Futuring and trust; A prospective approach to designing trusted futures via a comparative study among design future models

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ABSTRACT

The design of the future is the design of trust in relation to uncertainty and risk. In this paper we introduce Prospective Design via a comparative study between existing design future approaches. In this study, we outlined their limitations and propose a mixed methodology aimed at combining and enhancing different approaches to present an integrative model that aims to reconcile different perspectives and improve the main task of design in our unpredictable and exponential technological age: designing trust in prospective futures.

Keywords: Trust, prospectivity, probabilism, engagement, uncertainty, risk.

1. FUTURING AND TRUST

The design of the future is the design of trust in relation to uncertainty and risk. Although you cannot eliminate uncertainty and risk completely, as they are intrinsic of futures, trust operates as a category to mitigate and reducing uncertainty and risk in the process by enabling methods to address them. In this paper we introduce Prospective Design via a comparative study between existing design future approaches. In this study, we outlined their limitations and propose a mixed methodology aimed at combining and enhancing different approaches to present an integrative model aiming to reconcile different perspectives and improve the main task of design in our unpredictable and exponential technological age: designing trust in prospective futures.

In the area of design futures, six main approaches have been identified as a representative sample of practice: Speculative Design (SD), Co-Speculation (CoS), Transition Design (TD), Foresight Panning (FP), ABCD Planning (ABCD), and Scenario Planning (SP). They represent a spectrum of models raging from conceptual to pragmatic and from emancipatory to profit driven approaches (Fig. 1). These models have been widely used and are acknowledged as preeminent tools in design practise.
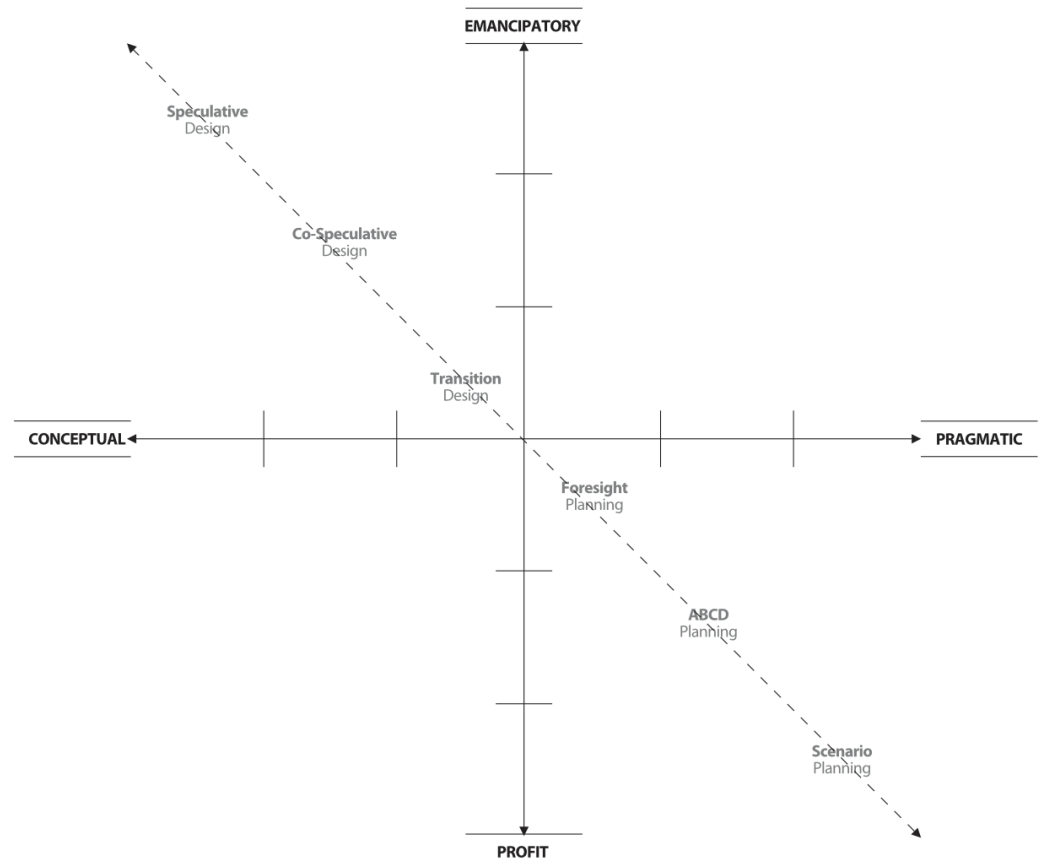
Figure 1. An orientative and representative sample of design future approaches raging from conceptual to pragmatic and from emancipatory to profit driven approaches. (Fernando Galdon, 2020)

Even though these practices are dealing with uncertainty and risk, none of them discusses designing **trust**, instead, they focus on designing **engagement**. As co-speculative designer Julia Lohmann acknowledges in her thesis *The Department of Seaweed: co-speculative design in a museum residency*, in these approaches "Designers […] create discourse, dialogue, activism and <u>engagement</u> with future scenarios" (Lohmann, 2017, p.21). Or Dunne & Raby themselves state that "This approach requires viewers to creatively <u>engage</u> with the props and make them their own" (Lohmann, 2017, p. 28).

