### Designing the Exploration of Common Good within Digital Environments: A Deliberative Speculative Design Framework and the Analysis of Resulting Narratives

**Keywords:** Digital Public Environments, Speculative Design, Common Good, Deliberation, Narrative.

In the course of ongoing digitization of living environments, digital public environments like social media platforms have gained significant influence over societies and individuals. It is therefore decisive for future-viable societies to discuss and explore how these environments should be constituted in the future. This research introduces a framework embedded into a digital workshop format for collaborative speculative design, that enables this exploration in the sense of common good. It was validated in three online workshops and is accessible under the CC-License at www.perfectfuturedesign.com. This work classifies the framework, workshop processes and results according to notions of common good exemplifying how design can contribute to and be or become common good. Empirical studies show, first, the framework supports participants to speculate about the future of digitized environments. Second, a narrative analysis on workshop results reveals that omnipotent actors predominate future scenarios and threaten or impede self-regulation and common good.

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Striving Towards a Common Good Reflections on Designing Agency under Socio-Technical Conditions

#### 1 Introduction

"Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. [...] We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth. We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity. Your legal concepts of property, expression, identity, movement, and context do not apply to us." (Barlow, 1996).

This excerpt from the Declaration of the Independence of Cyberspace illustrates the high hopes and aims the first generation of internet pioneers had in mind regarding the decentralized digital realm that had just been created through collaborative efforts (Münker, 2009). The conception of the internet, including the web, as a common good in the sense of common resources open to everyone's creativity and contribution to innovation (Peugeot, 2018), which others perceive as the true common good emerging from the communal force (Etzioni, 2009), has fueled the emergence of web-based services since the mid-1990s (Peugeot, 2018). As Peugeot (2018) points out, in contrast to the initial intent to provide an alternative to proprietary monopolies, today power is concentrated in the hands of a few international companies structuring the digital realm. This constellation evokes debates of whether the digital realm can still be perceived as a common good or whether it contributes to the common good (Peugeot, 2018).

A major change compared to the mass-media age was the internet's technical potential for participatory and democratic media usage (Münker, 2009). The internet allows everyone to publish individual content and gives every user access to public communication processes (Neuberger, 2009). The resulting innumerable daily publications require structuring to assign the respective content to the appropriate audience (Lischka & Stöcker, 2017). Today, this task is performed by algorithmic decision-making systems, creating the algorithmically structured public (Lischka & Stöcker, 2017; Boehme-Neßler, 2018). The dominant structure of digital environments that allows algorithmically structured processes of publication, interaction, and communication is constituted by intermediaries currently mainly provided by private companies like Google, Facebook, YouTube, or Twitter (Lischka & Stöcker, 2017). These digital spaces are in the following referred to as digital public environments. The selection criteria of the respective algorithms determine the reach of content and consequently which information is accessible to a public audience (Lischka & Stöcker, 2017; Hillje, 2019).

Thereby, intermediary-providers have gained substantial influence on how people inform themselves and communicate using digital environments. This has led to contrasting consequences. Demonstrations against Covid-19 related hygiene measures in Germany influenced by mis- and disinformation through social media channels (Hurtz, 2020) or the ongoing debates about the role of intermediaries during elections, such as the presidential elections in Brazil in 2018 (Evangelista & Bruno, 2019), which illustrate their manipulative potential. On the other hand, this technology can be of societal benefit. This became visible when social media helped to shape political debates, to connect activists, and to spread democratic ideas across international borders during the Arab Spring in 2010 and 2011 (Howard et al, 2011). Another example was the role of social media in the aftermaths of the Great East Japan Earthquake in 2011, where people were able to inform themselves and connect with each other after the information and communication infrastructure broke down (Peary, Shaw & Takeuchi, 2012). With the growing impact of interactions within digital spaces and corresponding global negative impacts, some companies have begun addressing their social responsibility through changes in their corporate policies (Hao & Basu, 2020). Similarly, governments are reacting with laws and enforcements, like the Digital Services Act (Rudl & Fanta, 2020).

