

# Cruise Shipping Futures 2051 as Social Transformation Design

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## Abstract

The paper takes a research-oriented scenario project on the future of cruise shipping as an occasion to reflect on the concept of “Social Transformation Design” (STD) and its relation to design research. STD is typically associated with obviously deplorable phenomena such as poverty in rural Bangladesh or youth crime in European suburbs and the miraculous potential of design to successfully deal with them. Most methodological concepts are borrowed from the human-centered design approach. We argue for a deeper consideration of older systemic design concepts and scenario-approaches and, furthermore, promote the idea of shifting STD into the centre of highly developed consumer societies. Research Through Design (RTD) has been adopted as the methodological model. With its occasionally unreflected mix of analytic observation and projective judgement RTD raises the question: is this proper research? System boundaries or interfaces and observer positions are unclear, the designers’ attitude of imposing judgements / objectives from outside onto the system of inquiry is disputable. On the other hand, „proper“ design research in a rigorous scientific attitude with a clear separation of observation and judgement, often leads to fairly trivial results in view of the issues at hand. The retrospective reflection of the scenario project *Cruise Futures 2051* as an example of RTD reveals significant insights and suggests consequences regarding attitudinal, methodological and epistemological stances for design and designers dealing with social transformation projects. The rich history of thinking about social transformation design turns out to be very enlightening and should be taken into consideration more extensively when talking about and practicing STD. We claim that the well-known models and considerations provide sufficient support for the approach as presented. “*Design as mental window shopping*” (Herbert Simon) avoids the destruction of productive complexity and beware the stakeholders of too much narrow-minded moralizing.

KEYWORDS: Social Transformation Design, Scenario-building, Cruise Shipping

## 1 Social Transformation Design and Cruise Tourism?

The British Design Council (2004) provides the following definition:

*„Transformation design is a human-centred, interdisciplinary process that seeks to create desirable and sustainable changes in behaviour and form – of individuals, systems and organizations – often for socially progressive ends. ...“*

Is there any progress or clarification compared to Simon's (1969) prosaic notion that design means to „transfer an existing situation into a preferred one.“? One of the crucial aspects in the Design Council definition is the – almost incidental – qualification: „often for socially progressive ends“. Blyth and Kimbell (2011: 7) refer to Design Thinking (Brown 2009) and criticize this approach as too much based on the paradigm of user-centeredness, which treats the individual symptoms of social problems rather than their causes. They call for Design Thinking to take seriously the “social” in social problems and develop its tools accordingly. Rather than claiming to solve social problems they argue for design's competence to actively, critically and reflectively contribute to their construction and representation. For that purpose, designers have to carefully consider their own role and values and perspectives in the process, they have to introduce double-loop learning and reflective conversations into the process, and they should aim at an active involvement rather than external consultation. In systemic terms, this means a shift from 1<sup>st</sup> order *prediction* and *control* towards 2<sup>nd</sup> order *learning* and *design* (Jonas 2007b). It is based on the insight that the *problem of control* (due to irreducible complexity in social systems) and the *problem of prediction* (due to fundamental uncertainty in future developments) cannot be solved but just be reflected.

Phills, Deiglmeier and Miller (2008) use the term „social innovation“ (2008: 39):

*„A novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals.“*

There is „society as a whole“ again. The authors ask „What is social“ and arrive at the vague and tautological answer (2008: 39):

*„ ... we define social value as the creation of benefits or reductions of costs for society - through efforts to address social needs and problems - in ways that go beyond the private gains and general benefits of market activity.“*

Finally (2008: 40) they argue for new integrative cross-sector models, including non-profit, government and business partners, which will allow the exchange of ideas and values and in

consequence fruitful shifts in roles and relationships. This promotes the emergence of the so-called “fourth sector” (<http://www.fourthsector.net/>). This is the challenge of our claim to introduce STD concepts into the centre of highly developed consumer societies: They must be not only ethical but also attractive to the network of stakeholders.

*Tourism* can be considered as a characteristic phenomenon of affluent societies, with serious local, regional and global effects on sustainability. *Cruise shipping* as a once innocent, luxurious pleasure of the rich upper classes has, since its ‘maiden voyage’ in 1891 (Allers 2008), been developed into an industry of mass tourism and brings forth a lot of hard-to-ignore social, ecological, cultural and economic impacts. Cruise tourism represents the development of consumerism and lifestyle like under a magnifying glass.

In 1987 the World Commission on Environment and Development, WCED ([http://en.wikipedia.org/wiki/Brundtland\\_Commission](http://en.wikipedia.org/wiki/Brundtland_Commission)), suggested a definition of Sustainability: „*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*“ The 1992 Earth Summit’s Agenda 21 offered a further elaborated blueprint for sustainable development focusing on environmental issues and equitable distribution of economic benefits derived from development and tourism. In 2002 the United Nations Environmental Programme, UNEP, organized the World Summit on Sustainable Development in Johannesburg. On the edge of this conference the 2002 *Capetown Declaration on Responsible Tourism in Destinations* was adopted (<http://www.icrtourism.org/?s=Capetown+declaration>), which marks the shift from sustainable tourism to the much broader concept of responsible tourism. *Responsible cruise tourism* has three broad areas of concern (Klein 2011):

- the impact on the environment,
- the equitable distribution of economic benefits to all segments of a tourist destination, and
- minimising negative socio-cultural impacts such as “people pollution”, the homogenisation of the port experience, or the loss of socio-cultural authenticity.

Research in this area is just starting. Therefore it is not surprising that several authors identify severe deficits regarding research on responsible cruise tourism (Klein 2011, Papathanassis and Beckmann 2011). So we start from the following hypothesis:

Cruise tourism has a strong (mostly – but not necessarily – negative) impact on social, cultural and economic sustainability on a global scale. Its future development may influence this for the good or for the bad. Therefore cruise tourism is a prototypical subject area of STD as understood in this paper. Designerly approaches can contribute to the development of more responsible cruise tourism.