Although trust and engagement belong to relational practices, trust is significantly different from engagement. According to the *Oxford English Dictionary*, **engagement** is defined as "being involved with somebody/something in an attempt to understand them/it". However, **trust** is defined as "the belief that somebody/something is good, sincere, honest, etc. and will not try to harm or trick you". Therefore, the <u>intentionality</u> of the other part and the <u>implications</u> of this relationship, which can be detrimental, are positioned as fundamental elements to design in this relational model.

In this context, the nature, intentionality and implications of the system of interaction demands a different kind of design and time intervention. Engagement presents a multiplicity of contingent, boundaried or conditional solutions based on open-ended systems, real-world constraints and contexts via idealised utopias, and relational connections to address "the end of discrete objects, hermetic meanings, and the beginning of connected ecologies" (Blauvelt, 2008, p.6). Trust, on the other hand, demands the designer to evolve towards the design of unsupervised systems, unintended consequences, prospectivity, probabilism (not-fully-knowing), reparation and accountability, and the ubiquity of fluid cyber-blended and hyper-connected exponential and unpredictable ecologies.

At this point, a preliminary investigative overview of twentieth-century approaches to future studies structures prospective design practices around two main paradigms: the scientific-positivistic model based on the method of extrapolation (1900-1950) and a sociological-pluralistic perspective based

on constructivism (1950-2015) (Galdon, 2019). Although these perspectives have been widely used, they present limitations. The scientific/positivistic approach is perceived as objective and value-neutral. However, it is also perceived as presenting a narrowness of focus (only one possible future), depending exclusively from the past and a lack of contextual awareness. From this perspective, Richard Buckminster Fuller called for an 'industrially realisable design science' "(Fuller, 1957) through his 'Eight strategies for a comprehensive anticipatory design science'. However, this failed to materialise as a new field. On the other hand, the pluralistic approach is perceived as inclusive and partial. However, it is also perceived as presenting a loose focus (too many possible futures) and is too dependent on contextual awareness (Gidley, 2017).

In this study, the authors consider both limitations to propose a mixed-methodology. The main intention in this process is to develop a reliable model to design trust in future design practices to reduce uncertainty and risk in the process. In this paper we will further critically analyse the sociological-pluralistic paradigm via a comparative study among the six aforementioned approaches, as this area is lacking further scrutiny. For instance, in terms of the broadest used methodology of speculative design, one of the fundamental advantages is that it removes a range of constraints typically used in product design, however, it creates a lateral problem; difficulties on controlling the speculation. As a result, many of the proposed outputs end in what future studies expert Jennifer Gidley names 'Pop futurism' (superficial and media-friendly outputs) (Gidley, 2017).

2. METHOD

According to Bukhari (2011) a Comparative Study analyses and compares two or more objects or ideas to examine, compare and contrast them to show how two or more subjects are similar or different (Bukhari, 2011). Building from this perspective, the authors built a comparative study between the six aforementioned approaches to design the future to underpin the differences and inform the main argument.

3. DESIGNING THE FUTURE

3.1. Sociological and pluralistic - methods based on sociology

This approach is based on the social and critical practice of constructing a wealth of possible futures. Its main methods are contextual data analysis, interpretative analytical methods and the systematic use of participatory methods. This approach uses cones and matrixes (Fig. 2).

