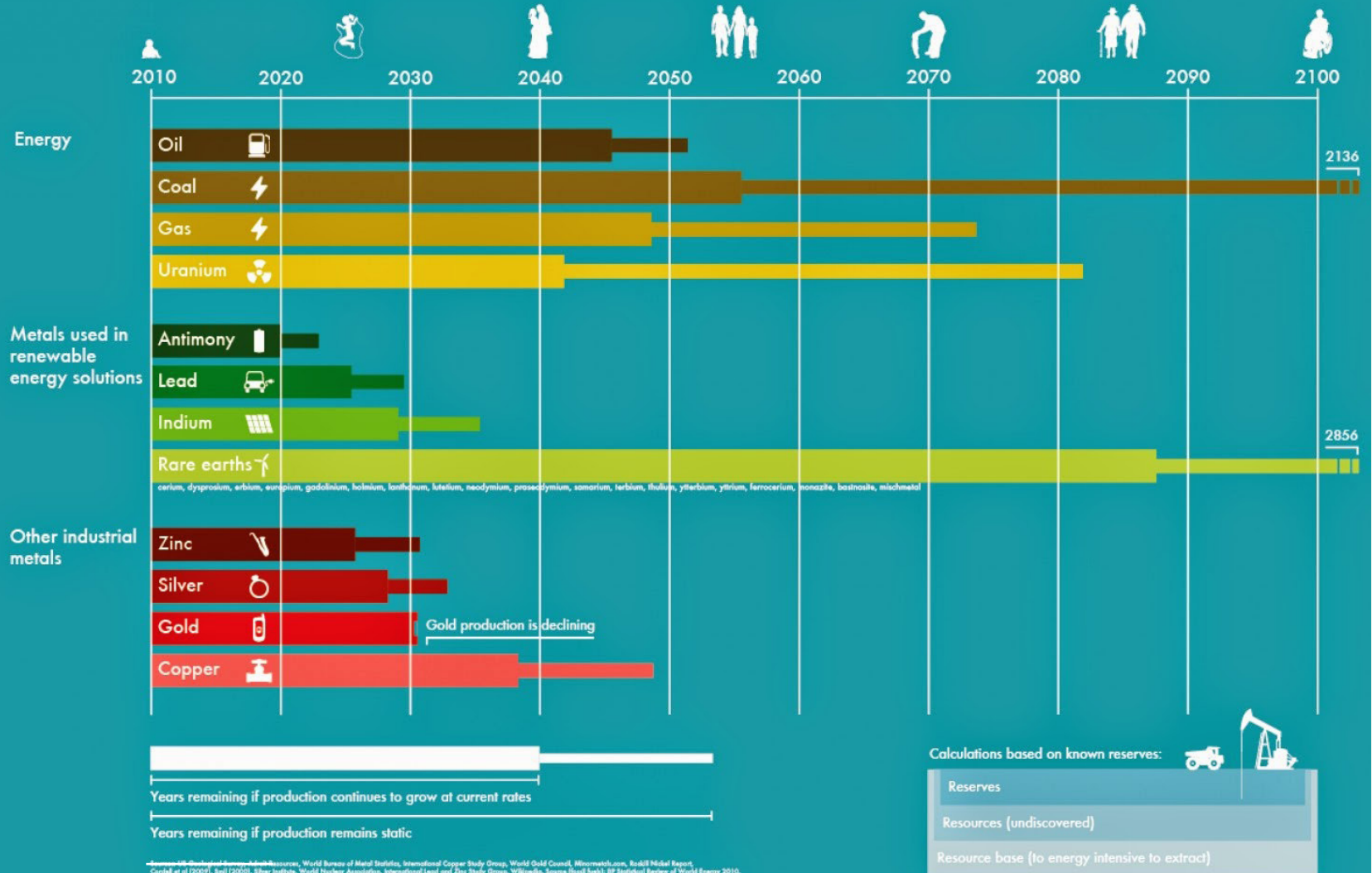
Born in 2010: How much is left for me?