As this exemplifies, the effects and functions of digital public environments, which are subject to structural design decisions, still need to be improved. As Buether (2018) points out the technologies that enable these processes are, in principle, neither good nor bad; whether they are of societal benefit or not depends on their purpose and application. Crucial questions in this context are: who has the sovereignty over their usage, what motivates this actor, and how are these factors related to societal benefit (Buether, 2018). The ongoing challenge for future-viable societies is to assess how digitization and the design of digitized environments can be constituted for societal benefit in the sense of common good. To explore notions of common good in the context of digital public environments, they must first be perceived as designable instead of as given spaces. Then, their implications on societies and potential alternatives must be discussed by a broad and diverse audience.

This research contributes to the design as common good discussion by introducing a design framework provided under the Creative Commons License using research through design to collectively explore futures of digitized environments in the sense of common good. By using speculative design to collectively think about and discuss future developments and corresponding issues, like individual privacy, disinformation, and digital participation, diverse discussion contributions can be created to enhance a pluralistic discourse. Furthermore, it is demonstrated how crucial societal values and relevant ethical questions that both should be included in the discourse can be derived from the results. In the following relevant interpretations of common good are reviewed, and the framework and underlying principles are introduced and

Striving Towards a Common Good Reflections on Designing Agency under Socio-Technical Conditions classified under common good terminology. Following, the results of an empirical study with data-gathering phases in April, June, and October/November 2020 are presented, analyzed, and corresponding values derived. A discussion of the results concludes this paper.

#### 2 Notions of Common Good in Internet and Design Discourses

Interpretations of common good include the well-being or common interest of a society, and material or immaterial common resources (e.g. Gutmann & Thompson, 2013; Hussain, 2018). Examples range from civil liberties including freedom of speech, to public safety, clean water or air, public parks or public transportation, and national defense (Hussain 2018).

With reference to digital spaces, some scholars define the internet as a common good in the sense of resources available to everyone (e.g. Peugeot, 2018). Others perceive the creativity and innovation enabled by and emerging from the internet as a common good (Etzioni, 2009). Both the internet and the web were designed as nonproprietary systems open for everyone to use (Peugeot, 2018). With the invention of cyberspace, an extraterritorial space that eludes state law (Barlow, 1996), companies have discovered new web-based business opportunities. These have profited from freeware and would have been previously unimaginable because of geographical limits or legal restrictions in specific countries (Etzioni, 2009; Peugeot, 2018). Thereby, companies also neglected and still neglect value judgements collectively agreed upon by societies (Etzioni, 2009; Peugeot, 2018). Today, the web has become a place where control over personal data is not guaranteed, manipulation of people on a large scale is facilitated, and surveillance of citizens is enabled through new methods of data collection (Berners-Lee, 2017; Peugeot, 2018). Therefore, regulations must be collectively reconsidered to find proper ways to govern the common good as common resources (Peugeot, 2018) and contribute to the well-being of global societies. Tim Berners-Lee, inventor of the web, points out that it "has taken all of us to build the web we have, and now it is up to all of us to build the web we want - for everyone" (Berners-Lee, 2017).

There are various design approaches that are increasingly oriented towards achieving common good. For example, public interest design concerns social coexistence, citizens involvement and active participation in political affairs, and each individual's responsibility to create and sustain common good (Aulich & Blankenheim, 2018). Regarding the production and application of digital technologies in accordance with the common good, the ethical positioning of designers is crucial (Buether, 2018). Additionally, design methods and approaches can represent common good itself with reference to generated outcomes or processes evoked. Regarding the concept of common good as resource, Deneulin & Townsend (2007) differentiate between collective goods "that are produced through collective action" (p.25), and common goods whose production equals the good itself, such as a musical performance. Only when participating either as an actor or audience can one benefit from these goods. Both categories of goods necessitate shared action (Deneulin & Townsend, 2007).