In this area, a sample of six main approaches have been identified as a representative spectrum of practice: Speculative Design (SD), Co-Speculation (CoS), Transition Design (TD), Foresight Panning (FP), ABCD Planning (ABCD), and Scenario Planning (SP).
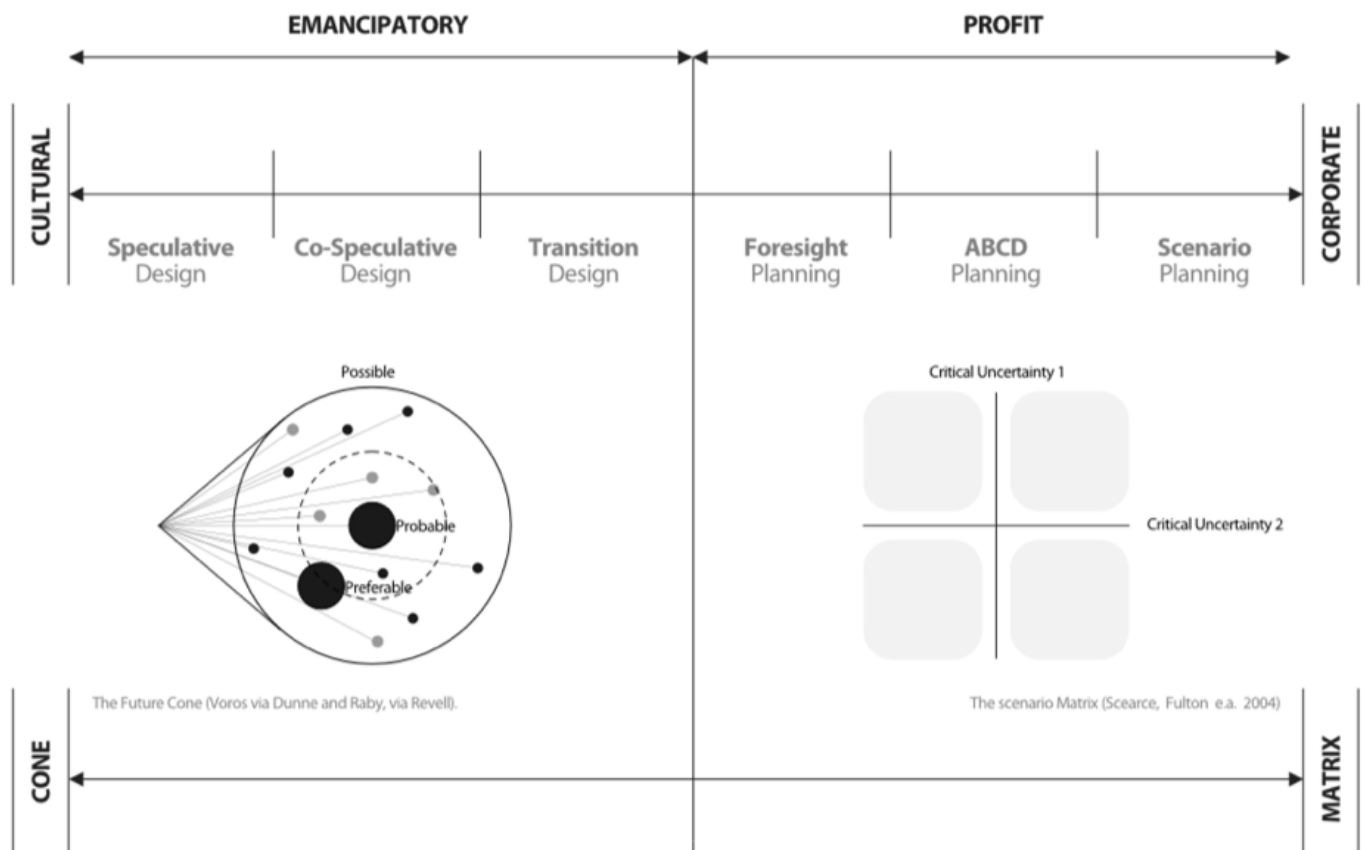
Figure 2. Prospecting the future; Sociological model based on constructivism. (Fernando Galdon, 2020)

We can categorise these as methods leading to either emancipatory or profit-led projects. In the emancipatory range these methods mainly use the cone, whereas methods in the profit-driven range use the matrix. Further, emancipatory methods tend be used mostly on sociologically led design practices that lead to cultural contributions, whereas profit-driven methods tend to be used mostly on technologically led design practices that lead to corporate contributions. Finally, in the emancipatory range, analytical practices revolve around critical perspectives and inductive reasoning, whereas in the profit-led range analytical practices revolve around rational and logical perspectives and deductive reasoning. However, both perspectives pursue the same objective: change.

3.2. Critical analysis

In this study, a comparative study has been conducted to underpin the key steps and strategies of the six methods outlined (Fig. 3). We have structured this analysis around five questions we consider critical to build trust in design futures; does this method integrate historical background research in the technology development as starting point in the process? How does this method generate the projection? How does this method critically analyse the projection? How does this method control the projection to avoid superficial and media-friendly outputs? How does this method transform the projection into a real-world executable action?

The first characteristic we can observe is that they start by generating a projection. This aspect may be due to the utilisation of design futures to generate potential applications for upcoming technology coming from the lab. How this projection is enabled varies between the methods. Some of them use visions, other values, signals, or drivers, and Speculative Design uses 'what if … ?' questions. In terms of analysing the projection, only Transition Design (TD) provides a method: Causal Layered Analysis (CLA). This method is structured in four levels: The Litany; Systemic Causes; Worldview/Discourses, and Myth/Metaphor. This method is interesting, but really difficult to implement. It is very broad, and some of the levels are too open to interpretation. In the Systemic

Causes level, for instance, "Interpretation and communication is often undertaken by policy institutes, editorial news articles and non-academic journals" (Irwing, 2015). And the Myth/Metaphor level assumes that people can explain their visceral emotions. In terms of methods used by these outlined approaches to control the projection, these range from plausibility to values, to real needs or priorities. In terms of the one of the most broadly used methodology of Speculative Design, this limits the validity of its outcome to plausibility (Auger, 2012). However, it creates a lateral problem: difficulties in controlling the speculation. As a result, many of the proposed outputs end in what Future Studies expert Jennifer Gidley names 'Pop futurism' (superficial and media-friendly outputs) (Gidley, 2017). This problematic is also translated to other practices. Finally, only two methods, TD and ABCD, propose a technique to ground the projection: back-casting.