2010 2020 2030 2040 2050 2060 2070 2080 2090 2100

Energy
Oil
Coal — 2136
Gas
Uranium

Metals used in renewable energy solutions
Antimony
Lead
Indium
Rare earths — 2856
cerium, dysprosium, erbium, europium, gadolinium, holmium, lanthanum, lutetium, neodymium, praseodymium, samarium, terbium, thulium, ytterbium, yttrium, ferrocerium, monazite, bastnasite, mischmetal

Other industrial metals
Zinc
Silver
Gold — Gold production is declining
Copper

Years remaining if production continues to grow at current rates

Years remaining if production remains static

Sources: US Geological Survey, Mineral Resources, World Bureau of Metal Statistics, International Copper Study Group, World Gold Council, Minormetals.com, Roskill Nickel Report, Cordell et al (2009), Bell (2001), Silver Institute, World Nuclear Association, International Lead and Zinc Study Group, Wikipedia. Source (fossil fuels): BP Statistical Review of World Energy 2010.

Calculations based on known reserves:
Reserves
Resources (undiscovered)
Resource base (to energy intensive to extract)

Image from: https://visual.ly/community/infographic/environment/born-2010-how-much-left-me

The Future

History educates us to see what works or not so that we can learn experience from the past. Future, however, is unpredictable. Future is not convincing for human to realize our status quo. Plan C illustrate a future situation. If our kids born in 2010, how much is left for them? There are less and fewer metals, some every day consumed natural resource like oil, coal, and gas will be used up. What can we do with shortage of natural resources? The problem always can be solved by the human.

Designers are game changers. We are able to fill in the gap by design for a new story. A drastic change in consumption pattern was required. How can we provide users fewer products and more satisfaction? How can we change the mindset of our user from more is good to less is more? A sustainable Model means a world is a system of ecological checks and balances that consists of finite resources. Designers are able to create better and fewer products to meet all needs of the human without harming the natural environment for the future generation. Designers are able to create the paradigm to change human mindsets, improve their behaviors. Think in systems provides 12 leverage points for the designer to start with.

Principle 2:
Doughnut Economics

Meet the Doughnut

Humanity's 21st century challenge is to meet the needs of all within the means of the planet. In other words, to ensure that no one falls short on life's essentials (from food and housing to health-care and political voice), while ensuring that collectively we do not overshoot our pressure on Earth's life-supporting systems, on which we fundamentally depend – such as a stable climate, fertile soils, and a protective ozone layer. The Doughnut of social and planetary boundaries is a playfully serious approach to framing that challenge, and it acts as a compass for human progress this century.

The environmental ceiling consists of nine planetary boundaries, as set out by Rockstrom et al, beyond which lie unacceptable environmental degradation and potential tipping points in Earth systems. The twelve dimensions of the social foundation are derived from internationally agreed minimum social standards, as identified by the world's governments in the Sustainable Development Goals in 2015. Between social and planetary boundaries lies an environmentally safe and socially just space in which humanity can thrive.
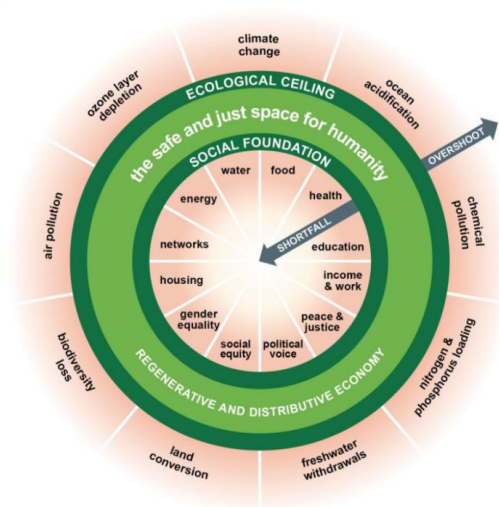
The Challenges

―――

"The sustainable society would never arise within a world economy which relied exclusively on the operation of the market forces, important as these may be, for the maintenance of vitality and creative innovation."