## 2 The Project: Cruise Shipping Futures 2051

The model of this rapidly growing business can hardly be further developed without considering basic alternatives. Apart from the mentioned socio-cultural impacts it is obvious that price dumping as the primary means in competition is limited for various reasons.

Tourism businesses can quickly adapt to new contexts, but European shipyards come under severe pressure. *MP Shipyard* (our project partner, name changed) can hardly survive in a price war against the Asian competitors. The hoped-for and promising quantitative growth, therefore, barely represents a strategic option. In the rural region of P *MP Shipyard* is a structurally important employer, which brings with it a high corporate responsibility.

This situation provides an ideal playing field to apply STD thinking to the cruise phenomenon in the middle of our saturated consumer society. Although we worked with a shipyard, the process started in an open-ended manner, focussed on the system cruise shipping, not the product cruise ship. The assumption was that consequent systems innovation would support social transformation. The goal was to demonstrate potential future business fields for the shipyard and its partners and customers and the public at large.

### 2.1 The Ship of Fools Reloaded

Vacation is one of the „fundamental rights“ in consumer societies. Mass tourism is the corresponding business model provided by the tourism industry. Like the *Ship of Fools* (Brant 1494) cruise ships represent the Zeitgeist: the assembly of the vices of society on board a ship: excessive experience, consumption, entertainment, perfect luxury, affordable, or even cheap. Enzensberger (1995) has demonstrated the surrogate character of today's concepts of luxury. Externally the ships present themselves as repellent fortresses in a strong visual interaction with their environment. The exchange takes place via few tightly controlled gates.

*Disney Cruise Line* is selling cruise tourism as an extension of the entertainment industry. *Wall-E*, the Disney movie (Pixar 2008), may be interpreted as the absurd end point of cruise shipping. Passengers turn into those childish, demented and overweight creatures on the spaceship *Axiom*, without even realizing it.

Figure 1: Passengers on spaceship *Axiom* in *WALL-E* (Pixar 2008).

Figure 2: *Garden of the Seas*, built 2028, a technical masterpiece, yet totally outmoded. With changing business models and aggressive price competition, the shipping companies tried to sell it as a modern Noah's Ark. In 2031 it is taken out of circulation.

Designers, when asked for an outlook, usually present some arbitrary, utopian or elitist artefacts, which populate the stage in a future society, which is hardly changed compared to today. We did the same with our fictitious cruise ship *Garden of the Seas*, which provides a perfect illusion of a self-sufficient Noah's Ark. This thought experiment clearly reveals the dead end of this „more-of-the-same“ way of thinking. The artefacts shape the society and the society produces these artefacts as symptoms of its state. The ship is a symbol of Western society and it is our ambassador in the destinations. We can only try to control its message if we begin to reflect our own society. It is not easy to leave the firmly set trajectories. If we want to irritate the social mechanisms that produce these phenomena, then we have to conceive alternative, or - in Simon's words - preferred futures, which will then produce specific products that will probably be very different from everything we know today.

## 2.2 How to build alternative futures?

Through their designs shipyards, shipping companies and designers permanently co-create future societies, for good or bad, whether they like it or not, simply by putting their designs in the world. One may call this an Inside-Out perspective on change. Thereby they assume their share of responsibility for the future of „society as a whole“, albeit in a passive role. In 2051, forty years from now, contexts will have dramatically changed sociologically, technologically, economically, environmentally and politically. The short planning horizons of the shipyards, however, permit only incremental adaptation along the given trajectories. In consequence, the travel forms in 2051, as indicators of the future *Zeitgeist*, will hardly match the currently conceived cruise ship designs. Crises and disruptions are inevitable: „Unknown unknowns“ ahead!

STD takes the reverse perspective: Outside-In. Alternative models of society are used to better understand how our products and actions today may affect the future. The point of these thought experiments is not in forecasting, but in breaking up rigid thought patterns and in creating alternatives. By means of these „futures on stock“ we have the chance to transform at least some of the „unknown unknowns“ into „known unknowns“ and to turn them into playing and learning material. Simon (1969) expressed this crucial relation of artifact and environment as follows:

*“An artifact can be thought of as a meeting point - an 'interface' in today's terms - between an 'inner' environment, the substance and organization of the artifact itself, and an 'outer' environment, the surroundings in which it operates. If the inner environment is appropriate to the outer environment, or vice versa, the artifact will serve its intended purpose. ...”*

It means that we have to determine possible 'outer environments', the unalterable external conditions or backgrounds, or the wider context and then think about appropriate 'inner environments', the systems to be designed. In the case of STD the artifact / the inner environment can be considered as both designing (the actors involved) and designed (the resulting form or interface or boundary), we call it the *design / inquiring system*. The appropriateness of the fit is determined by Simon's 'intended purpose' That means we have to identify and include the systemic and personal driving force or the vision / purpose that drives the design / inquiring activity. In methodological terms this denotes Research Through Design (RTD, Jonas 2007).

Figure 3: A situation of Research Through Design (Jonas 2007a), at the same time a generic scenario framework: The wider context, the design / inquiring system (established by the involved actors) and the driving force.

Long-term change processes are described through so-called „mega trends“ (Z-Punkt 2012), drivers of anthropogenic origin that significantly affect our society, as well as indicators on which a special attention must be paid, because they might become the core of a new *Zeitgeist*. For “Cruise Futures” these mega trends determine the *wider context*, they represent a dynamic image of the current world order. They also affect the *design / inquiring system*, namely cruise shipping, which is a hybrid network of economic interests, of the culture of passengers (travel motivations), of the culture on board (type of trip) and the destinations (forms of cultural interaction). The design / inquiring system is dominated by the value systems of the passengers' countries of origin, whereas the target regions are at best considered as experience and entertainment factors. One possible *driving force* behind the design activities may be the fear of negative impacts of anthropogenic climate change on our standard of living. This fear defines the pressure and the possible scope of action. The gradual recognition of the *Anthropocene*, the man-made era, touches the heart of man and society. Values, ethics and morality will be re-evaluated in the course of the „Great Transformation“, a term, which refers to the upcoming transition to a post-fossil economy and a necessary / possible new social contract between citizens and politics (WBGU 2011).