In this study, we consider all the limitations outlined and propose a mixed methodology aimed at combining and enhancing the positive side of each approach addressed and present an integrative model that aims to reconcile different perspectives to improve the main task of design in our unpredictable and exponential technological age: prospecting the future.

3.3. Prospective design – mixed method

Building from these insights, the authors defined trajectories, probabilistic extrapolations, asymmetries, consequences, and counter-fictions (Fig. 3), as potential methods to address the issues outlined above.

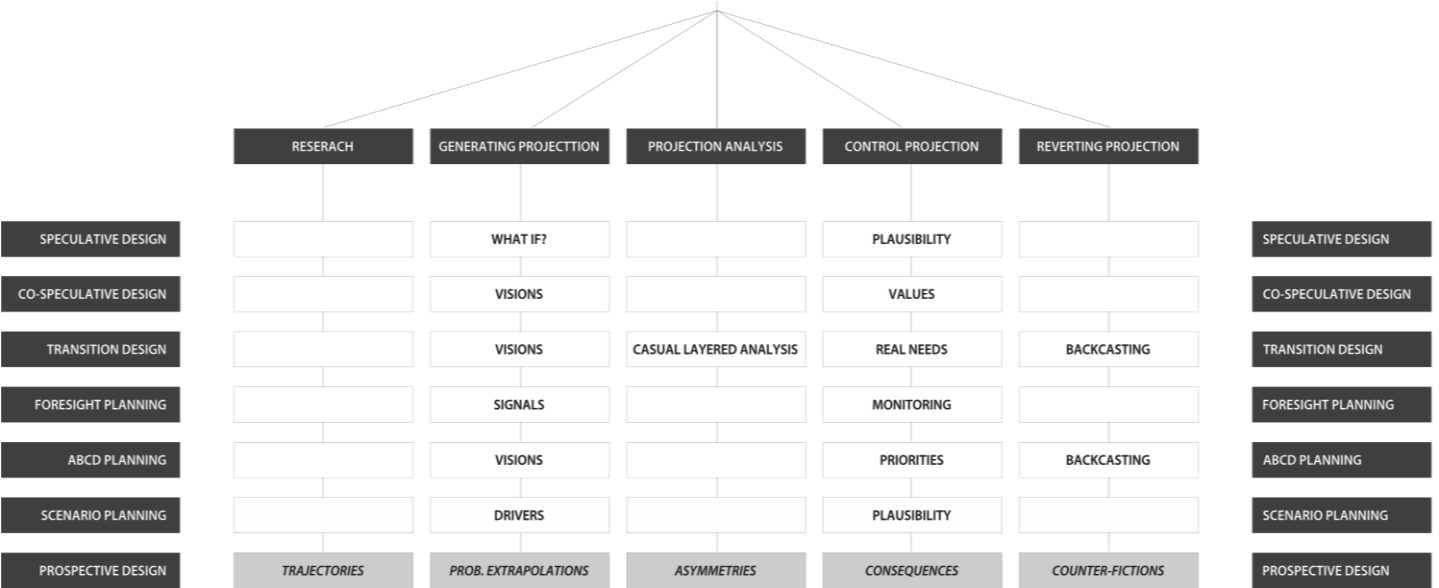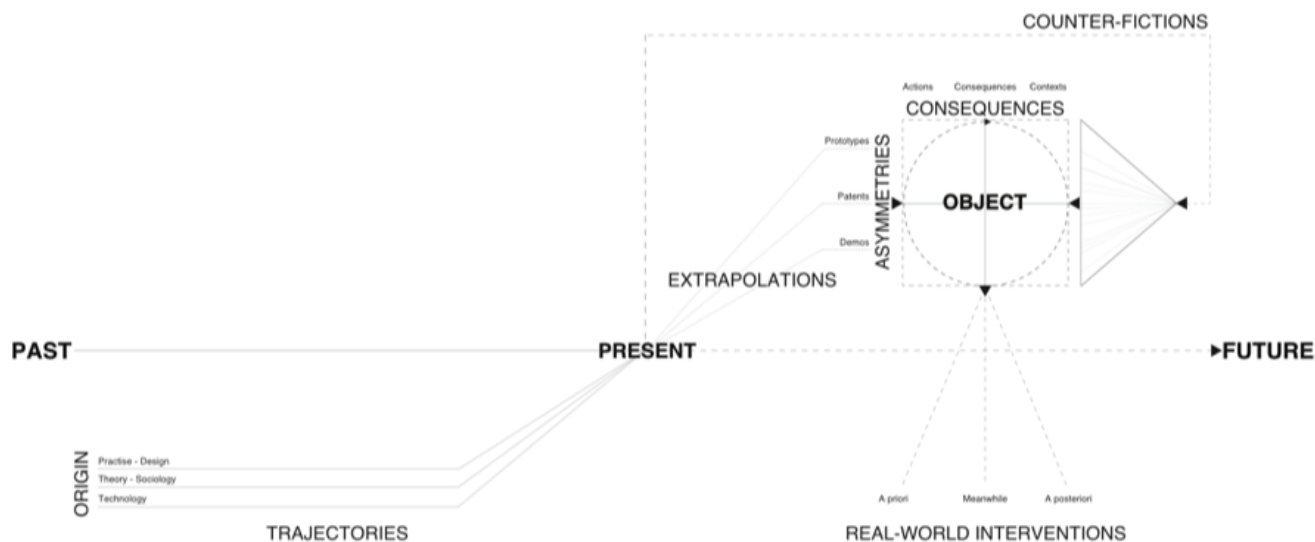|	RESERACH	GENERATING PROJECTTION	PROJECTION ANALYSIS	CONTROL PROJECTION	REVERTING PROJECTION	
SPECULATIVE DESIGN		WHAT IF?		PLAUSIBILITY		SPECULATIVE DESIGN
CO-SPECULATIVE DESIGN		VISIONS		VALUES		CO-SPECULATIVE DESIGN
TRANSITION DESIGN		VISIONS	CASUAL LAYERED ANALYSIS	REAL NEEDS	BACKCASTING	TRANSITION DESIGN
FORESIGHT PLANNING		SIGNALS		MONITORING		FORESIGHT PLANNING
ABCD PLANNING		VISIONS		PRIORITIES	BACKCASTING	ABCD PLANNING
SCENARIO PLANNING		DRIVERS		PLAUSIBILITY		SCENARIO PLANNING
PROSPECTIVE DESIGN	TRAJECTORIES	PROB. EXTRAPOLATIONS	ASYMMETRIES	CONSEQUENCES	COUNTER-FICTIONS	PROSPECTIVE DESIGN