―The first Global Revolution, Club of Rome

Seeking the Wrong Goal

One of the misleading concepts is to combine the growth of GDP with the improvement in the human well-being. The government, especially in China, seems to be addicted to seeking the increase in GDP. Gross domestic product (GDP) is the monetary value of all the finished goods and services produced within a country's borders in a specific time period. However, GDP is not the only standard to represent the development in the society. It should not be the only standard that the government and residents care about. The goal or purpose is one of the most powerful ways to influence social behavior. That is to say, if the goal is defined badly, if it doesn't measure what it's supposed to measure, if it doesn't reflect the real welfare of the system, then the system can't possibly produce a desirable result. In the 21st century, most of the government fall into the trap of Seeking the Wrong Goal.

The Way Out

Specify indicators and goals that reflect the real welfare of the system. Genuine progress indicator (GPI) is an important indicator that supposed to replace GDP. The unique factor of GPI indicator is to take everything the GDP uses into account but adds other figures that represent the cost of the negative effects related to economic activity and social issues. GPI is designed to measure sustainable economic welfare rather than economic activity alone. We can see the growth from both GDP and GPI indicator. It is obvious that the rapid growth of GDP doesn't represent the improvement in GPI. It also implies the fact that owing more assets or money doesn't ensure the happiness of human and the healthiness of the society.
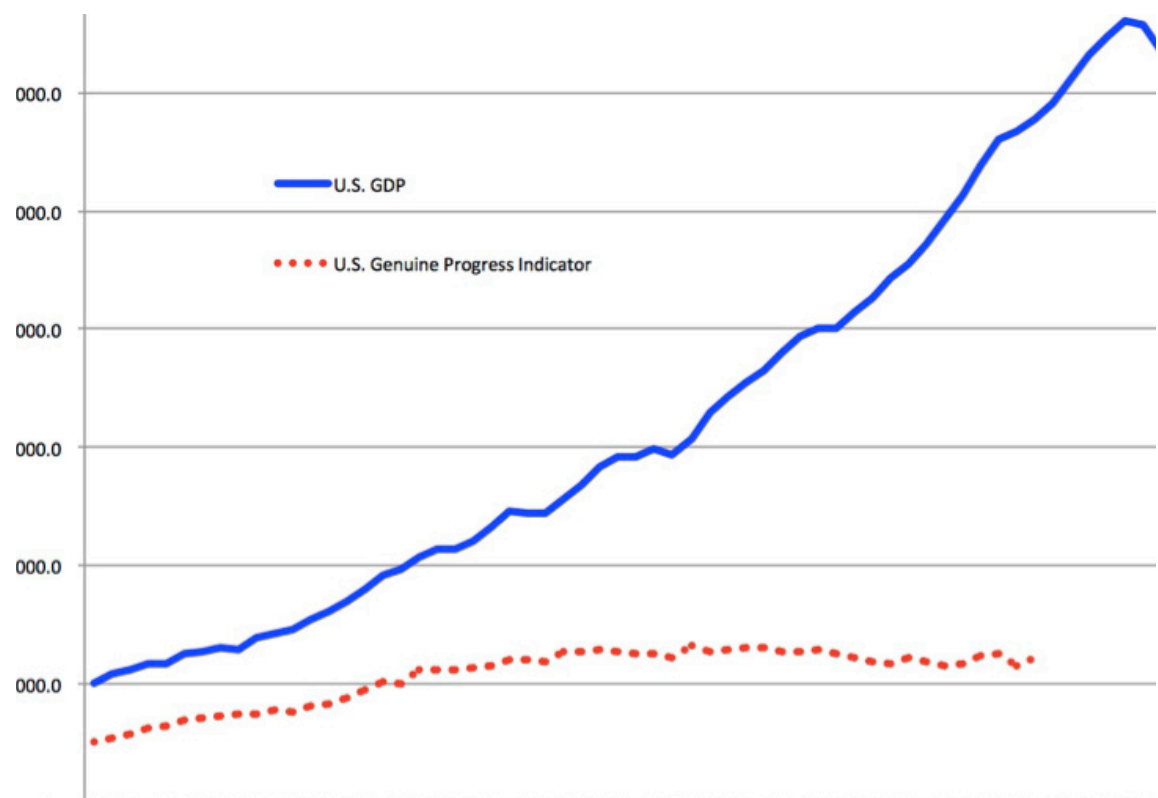
The Opportunities

"The drop in prices during the last century were largely the result of productivity gains that outpaced the rise in extractions costs. But these costs have recently risen as metals and minerals have become more difficult to get to and as their quality has declined."