The three major dimensions of future uncertainty (*the wider context, the design / inquiring system, the driving force*) comprise a large number of variables that determine future states. *Sensitivity Modelling* (Vester 2007) identifies the active factors (useful for directly

influencing a system), the reactive factors (suitable as indicators) and the critical factors (extremely uncertain in their behaviour). The latter are essential for establishing scenario logics. The previously examined variables were summarized and integrated into a 3-dimensional scenario framework or “cube of future uncertainty”. Each of the three dimensions has two opposite values, which denote their uncertain future: *fragmented* vs. *homogeneous world order* as the *wider context*, *I Society* vs. *We society* as the *design / inquiring system* and *moderate* vs. *extreme climate change* as the *driving force*. Each of the eight resulting sub-cubes represents a possible future. One of them, we called it *2051 – Post-fossil Solidarity*, was worked out in detail and served as a normative target state. It should be emphasized that this is a contingent selection of the project stakeholders, wishful thinking, if you will. All other futures are equally conceivable and should be considered.

Figure 4: The scenario framework integrates the wider context, the design / inquiring system and the driving force and establishes eight possible future scenarios.

### 2.3 2051 – Post-fossil Solidarity

Figure 5: Buckminster-Fullers “Dymaxion Map” (1943), an idealistic representation of the globe, a symbol of our narrative scenario *2051 – Post-fossil Solidarity*.

In the year 2051 we have a *homogeneous world order*, we live in a *We-Society* and we face *extreme climate change*:

*Due to climate change, accelerated by the unrestrained use of fossil resources and the associated emissions, the shape of the earth and the society is rapidly changing. Since the beginning of the 21st Century, most countries of the world had accepted the climate change and missed the opportunities for action. The global climate is developing toward two extremes: In the semi-arid and arid areas the desertification is progressing, it is becoming hotter and drier. Many regions are trying with great effort to meet the basic needs of their people. Nevertheless, there are failed states, which were economically and politically too unstable to absorb the impacts of climate change. Similarly, in Northern Europe, Eurasia and Southeast Asia, the temperatures rise and the humid, warm climate is shifting vegetation zones and extends the growing seasons. Many people are wandering in search of better living conditions. The implications and challenges cannot be handled by any country or region alone. Survival instinct, reason, hindsight and the opportunity to take the necessary steps finally lead to a global climate change development plan. The countries move closer together and a global understanding of balance is emerging.*

*These coordinated efforts lead to economic growth, which is still associated with high resource consumption. But the inevitable transition of the manufacturing economy to*

*renewable energy, green tech, Cradle-to-Cradle production and the high investment in education affect the awareness for a need-based and globally heedful handling of resources and their countries of origin. The insight that nature is only supposed to be controllable is growing. The new relationship between mankind and their environment also builds on the experience that failed states further threaten the already weakened system and that only a respectful approach will drive the required transformations.*

*In Germany, extreme weather events are increasingly seen as normal. The impacts vary greatly from region to region. The rising North Sea complicates life on the coast, the Alpine region gets mild, in Northeast Germany it gets dry and warm, so that wine can be grown. All this is associated with high costs, which exceed the budgets of single federal states by far. Germany tries to meet the challenge with a balance fund in order to prevent the country from falling apart. Along with the vibrant social interaction, regional disparities are gradually reduced. The state and its citizens are moving closer together and the resulting mutual responsibility leads to a new basis of trust, a strengthening of culture and rich new networks. An optimistic mood of a fresh start is spreading. Presumably unchangeable values and norms are abandoned, and striving to maintain the so-called standard of living is replaced by the desire for quality of life.*

## 2.4 The Felicity Curve

How to approach this desired state? The *Felicity Curve*, consisting of three phases, can be considered as the basic trajectory for a *back-casting* process, or a *roadmap* from now to 2051. It shows the degree of optimism, happiness and intensity of people's everyday experience.

The period to 2026 is characterized by the paradigm of technological progress and quantitative growth. The promised results fail to materialise, therefore public confidence in politics and the economy suffers. The social heterogeneity is growing and the individual, faced with fears of loss, looks forward with mixed feelings. The positive effect of these one-sided efforts during the *Age of Green Technology* consists in the enormous progress in research and technology and in overall higher efficiency (von Weizsäcker et.al. 2010). Nevertheless, resources dwindle faster than they can be substituted. The pursuit of efficiency has its limits and leads to dissatisfaction. People recognize that it always leads to quantitative comparison and feeds the desire to continue to expand the limits of the possible. The indices used are too one-dimensional, partial and selective action retards change processes. The understanding emerges that stable qualitative growth will be possible only in a dematerialized and largely resource-independent economy (World Resources Forum 2012).

Figure 6: The *Felicity Curve*, backbone of the „Great Transformation“ (WBGU 2011).

The ensuing period of change to 2031 is characterized by an intense engagement with the past and the insight that the current quantitative economic model faces tight limits due to its strong



resource dependency. With the recognition of climate change as a result of the different cycles of industrialization the term *Anthropocene* for the current era is common now. The onset of social change and the need to build a desirable future based on the current situation, raises the question of who can or must contribute what. This results in a new sense of responsibility and new options for action.

The *Age of Green Business* is characterized by the knowledge that each individual contributes to a resource-independent, qualitative growth. In conjunction with the technological potential it creates a spirit of fresh start, driven by optimism of being able to master the challenges ahead. The reflection of meaning and value leads to effectiveness, which results in satisfaction. Financial, social and personal gains are equally important.

The *Felicity Curve* represents the driving force behind the *Post-fossil Solidarity* scenario. It is the interaction of personal and societal fears of loss in the face of dramatic climate change. The fear of the low point lets people stick to the well-known paradigm; at least it has proved until now. Only when the new opportunities and social and personal gains become visible the new force can drive the curve upward.