Figure 3. Comparative study between the six models used in design to address the future. This process identified the limitation of historical background research in technological developments as starting point in the process, projection analysis and reversing the projection as areas to consider for further development. Building from this analysis, the bottom of this diagram presents a set of methods to build a more reliable and mixed-method model to address and mitigate uncertainty and risk in design futures. (Fernando Galdon, 2020)

From this point, we developed Prospective Design (PrD) (Fig. 4). This approach is based on the systematic practice of relational system analysis to prospect and model prospective futures. The main methods used are historical data analysis, relational frameworks and the systematic use of ethical methods.

COUNTER-FICTIONS

Actions   Consequences   Contexts

CONSEQUENCES

Prototypes

ASYMMETRIES

Patents

OBJECT

Demos

EXTRAPOLATIONS

PAST — PRESENT — ▶FUTURE

ORIGIN
Practise - Design
Theory - Sociology
Technology

TRAJECTORIES

A priori   Meanwhile   A posteriori

REAL-WORLD INTERVENTIONS

1 TRAJECTORIES — DEFINE TRAJECTORIES
Timelines - Designing Cross-Dimensional literature review + Comparative studies - From Origin to now
Archives

2 PROB. EXTRAPOLATIONS — ANALYSE PROSPECTIVE DEVELOPMENTS
Demos+Patent+Prototypes
Desk Research

3 ASYMMETRIES — DEFINE AND ASSESS ASYMMETRIES IN THE RELATIONSHIP SYSTEM/OBJECT AND USER
Data+Inferences+Dependencies
Surveys

4 CONSEQUENCES — SYSTEMATICALLY ANALYSE CONSEQUENCES AND IMPACT
Contexts > Unintended consequences = Unintended Actions
Workshops > Matrixes

5 COUNTER-FICTIONS — DESIGN POTENTIAL INTERVENTION TO REVERT ASYMMETRIES
Countering Control/Repression/Dependencies
Co-Design > Cones

6 REAL-WORLD INTERVENTIONS — DESIGN INTERVENTION, TEMPORAL POSITION AND TYPOLOGY
A priori/Meanwhile/A posteriori
Design embodiment

Figure 4. This diagram presents the final embodiment of the proposed methodology. It contains the methods, approach, variables to address, processes, and research techniques used. (Fernando Galdon, 2020)

In the model presented, we combined and developed existing models of designing (futures). This model presents some variations on established models such as Speculative Design, which revolves around reactive models based on "what if…?" questions. In the Prospective Design model, we integrated the strength of historical and contextual research to connect the past to the present to define technological trajectories. This process aims to overcome hyped reactivity by bringing historical and contextual evolutive traces in technological developments. Then, we introduce probabilistic extrapolations to triangulate the future by analysing existing patents, prototypes, and demos. This process enables us to operate this method as an analytical tool to identify asymmetric problems in the system. Once we identify asymmetries, we conduct a three-level consequential analysis in order to map the impact of the asymmetry in the user. This process provides more focus than long-term and broader perspectives, such as TD. Finally, it inverts the futures cone to reverse the asymmetry via counter-fictions into a transformational action to generate emancipatory projects. Instead of framing the dystopia or utopia to generate a debate, it provides a systematic model to reframe them and transform the projection into a real-world intervention that aims to effect change.