In the digital realm, it can be further distinguished between the production and the usage of goods (Vaccaro & Beltran, 2019). For digital products such as open-source software or wikis like Wikipedia, the production takes place in regulated communities, and the use and consumption are usually open access (Vaccaro & Beltran, 2019). This is enabled through licensing frameworks such as the Creative Commons License (De Filippi & Tréguer, 2015). De Filippi and Tréguer (2015) point out that key features of governing Creative Commons and Free Software projects are transparency and inclusiveness, including decision-making procedures based on deliberation. Finally, for deliberation a common good orientation has among other ideals been a standard for early and also recent deliberative theorists (Bächtiger, Dryzek, Mansbridge, & Warren, 2018).

In both internet and design discourses regarding notions of common good, deliberation and participation play a crucial role. These key factors must be perceived as important aims when conceiving design methods in context of common good. Considering the future as a project of collective deliberation on prospective rules of action to achieve the common good, this research proposes the inclusion of all voices willing to participate. The following section presents a speculation design framework for this collaborative process.

#### 3 The Collaborative Speculative Design Framework

3.1 Description of the Framework and Classification in Common Good Terminology The presented design approach takes the form of a framework embedded in a digital workshop format enabling people with different backgrounds to discuss topics related to digital public environments and digitized living environments in general. The framework and its application within a workshop format were validated in the course of three different workshops in 2020 in Japan and Germany. To enable digital workshop sessions, including live deliberation and simultaneous co-creation processes, the collaborative interface design tool figma and a video call application were utilized. The framework (Figure 1) was provided as a predefined layout structure with several workshop phases and templates embedded into the shared document. This allowed for collaborative speculation and prototyping.

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Fig. 1: Framework Structure in Figma.

The integrated approach of speculative design proposes the use of future scenarios as "a medium to aid imaginative thought — to speculate with." (Dunne & Raby, 2013, p.3). Speculative design processes result in the creation of proposals about future realities in the form of design artifacts, which serve again as discussion contributions (Dunne & Raby, 2013; Malpass, 2017), and allow a broader audience to take part in discourses (Auger, 2013).

Taking legitimate criticism of speculative design into account, the framework contains recurring elements of deliberation in groups of different sizes. Through informative components, it enables all participants to get involved and engage in discourses without requiring prior knowledge. After learning about the topic at hand and engaging in a joint brainstorming session, working groups discuss issues related to digital public environments, and conceive narratives in the form of future scenarios. These are in the following visualized as design artifacts. Design choices regarding the narrative are based on deliberation. Each working group includes at least one designer contributing to the formation of the narrative and transforming the ideas to a visual format. An optional editable template for the design of a webpage as a transportation and visualizing tool for scenario and design artefact is provided. The template serves the purpose of highlighting important facets of scenario storytelling for the communication of a holistic vision and also helps non-designers to engage in the creation process.

The framework can be associated with common good at several levels (Figure 2). First, it enables common good to emerge from the interaction of the intrinsically motivated citizens during the deliberation phases. Second, through the collaborative efforts the designed web pages can be perceived as collective goods. The web pages are published online encouraging further deliberation. Third, the framework itself is licensed under the Creative Commons License. Fourth, the framework enables the generation of data that can be analyzed with respect to the values contributing to or hindering the achievement of common good within digitized living environments.



Fig. 2: Processes and Results of the Collaborative Speculative Design Framework.

## 3.2 Narrative Framework Results

While the workshop process contributes to common good by educating participating citizens and allowing them to take part in discourses, the workshop results have to be considered separately. They are websites transporting narrative scenarios by introducing fictional futuristic products or services and constitute discussion contributions, rather than proposals for solutions. The webpages intend to irritate and provoke questions that make observers think about the depicted future scenario and reflect the status quo. An analysis of the created websites reveals the values and value systems that are consciously and unconsciously included into the communicated narratives.

The term narrative presupposes a narrative structure with a starting point, a transformation, and an ending (Grimm & Kuhnert, 2018). Because this structure can be found in all workshop results, they can be considered to contain narratives. They exhibit a transformation, often triggered by the futuristic product itself, from our current status quo to a future scenario.