## 2.5 Old and New Values in the Business Model

The new business model, with which *MP Shipyard* can generate profit in a post-fossil, solidary society in 2051, introduces new stakeholders and generates new social gains. It is more complex and more resilient at the same time. The environment has changed fundamentally: home-, travel- and destination cultures are in a new relationship. Due to the change of mentality there is no need for today's cruise formats any more. Financial and social gains correspond in the value chain. The implications for the four main stakeholders and their interests are shown in Fig. 7.

Figure 7: The new ideal business model, extended by *Ethical Banks* and *earthBook*. *Networks of Stakeholders* replace the former shipping companies.

(1) Shipping companies and the entire maritime economy are responsibly involved in the global community. Business and CSR balance sheets are inextricably merged for the purpose of financing the maritime industry. ***Ethical Banks***, which have gained in importance during the critical decades guarantee a long-term, low-risk and ethically sound value creation.

(2) Shipping companies as clients of the shipyards become parts of larger ***Networks of Stakeholders***. They use the ships for purposes of all kinds in coordination with the stakeholders. Thus the German inland and ocean marine business ties in with the old *Hanseatic* tradition of thriving cultures along the shipping routes.

(3) The family-owned ***MP Shipyard*** lives these values, at least with respect to its employees, since its founding in 1795, yet without explicitly making it part of their business model. In the

new constellation in 2051, this tradition is strengthened and the decreased unilateral dependence of the shipping companies contributes to a crisis-proof and long-term utilization of their capacities. For this, the conversion was necessary from a pure manufacturing facility into a center of excellence for innovative marine systems.

(4) The civil societies of the industrialized, emerging and developing economies, social actors from the destination areas, NGOs, social networks and grassroots movements have created *earthBook*, an economically and socially active, global platform. The network collects, uses and publishes information on companies, institutions, organizations and individuals. The resulting transparency reduces the distance and the conflicts between producers and consumers. During the transition years the knowledge advantage and the ethical standard of *earthBook* (which arose from the failed *facebook*) generates a market power, which is included as the fourth major stakeholder in the new business model.

## 2.6 Social Entrepreneurship as Travel Motivation

Today's consumer society transforms into a responsible and self-determined civil society in 2051. People's travel motives are associated with labour, business, living at sea or prolonged travel experiences. The former target groups are replaced by the above-mentioned *Networks of Stakeholders*. The ship is the symbol and the practical means of an open exchange of cultural assets, where the fulfilment of needs and high quality of life take precedence. The ship as an ambassador of new travel culture radically changes its appearance. Five exemplary mini-scenarios will illustrate this shift:

### Figure 8: Residential Islands and Floating Caravans.

(1) People live and work on self-sufficient *Residential Islands* near the coast, which may form flexible networks according to common interests. These new settlements spread along fertile coastal strips, which are used agriculturally and industrially. Leisure, work and living are combined, leave entitlement dissolves in everyday life.

(2) Drifting nomads are underway as travelling salesmen on the great ocean currents. They use the abundant energy available for locomotion and transport goods and passengers in large autonomous *Floating Caravans*. They have an important supply function, and as a tour operator they offer passengers a ride on a "hand against bunk" basis. The operators are not shipping companies, but mainly individual entrepreneurs.

### Figure 9: Market Ships of the *Neo Hanseatic*.

(3) In many coastal regions and countries political, economic climatic and social problems lead to depopulation, so that comprehensive vital infrastructures are not affordable any more. Commercial and service organizations drive into these regions with leased *Market Ships* to satisfy the needs of the remaining population. In return, accommodation, goods, commodities,

money or knowledge will be offered. Travel becomes acting and trading. People in the target region and the *Neo-Hanseatics* work symbiotically in these growing niches.

Figure 10: Culture Maintenance Ships and People Smuggler Boats.

(4) **Culture Maintenance Ships** are underway in a similar mission. In semi-arid areas they support the population through the delivery of green plant containers and other vital goods and infrastructures. This will reduce the flow of refugees towards Europe. After the middle element of the ship was unloaded at the destination, the two propulsion units return back to Europe autonomously.

(5) In many Mediterranean regions sea travel for recreational purposes is hardly offered any more, since boat people and cultural destruction are commonplace. The shipping industry is largely non-commercial. The autonomous propulsion units mentioned in (4) avoid the necessity to take boat people on board. Instead there are more and more so-called **People Smuggler Boats**: NGOs bring unsinkable lifeboats through intermediaries into the countries of origin, so that the boat people have a safe passage to Europe, at least.

### 3 Facts and Values – Ethics and RTD

The question can be raised whether this is ‘proper’ research. In arguing for new forms of research, De Zeeuw (2010) points to the criticisms on approaches such as action and evidence-based research, or those involving soft-systems, Mode-2 forms of knowledge production or RTD, which are based on the fact that they include observations as well as judgements. Regarding this criticism Lykins (2009) suggests that a more direct link between social science and societal progress can be forged if “*the relationship between facts and values*” is better understood. The *problems of prediction and control* and the desire to solve them once and for all arise again:

*“Experts and laypersons will deal with each other in one way or another. Matters will be left private or managed publically. And these interactions will produce consequences, some pleasing and others not. The more we can know about these consequences and how to control them, the more we can speak intelligently about them.”*

At this point, it is worthwhile recalling three major positions on the relations between facts and values to make visible the historical and artificial character of their separation. Max Weber (1864-1920) has proposed the strict separation of facts and values. Weber conceived sociology to be a science given the task of understanding and causally explaining social action, its conditions and effects. Weber conceded that social inquiry arises from concrete needs and values, yet he argued that sociology can not tell us what should be. For another

founding father of sociology, Émile Durkheim (1858-1917), social facts and structures determine human action and establish matters of fact and can be discovered by the sociologist using methods and epistemic standards of natural science. Durkheim argued that science can provide a way of evaluating value-claims objectively, which may be criticised as “naturalistic fallacy”.