In the process, this approach also challenges the dominant idea of anticipation, which aims to foresee what may happen and then waits for it to happen. Prospective research is directional and transformational. Building on Glanville's work, its fundamental aim is to generate knowledge *for future actions* (Glanville, 2005) in the context of uncertainty and risk. It aims to generate preliminary insights to shape the future. The success of these interventions will be assessed by their potential impact and transferability to real-world interventions to effect real change. In this process, building from notions of economics, we proposed that the prospective element can shape the future through probabilistic knowledge (Galdon, 2019c). This knowledge would enable this practice to operate in the future systematically, as well as, be integrated into established models and structures of knowledge.

4. DISCUSSION

4.1. Evaluation and validation

The design of the future is the design of trust in relation to uncertainty and risk. In this context, we introduce a range of methods to construct Prospective Design (PrD) as a methodology to enhance trust in design futures practice. In terms of evaluation, this research identified conferences, practitioners and public bodies to implement a cross-disciplinary and progressive evaluation model to remove assumptions and consolidate knowledge from an external perspective. The research has been presented to a wide range of diverse audiences, including professional researchers, design consultancies, practitioners, NGOs, and government bodies. The main methodology of Prospective Design was presented and published for academic scrutiny in the proceedings of the International Association of Societies of Design Research Conference IASDR2019 (Galdon, 2019).

As part of implementing this methodology, we produced several papers via a case study on Virtual Assistants. We submitted four of those publications for validation to the National Data Strategy Board (NDSB) in the UK to affect the development of AI. All four submissions were accepted by the board (Galdon, 2021), (Galdon, 2020a), (Galdon, 2020b), (Galdon, 2019b). We have also published and proposed a new digital right (Galdon, 2020c), which has been submitted to the EU Commission for their consideration (Fig. 5). Whether the NDSB, or the EU Commission decides to implement these strategies is beyond our control. Our duty as a PrD researchers was to prospect the future to propose that things can be otherwise by providing guiding knowledge for transforming the future in an applied and ethical manner.
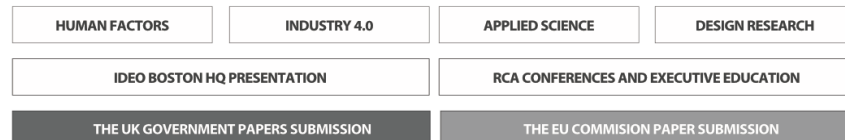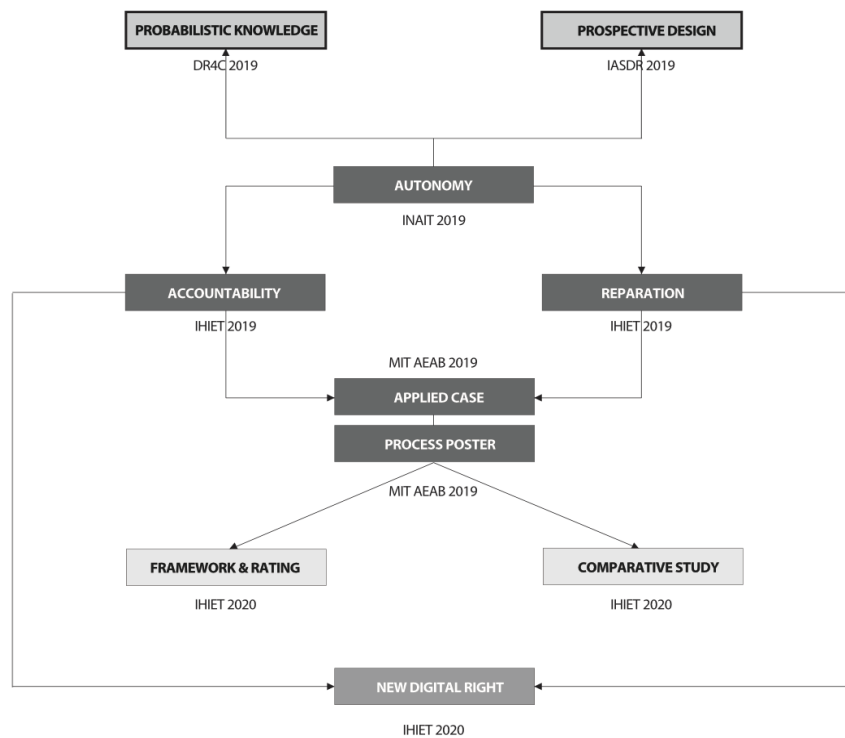
Figure 5. This diagram presents an overview of the manuscripts published as part of this research. The lower end presents the fields in which these papers were presented, the professional bodies and complementary interim conferences used to evaluate its outcome, and the government bodies they were sent for evaluation. This process aimed to enhance robustness in the outcome.