Narratives are central transmitters of meaning, that can illustrate values and norms, abstract facts, and processes by adding context (Grimm, Keber & Zöllner, 2017; Grimm & Kuhnert, 2018). They can influence society and individuals through news coverage and reports by and through media channels, but also through cultural outlets, like science-fiction literature, movies, or video games (Grimm, Keber & Zöllner, 2017; Grimm & Kuhnert, 2018), and can therefore be definitive for societies (Reichardt, 1979). Hence, they also play an important role in the design and utilization of digital spaces. In the context of internet ethics, for example, values can take the form of certain attitudes and virtues, like cautiousness and honesty when it comes to sharing personal data or respecting the copyrights of others (Funiok, 2012).

Conversely, by analyzing narratives, key values can be derived and used to assess desirable and undesirable developments and tendencies. Additionally, by giving individuals the opportunity to create and tell their own narratives, they are enabled to express their perspective on a specific topic and thereby to communicate crucial context-specific values.

The following describes a selection of workshop outputs (all results are accessible at www.perfectfuturedesign.com/results) analyzed using Greimas' actantical model (Greimas, 1971) to extrapolate key values and to relate them to common good. The actantical model is an analytical tool to differentiate between different narrative positions (actants) and to understand the nature of their relations, including their function within the plot (Müller & Grimm, 2016). As Greimas (1971) describes, the different actants are: the hero (sometimes called subject), the object of desire (object), the helper, the opponent, the sender, and the receiver. Each actant can be represented by one or multiple persons, but also animals or things (Müller & Grimm, 2016). Not every actant has to be present in every narrative and some actants can represent several positions within the constellation (Greimas, 1971; Müller & Grimm, 2016).

The first selected result from a workshop held in Kyoto in June 2020 presents the product *Internet Jam* (Figure 3), a tool that was conceived to enable its users to protest against the control and surveillance of digital environments by governmental forces in the year 2030. Following debates about cyberbullying, the Japanese government passed a law allowing governmental forces to monitor all actions on digital public environments, like social media platforms, and assess whether a user's statement may be published or not. To protest against the status quo, a citizen's movement releases *Internet Jam*, a tomato sauce that has to be heated in the microwave. By following instructions on time, duration, and settings depicted on the product packaging, the user's microwave interferes

#### 4 Presentation and Interpretation of the Results

# 4.1 Description and Analysis of Internet Jam

with Wi-Fi connections nearby. When multiple users perform this action simultaneously the combined interferences are meant to jam internet connections nationwide, making digital environments unusable and protesters untraceable. Workshop members indicated main inspirations for the conception were the protest movement in Hongkong, which also used the videogame Animal Crossing as a resource for protesting (Bernhard, 2020), as well as the Black Lives Matter protests preceding June 2020.



Fig. 3: Product Website Internet Jam.

The analysis of the different actants shows the following constellation. The hero-actant is constituted by the producer of the tomato sauce and the movement that emerges out of its usage. The object of desire is represented by a digital sphere free from governmental control and observation, corresponding with the values of participation and privacy. Being motivated by this prospective uncontrolled online environment and driven by the societal need for free (public) exchange, the hero in this case is also the sender. The helper is the tomato sauce, that, in combination with the microwave and its user, enables protest and further organization of the movement. This movement, respective all individuals who want to protest against the status quo of the digital sphere, represents the receiver. In the long run, society as a whole can also be perceived as a receiver. Lastly, the opponent is embodied by the government.

This constellation implies the question which values to apply in the transformation of digital spaces intended to liberate the digital realm from harmful actors and behavior, like cyberbullying or the spread of misinformation. The government has created a digital sphere dominated by content filtering and digital surveillance. In this scenario, the aim of establishing common good within digital spaces has in the long run an opposing effect. The omnipotent position of the government weakens values like privacy, autonomy, freedom of speech, and (digital) participation. Technology becomes

Striving Towards a Common Good Reflections on Designing Agency under Socio-Technical Conditions a tool for establishing an imbalance of power within societal structures, which the hero and the helper oppose and demand that the values important to them be restored.