In contrast to both Weber and Durkheim, the pragmatist philosopher John Dewey (1859-1952) argued that facts (means) and values (ends) are interdependent and that they are different only in degree:

*“One involves taking things as they are, the other involves taking things in their relations to antecedents and consequences. ... The difference between the scientific study of natural as opposed to social questions is due to the degree of complexity of the relations under investigation.” (Lykins, 2009)*

Dewey argued already in 1916 that the lay/expert question is best posed as an educational and social problem of enabling a citizenry to conduct their own social inquiry, involving heterogeneous knowledges that integrate facts and values. Dewey’s position is relevant to ours insofar as we want to overcome the facts / values separation that creates a rift between social sciences and the public. If, as Dewey argued, the standards for judging means cannot be furnished from outside, and if the criteria for evaluating ends comes from within the situation itself, epistemic heterogeneity has to be taken as the essential condition for any socially relevant inquiry.

Latour (2003, 2004) claims that scientific and political debate should take place in a common space. He discusses „Collective Socio-Scientific Experiments“, which are no longer conducted in isolated laboratory but involve wider communities, and in some cases the whole world population. And he proposes specific protocols of conduct for each individual problem. Anderson (2006) argues for the epistemic benefits of democracy and introduces the concept of “epistemic democracy”, even though she clearly realizes the problems of a public trying to understand and respond to its own problems. *Transdisciplinarity* in its strong interpretation includes non-experts in research and in the design of social transformation (Brown 2010). Similarly, De Zeeuw (2010) suggests a “hybrid” form of research for social intervention that makes use of observations as well as judgement, without ignoring the distinctions between them. This new form of research should “include the dilemma as part of its knowledge production” (De Zeeuw, 2010: 8). To incorporate judgements in research, though,

*“would require the ability to create judgement systems that resemble recognition systems. One example would be a collective whose members decide which values to assign and which values to include in order to maintain and defend their decisions” (De Zeeuw, 2010: 13).*

Research that includes judgemental contributions is often processual and evolutionary and, in this process, *autopoietic closure* can create a collective that is an observing and acting system.

Judgement then becomes an integral part of the knowledge-producing system, which avoids statement of problems, research aims, moral aims, etc to be made externally. This means a shift from satisfying needs that have been observed and diagnosed by outside experts and / or authorities, including designers and scientists towards enabling people / groups / nations to become social actors who define preferred states. In this regard, Alexander Christakis (1996) suggests a “People Science” which performs a “‘*shift*’ from an individual-centered conception of knowledge and understanding to one that is socially-based”. Similarly, John Chris Jones introduces the internet-based notion of “creative democracy”,

*“a vision of the future in which the controlling roles and functions of Modern life could be shared with everyone ... a virtual planet earth ... an expanded version of the internet through which ‘universal despecialisation’ and ‘creative democracy’ and other such unexpected conditions are already implicit if not active.” (Jones, 1999: 407)*

The generation of knowledge by collectives, and the inclusion of various knowledge types including judgement, result in more complex research situations and therefore implies the necessity of increased reflection and carefulness in meeting the standards of research. RTD as described above can be the methodological model for STD processes of this kind.

#### 4 Design as Mental Window Shopping

The year 2051 is located in an uncertain future, the scenario tells one out of a myriad of possible stories about the future of *MP Shipyard*. There are no fixed target states, but only negotiable paths, which are considered desirable based upon the current understanding of the situation. The ‘right’ ways only arise in the proceeding. They should remain negotiable among the stakeholders, at each step.

At the beginning we mentioned the forgotten approaches of STD. It is amazing how little regard is given to the rich history of thinking about social transformation in design and planning. Fig. 11 gives an idea of the range of ethical and epistemological positions in view of the “unknown unknowns” (Donald Rumsfeld 2002, in Rao 2012) of social futures and provides abundant references to further theoretical foundations. It contrasts C. West Churchman (1913 - 2004), the ‘thoughtful melancholic’, Herbert A. Simon (1916 - 2001), the ‘composed positivist’, Frederic Vester (1925 - 2003), the ‘friendly missionary’, and Horst Rittel (1930 - 1990), the ‘Socratic ironist’.

Figure 11: Moods, attitudes and driving forces of approaching STD.

One of the most lucid deliberations can be found in chapter 6 of Herbert Simon’s (1996) *Sciences of the Artificial*: „Social Planning: Designing the Evolving Artifact“. In his

farsighted and composed view on the nature and limitations of social planning Simon still clearly remains on the institutional and the expert level (1996: 153): “... *the institutions of the society must share with the professional the redefinition of the goals of design.*” He does not seem to consider ‘end-users’ as legitimate participants but rather as selfish and tricky sources of irritation, unable to keep the common good in mind. He considers them as (1996: 153) “*designers who are seeking to use the system to further their own goals.*” He considers them as self-serving and sees merely “*a game between the planners and those whose behaviours they seek to influence.*” Therefore he rejects a full participation. Many critics regard this unagitated attitude as inhuman, indifferent, even cynical. Which may tell more about the critics than about Simon. Maybe our above assumption of a wise and selfless community of citizens is actually a bit naïve. It is ‘zeitgeisty’ yet.

More important, Simon clearly dismisses the claim to forecast future events and introduces the notions of normative scenarios and back-casting procedures (1996: 148):

*“The heart of the data problem for design is not forecasting but constructing alternative scenarios for the future and analyzing their sensitivity to errors in the theory and data. ... Having chosen a desirable (or acceptable) target state, and having satisfied ourselves that its realizability is not unduly sensitive to unpredictables, we can then turn our attention to constructing paths that lead from the present to that desired future.”*

In his evolutionary theorizing he dismisses the concept of fixed goals for planning and argues that social planning is myopic. It looks a short distance ahead and tries to generate a future that is a little better – or fitter - than the present. It creates a new situation, which serves as a starting point for further goal-setting and continued design activity (1996: 163):

*“The idea of final goals is inconsistent with our limited ability to foretell or determine the future. The result of our actions is to establish initial conditions for the next succeeding stage of action. What we call ‘final’ goals are in fact criteria for choosing the initial conditions that we will leave to our successors. ... One desideratum would be a world offering as many alternatives as possible to future decision makers, avoiding irreversible commitments that they cannot undo. ...”*

Maybe this is Simon’s most important contribution to the further discussion: Recognizing design thinking as powerful communicative tool to be used in processes that negotiate possible and desirable future states. Not for fixing goals, but just to keep things in flux, to keep options open. Ethics remains subliminal, implicit in the process. In the opposite case, the future would be determined blindly, the more the decisions are irreversible, which in turn hampers the freedom of choice and autonomy of future generations. This is the least that we should learn: “unknown unknowns” are recognizable only in retrospect. The more “known unknowns” we create on stock, the less “unknown unknowns” we will encounter.