4.2. Futuring

Prospective Design aims to "**affect**" change, rather than "influencing" or "criticizing" it. Therefore, operating in the emancipatory spectrum. It differs from the other forms of future design studies operating this space. For instance, in *the department of seaweed* (2017) Julia Lohmann positions Co-Speculation (CoS) beyond Critical and Speculative Design (CSD). Building on John Wood's Meta-design, her process is based on generating grassroots local activism to *influence* policy. We find this notion of *influencing* interesting and evolutive in relation to CSD's provocations, but limited in scope. When you "affect" something, it means that you have made it change. Conversely, when you "influence" something, it means that you have altered its behaviour, but not necessarily changed it. Influence is personal and emotional, whereas affect is systematic and relational. This perspective implies moving the process towards a **systematic process of ideation,** rather than a conceptual (Dunne) or materialistic (Lohmann) process of ideation. It aligns more with Transition Design (Irwin). As we are placing the intervention in the context of potential (not-fully-materialised) interactions, the output cannot be fully observed or graspable, but can be **dissolved**. If CSD and CoS deal with materialism from a conceptual and experiential perspective, Prospective Design approaches the design process from a **consequential** perspective to insert ethical directionalities (Fig. 6).

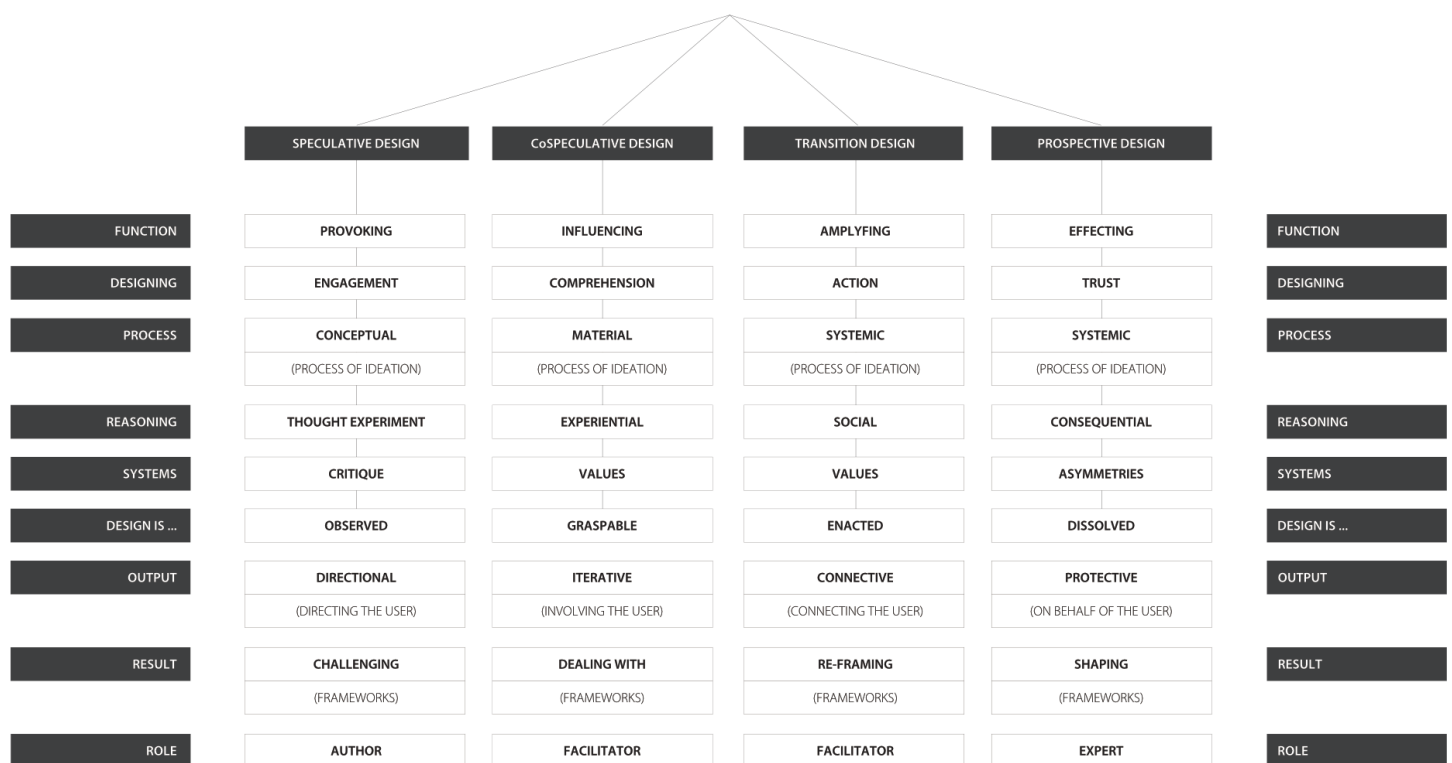|	SPECULATIVE DESIGN	CoSPECULATIVE DESIGN	TRANSITION DESIGN	PROSPECTIVE DESIGN	
FUNCTION	PROVOKING	INFLUENCING	AMPLYFING	EFFECTING	FUNCTION
DESIGNING	ENGAGEMENT	COMPREHENSION	ACTION	TRUST	DESIGNING
PROCESS	CONCEPTUAL (PROCESS OF IDEATION)	MATERIAL (PROCESS OF IDEATION)	SYSTEMIC (PROCESS OF IDEATION)	SYSTEMIC (PROCESS OF IDEATION)	PROCESS
REASONING	THOUGHT EXPERIMENT	EXPERIENTIAL	SOCIAL	CONSEQUENTIAL	REASONING
SYSTEMS	CRITIQUE	VALUES	VALUES	ASYMMETRIES	SYSTEMS
DESIGN IS ...	OBSERVED	GRASPABLE	ENACTED	DISSOLVED	DESIGN IS ...
OUTPUT	DIRECTIONAL (DIRECTING THE USER)	ITERATIVE (INVOLVING THE USER)	CONNECTIVE (CONNECTING THE USER)	PROTECTIVE (ON BEHALF OF THE USER)	OUTPUT
RESULT	CHALLENGING (FRAMEWORKS)	DEALING WITH (FRAMEWORKS)	RE-FRAMING (FRAMEWORKS)	SHAPING (FRAMEWORKS)	RESULT
ROLE	AUTHOR	FACILITATOR	FACILITATOR	EXPERT	ROLE