—McKinsey Global Institute

Doughnut Economics

The current business model encourages consumer culture and cannot fit into the future. Kate Raworth believes that economics rules the world. But she also believes the old-fashioned economical theories are no longer fit into the 21st century. There are nine planetary boundaries in Donut Economy, which includes climate change, the rate of biodiversity loss, nitrogen cycle, and phosphorus cycle etc. (Insert doughnut) Rethink the role of economics in the planet, it not only has an environmental ceiling but also requires the basic need for the society to be met. It includes water, food, health, education and social equity etc. For instance, the gap between the rich and poor keep increasing. It falls into a trap called Success to Successful.

There are several ways out of the trap: tax the rich at higher rates than the poor instead of protecting the profits of the rich to avoid tax. Taxation on inheritance is a way to ensure more equity between younger generations. Natural species have ways to escape from the competitive exclusion to adapt new environment. Diversification tells both nature and economists to keep the diversity of the environment to keep a healthy market.

Take economic growth into account, designers should be able to think about ideas that help the industry gain profits but ensure the well-being of the society at the same time.

THE TRAP: SUCCESS TO THE SUCCESSFUL
If the winners of a competition are systematicaly rewarded with the means to win again, a reinforcing feedback loop is created by which, if it is allowed to proceed uninhibited, the winners eventually take all, while the losers are eliminated.

THE TRAP: SEEKING THE WRONG GOAL
System behavior is particularly sensitive to the goals of feedback loops. If the goals-the indicators of satisfaction of the rules-are defined inaccurately or incompletely, the system may obediently work to produce a result that is not really intended or wanted.

This graphic shows each of the 26 indicators and how they affect the overall GPI (image developed by the Donella Meadows Institute, 2014)

Principle 3:
Nature-Inspired Technology
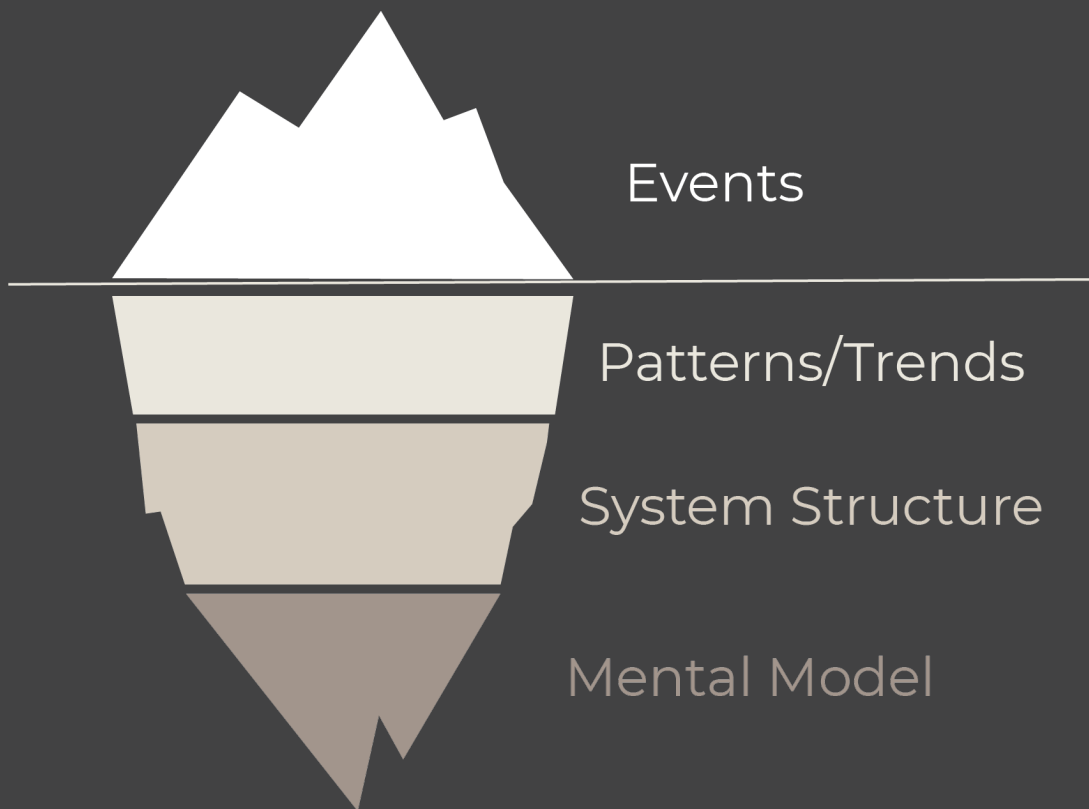
Photo by Stefan Mächler on Unsplash