A final remark: Simon does not seem to be much interested in whether this is proper scientific research or not. Yet he describes parallels between science and design. He conceives designing as a pleasurable and valuable activity in itself (1996: 164):

*“Just as realized plans may be a source of new experience, so new prospects are opened up at each step in the process of design. Designing is a kind of mental window-shopping. Purchases do not have to be made to get pleasure from it.*

*... One can envisage a future, however, in which our main interest in both science and design will lie in what they teach us about the world and not in what they allow us to do to the world. Design like science is a tool for understanding as well as for acting.”*

The *problems of prediction and control* cannot be solved, but we can be aware of them, reflect and negotiate them and try to develop responsible ways of dealing with them. This might be the main contribution of Design to the creation of sustainable, prosperous human futures.

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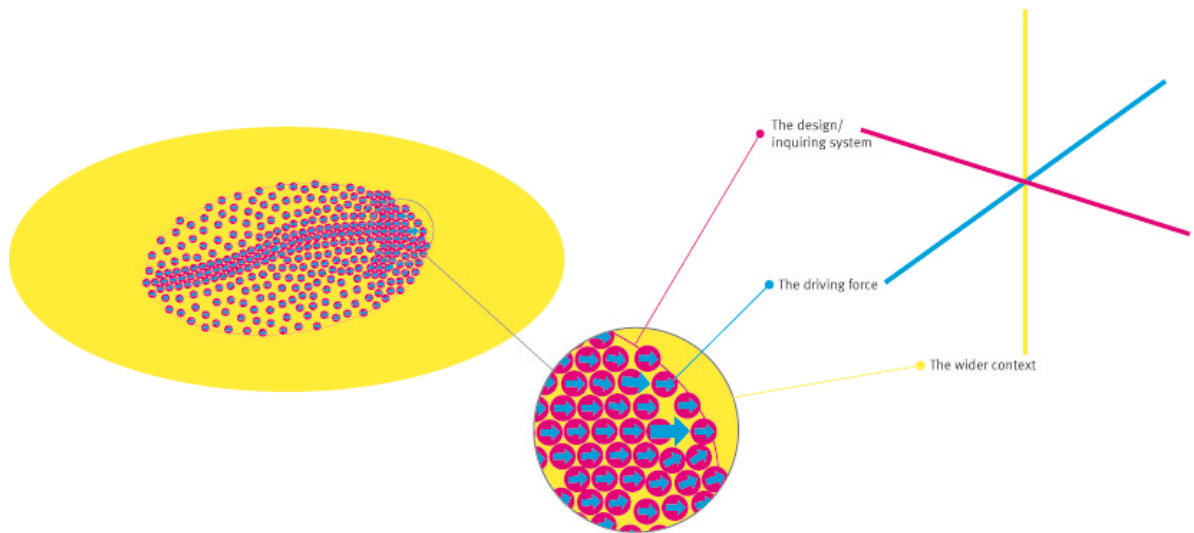
## Figures



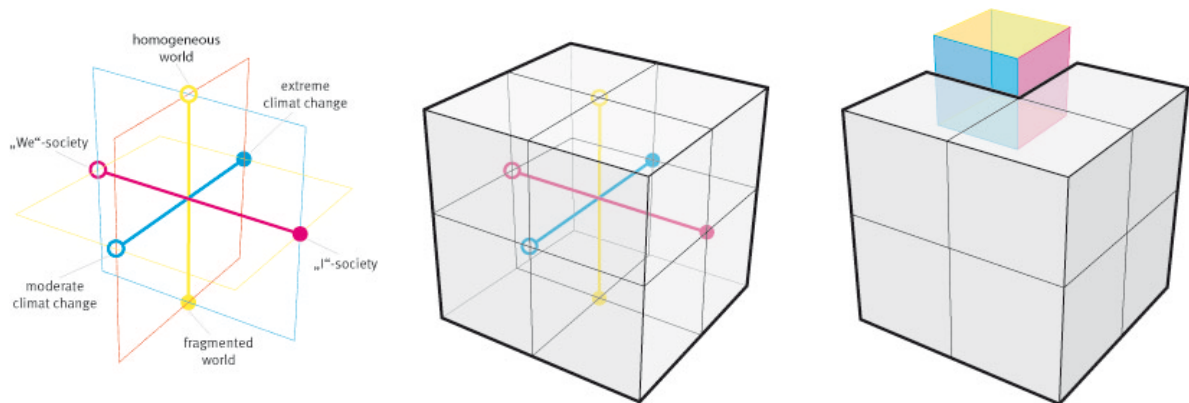
**Figure 1:** Passengers on spaceship *Axiom* in *WALL-E* (Pixar 2008).