Figure 6. This table presents a comparative analysis between future design approaches in the emancipatory area. It contrasts PrD with CoS, TD and SD to illustrate the differences between them. (Fernando Galdon, 2020)

In terms of participation, Prospective Design (PrD) also repositions Lohmann's focus on 'involving the user', Dunne's focus on 'directing the user', and Irwin's focus on 'connecting the user', to outputs focused on designing **'on behalf of the user'**. In the process, PrD aims to design **trust**, rather than engagement or comprehension. In this process, PrD repositions the role of the designer from that of an author (Dunne), or facilitator (Lohmann; Irwin) to that of an **expert** in prospective future-led technological potentialities aimed at mitigating unintended consequences. The main intention of this approach is to protect users. It aims to **shape frameworks** rather than challenge them (Dunne), reframe them (Irwin), or provide a method to deal with them (Lohmann). The success of the output will be determined by the **potential** to **affect** change, as the decision to affect it does not rely on the designer but on somebody else. This position departs from grassroots activism (Irwin) that aims for a bottom-up process. Instead, PrD positions change in a relational context where this '*other*' becomes capital. This process demands the identification of the actors involved in the system, and the *weight* of those actors within the system, (because it is this aspect that determines who is capable of enabling change) rather than confronting them. Therefore, PrD is aiming for reform rather than confrontation. Finally, the output should be embodied in the appropriate typology. The agent/s of change need to be identified, and the output translated in a typology that they understand.

5. CONCLUSIONS

With PrD, we have probed ways of designing trust in the context of digital systems, black-box technologies, embodying uncertainty, unpredictability and autonomous behaviour, based on exponential and unpredictable technological developments. The framework we have presented in this study provides a focused and systematic approach to ways of addressing trust in the context of uncertainty and risk.

In the process, PrD evolves current models in design futures such as Speculative Design, Co-Speculative design, or Transition Design which rely on reactive practices around "what if …?" questions, visions, trends, signs or drivers, rather than grounded projections supported by historical background

research to justify, focus and guide the projection. PrD extends recent models such as Transitional Design or Co-speculation by identifying key attributes in systems dynamics such as probabilistic extrapolations elements (demos, prototypes and patents), asymmetric elements (data, inferences and dependencies), and consequential elements (contexts + unintended consequences = unintended actions), and focuses the intervention by countering control, repression, and/or dependencies. In the process it changes orthodoxies of participation and design operationality. Finally, PrD can access the future via probabilistic knowledge (Galdon, 2019g). This aspect allows this practice to operate in the future, unlike any of the practices above, which operate with the premise that design in the present can be informed by visions of the future.

Finally, PrD engages with design processes that might not result in immediate interventions, and with designers looking at these systems to build and implement ethical and emancipatory projects from the short to the long term. This approach moves design's temporal frame towards the future and shifts the sharing of knowledge from the "known"' to the "partially-know"', from the "factual" to the "potential", and from the "intended" to the "unintended"'. In this context, design research becomes an orthogonal node for grounded transformational directionality and emancipatory forming practices, leading to a space for effecting change.

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