Introduction

"To build a sustainable society for our children and future generations, we need to fundamentally redesign many of our technologies and social institutions so as to bridge the wide gap between human design and the ecologically sustainable systems of nature."

—Fritjof Capra

After the World War II, we have seen that machines dramatically increase the productivity in industry. Over the last few decades technology place an important role in the global market. According to the World3 model, impressive technological advance is conceivable but only as a consequence of determined societal decisions and willingness to follow up such decisions with action and money. In other word, the driving force of the growth in economy leads to the development of the technology. Thus, the technology is developed in a way that will lead to an unsustainable and collapse of society.

CASE STUDIES

Sustainable Development Goals

- 17 PARTNERSHIPS FOR THE GOALS
- 1 NO POVERTY
- 2 ZERO HUNGER
- 3 GOOD HEALTH AND WELL-BEING
- 4 QUALITY EDUCATION
- 5 GENDER EQUALITY
- 6 CLEAN WATER AND SANITATION
- 7 AFFORDABLE AND CLEAN ENERGY
- 8 DECENT WORK AND ECONOMIC GROWTH
- 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
- 10 REDUCED INEQUALITIES
- 11 SUSTAINABLE CITIES AND COMMUNITIES
- 12 RESPONSIBLE CONSUMPTION AND PRODUCTION
- 13 CLIMATE ACTION
- 14 LIFE BELOW WATER
- 15 LIFE ON LAND
- 16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Thinking In Systems

Events

Patterns/Trends

System Structure

Mental Model

ReosPartners

A leading social innovation consultancy supporting systemic change around the world.

Proven Methods for Systemic Change

1. Starting Points
A diverse coalition of leaders thinks that their situation is unacceptable or unsustainable and that it cannot be transformed unilaterally, directly, or immediately

2. What is needed
Whole-system team
Experienced guides
Strong container
Requisite resources
Generative approach

3. Methods

Events　Processes　Platforms
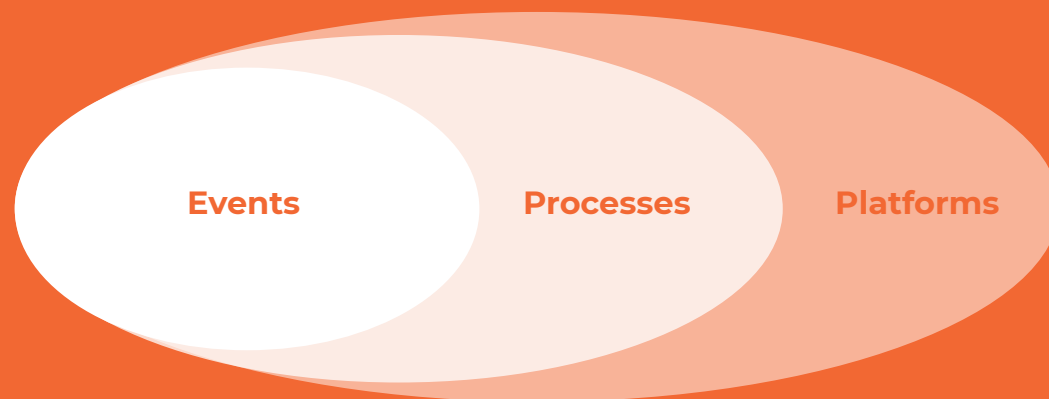
4. What is produced
Relationships
Insights
Capacities
Commitments
Initiatives

5. What emerges
The situation has been transformed through new alliances, narratives, approaches, policies, and/or institutions

nest ®

To create a home that takes care of the people inside it and the world around it. Reducing waste and using energy wisely.