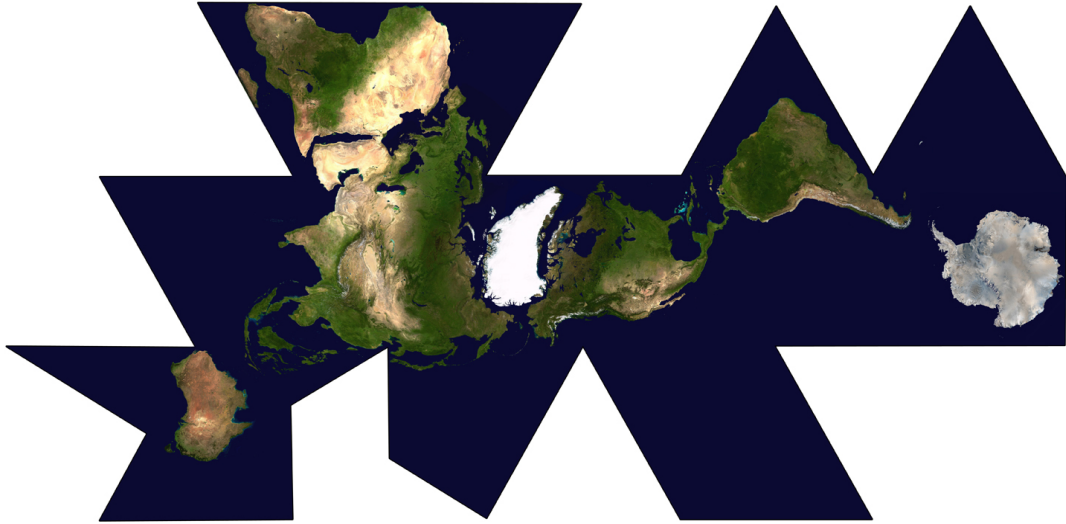
**Figure 2:** *Garden of the Seas*, built 2028, a technical masterpiece, yet totally outmoded. With changing business models and aggressive price competition, the shipping companies tried to sell it as a modern Noah's Ark. In 2031 it is taken out of circulation.



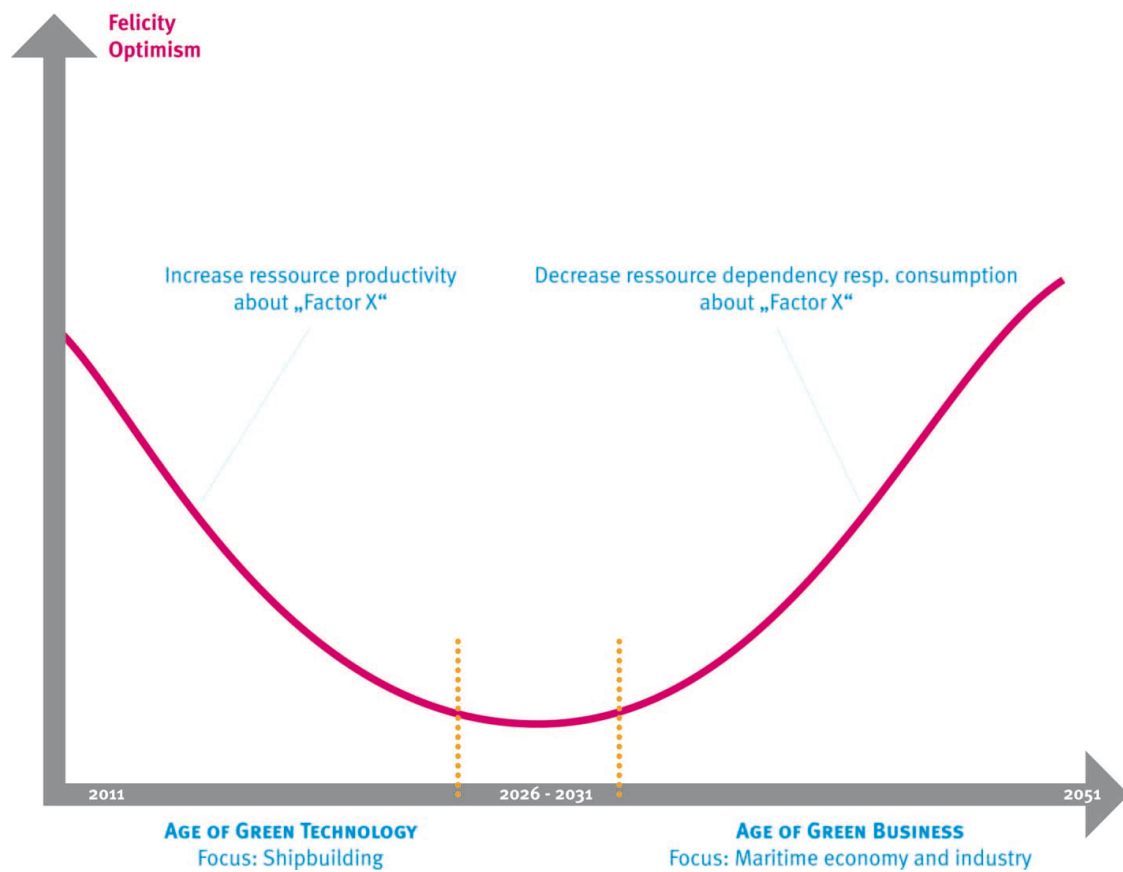
**Figure 3:** A situation of Research Through Design (Jonas 2007a), at the same time a generic scenario framework: The wider context, the design / inquiring system (established by the involved actors) and the driving force.