Nest Thermostat E

The Nest Thermostat E's energy-saving features have saved people an average of 10% to 12% on heating bills and 15% on cooling bills. Based on typical energy costs, that's an estimated average savings of $131 to $145 a year.2
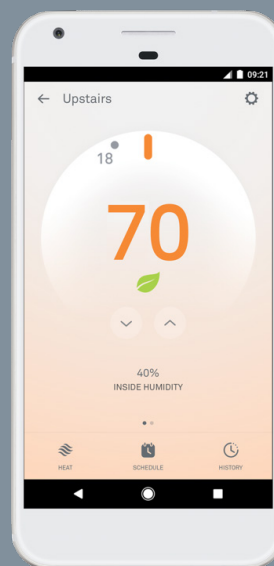
1. Energy Saving
Users are able to change to energy-saving temperature.

2. Behavior Change
The design provide users with the intuition to use. Users are able to adjest immediately or rometly by controling their phones.

3. Information Flows
Users can check history report to help them understand how much they saved. It provides advice on how to save more.

4. Partnership fo the Goals
Purchase from Georgia Power, users can get up to $100 instant rebate. Airbnb Superhosts get up tp 30% off select Nest connected home products. Get insurance discount.

To provide consumers with the information they need to make better shopping decisions.

GoodGuide

GoodGuide Rates Products to Help Health Conscious Consumers Make Informed Buying Decisions - From Food to Personal Care.

WORST   BEST

0   10

ingredients × degree of **concern** = **GoodGuide Rating**
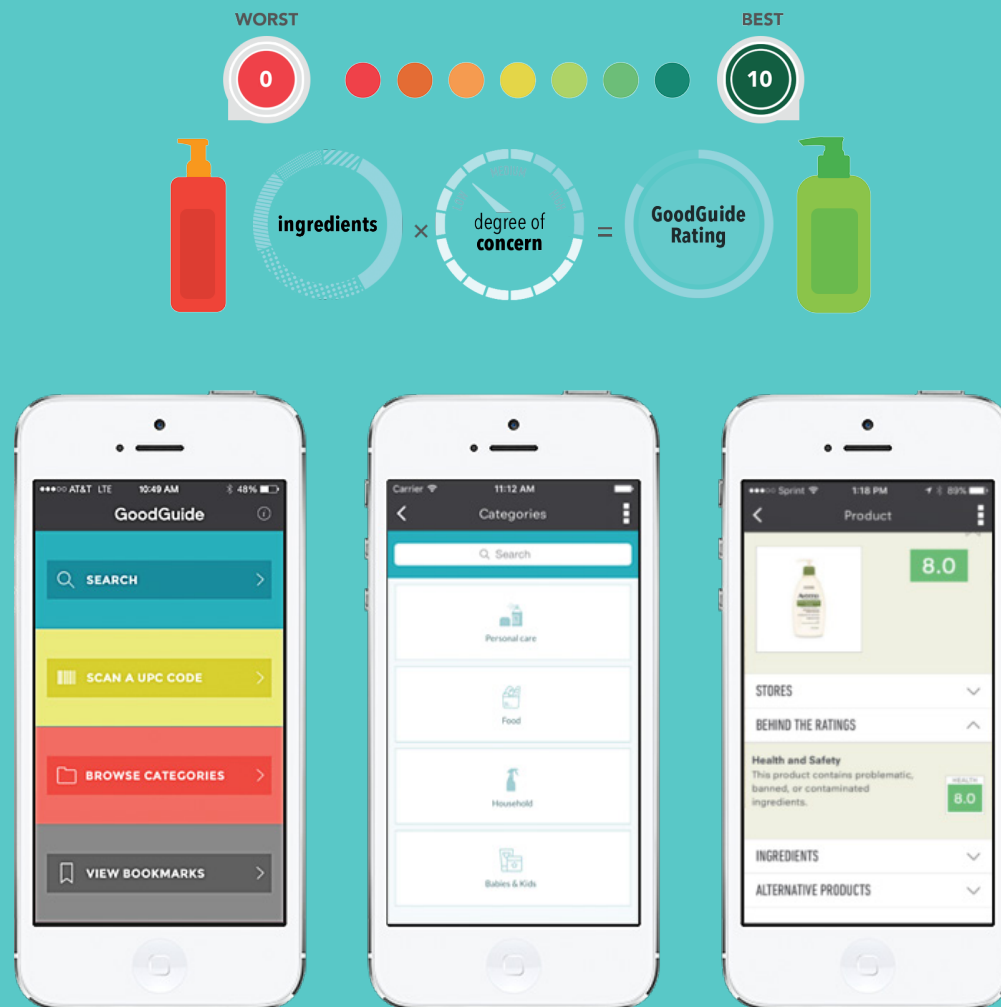
1. Information Flows
Users are able to quickly identify the highest rated products on the market.
Scientists analyze each product based on its composition.
The rating systems take into account the health, environment. and society.