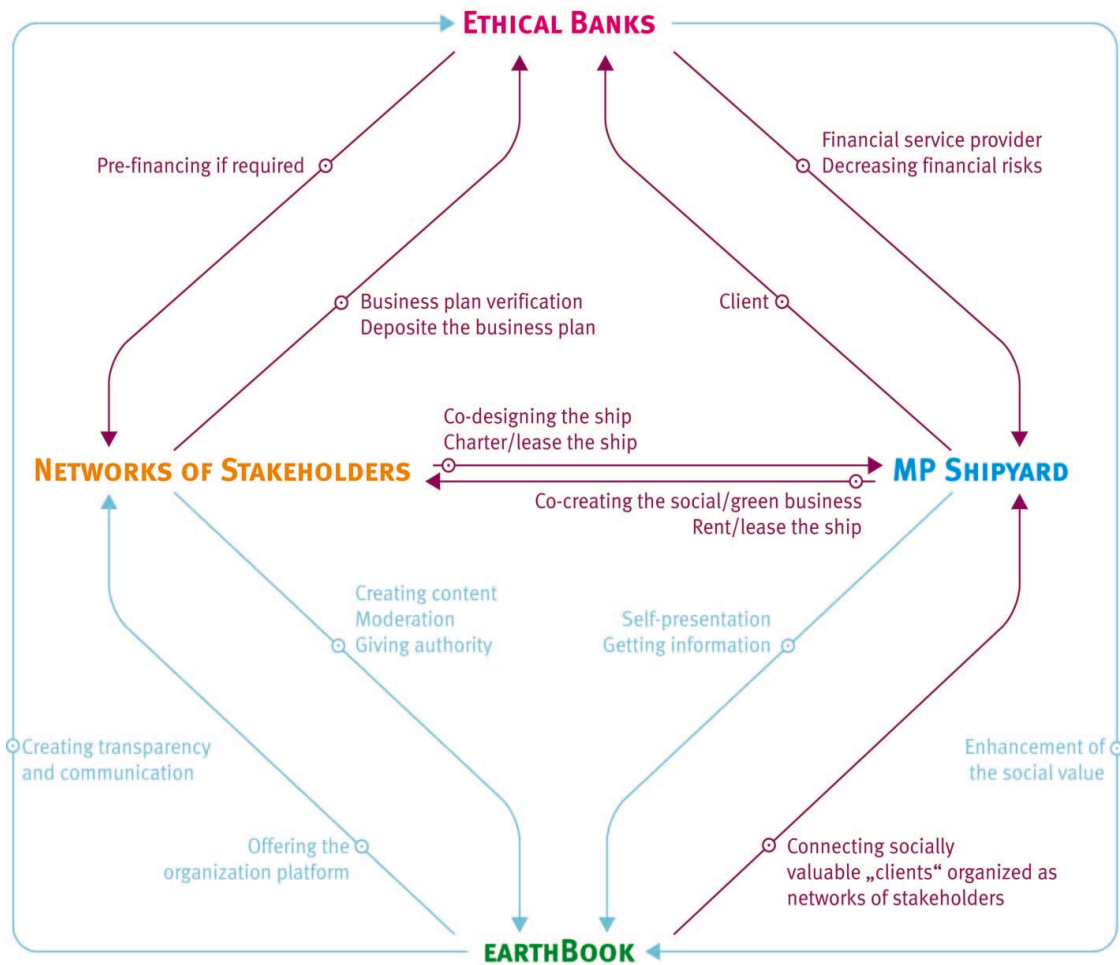
**Figure 4:** The scenario framework integrates the wider context, the design / inquiring system and the driving force and establishes eight possible future scenarios.



**Figure 5:** Buckminster-Fuller's "Dymaxion Map" (1943), an idealistic representation of the globe, a symbol of our narrative scenario 2051 - *Post-fossil Solidarity*.



**Figure 6:** The *Felicity Curve*, backbone of the „Great Transformation“ (WBGU 2011).



**Figure 7:** The new ideal business model, extended by *Ethical Banks* and *earthBook*. *Networks of Stakeholders* replace the former shipping companies.



**Figure 8:** Residential Islands and Floating Caravans.

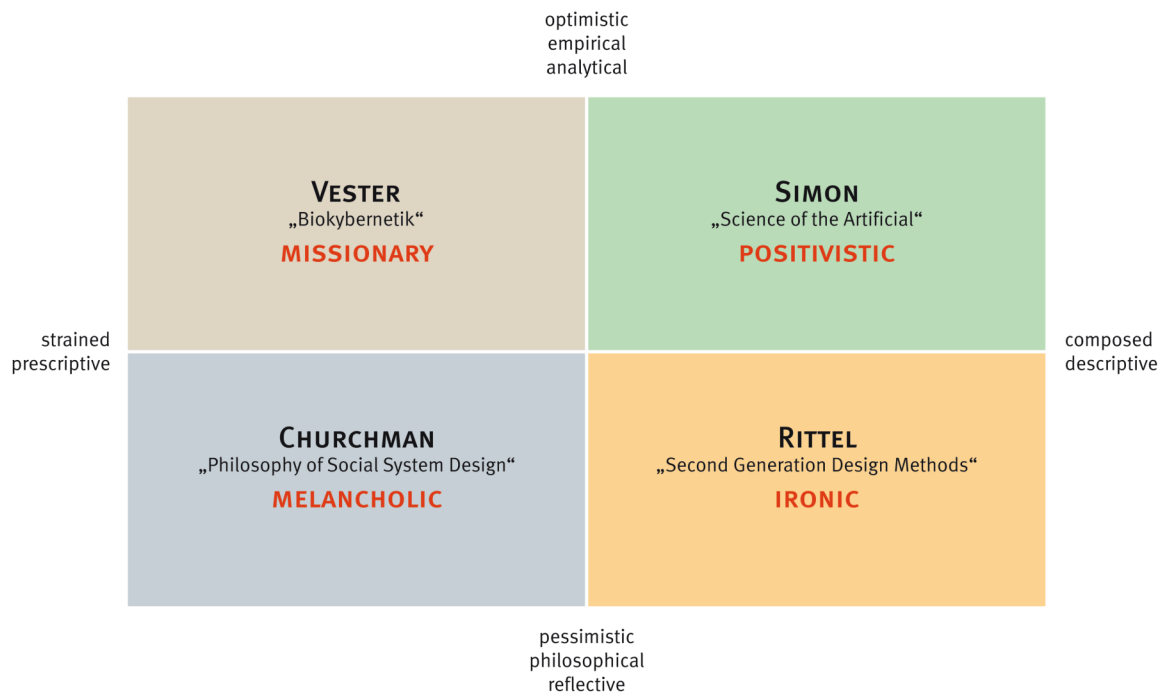




**Figure 9:** Market Ships of the Neo Hanseatic.



**Figure 10:** Culture Maintenance Ships and People Smuggler Boats.



**Figure 11:** Moods, attitudes and driving forces of approaching STD.