2. Behavior Change
It helps consumer make good choice based on the health rating.

3. Partnership fo the Goals
The company with open source information on good guid will get higher rank, it means more parent to the public. The company would like to get more advertisment from different platform and GoodGuide will get the opportunity to provide more information about product.

ENVISION
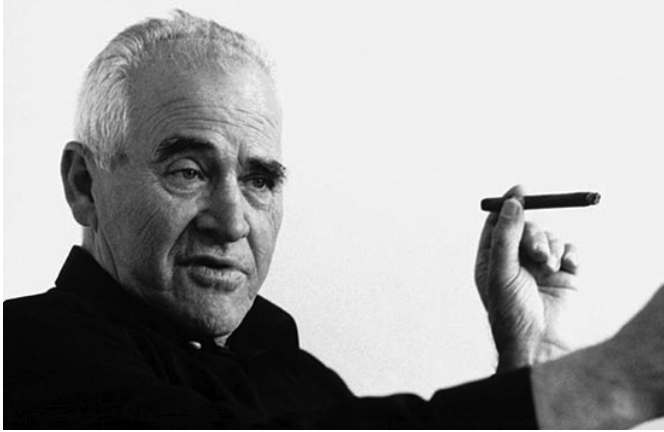
Otl Aicher

"The world expects new things from designers. That is the nature of design"
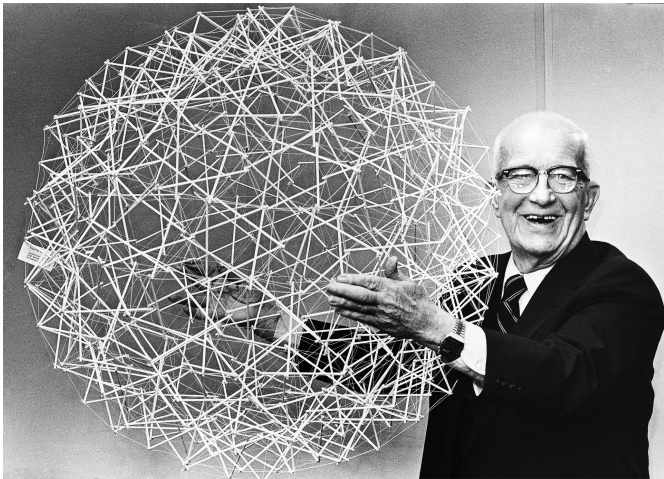
Buckminster Fuller

"a world that works for 100% humanity, the shortest possible time, through spontaneous cooperation, without ecological offense or disadvantage to anyone"

Johnpaul kusz

"Designers have the ability to envision and give form to material and immaterial products that can address human problems on a broad scale and contribute to social well-being."