4.2 Description and Analysis of Gatekeeper

Another result from a workshop held in Kyoto in April 2020 describes a situation, in which harmful behavior, primarily the spread of disinformation, has essentially made digital public environments unusable due to the impossibility to verify information. To solve this problem, the company HoaxHunters releases the software Gatekeeper (Figure 4), which is preinstalled on all new technical devices and freely available for devices already in use. Gatekeeper automatically pre-checks all information within digital public and communication environments and only displays validated information. It also employs the user's connected smart devices to monitor vital signs like the heart rate to assess whether the user is telling the truth when intending to publish information. When a high stress level is detected, the user's publication attempt is denied, preventing false information from spreading. Publications from devices on which Gatekeeper is not installed are also excluded.



Fig. 4: Product Website Gatekeeper.

Within this scenario, the hero actant is the company HoaxHunters that develops and releases Gatekeeper. The object of desire is represented by digital spaces which are free of misinformation and untrustworthy content. The sender is the need for reliable information within digital public spaces, especially in the light of their influence on society. The product Gatekeeper itself, its users, and the providers of smart devices represent the helper. The receiver equals the users. The opponent is represented by misinformation and harmful behavior, but also digital autonomy and privacy. It is noticeable that integrating Gatekeeper into the communication processes of digital environments is analogous to the circumstances that Internet Jam opposes. Establishing Gatekeeper creates an omnipotent actor that decides, putative in the sense of common good, who and what is published online, thereby excluding everyone who does not use the service.

This narrative constellation prevails in different workshop results, creating a meta-narrative, which are recurring narrative structures of differing narratives that share mutual propositions (Müller & Grimm, 2016). Comparing the narratives of Gatekeeper, MacroChip and all inclusive (workshop in Munich in October/November 2020), the following propositions of a mutual meta-narrative can be identified:

- P1: Negative influences of digital public environments are a threat to societies and individuals.
- P2: One actor is granted omnipotent power and information within digitized living environments.
- P3: All negative aspects of digitized living environments are solved.

The following list illustrates the meta-narrative using the example Gatekeeper:

- P1: It has become impossible to use digital public environments because of the prevalence of disinformation.
- P2: The software Gatekeeper becomes a standard for digital devices. It displays only information validated by the software itself and thereby has decisive power over digital publication and communication.
- P3: Obeying the rules of Gatekeeper, digital public environments are made usable again.

MacroChip (Figure 5) takes this constellation to an extreme. The product itself is an implantable microchip that allows every individual to gain cognitive power, but also connects digital public environments with the human brain. The chip acts as a synchronizer, making the emotions and thoughts of others accessible and, in the long run, creating a hive mind with the goal of establishing global harmony.

The product all inclusive (Figure 5), a powerful AI system, transports a resembling but less severe development. The system is integrated into all eligible devices as a personal AI companion that analyses the user and makes independent decisions for the user. Even very decisive questions like early education, choice of career, social contacts, or choice of a partner are included, practically preventing disharmonious encounters on all levels.

### 4.3 Derivation of a Meta-Narrative



Fig. 5: Product Website MarcoChip and Product Website all inclusive.

All results, which share the aforementioned meta-narrative, deal with the conflict between the assumed need for a strong regulative actant that prevents harmful behavior within digitized environments and the maintenance of values like digital autonomy, participation, privacy and transparency.

#### 5 Conclusion

This work offers, first, a framework for collaborative speculative design to collectively deliberate on futures within digitized environments. The framework and corresponding workshop processes were classified according to notions of common good to show how design can be utilized to aim for common good as well as become or be a common good itself. Second, an analysis approach to deriving critical value judgements contained in the created results was demonstrated. The workshop sessions as empirical studies show that the framework had a positive impact in supporting participants to speculate about the future of digitized environments and enabled them to deepen their discussions.

The selected results illustrate different aspects of digital public environments and digitized living environments in general. By focusing on issues of harmful human behavior and centralized structures of power within mentioned environments, the results debate associated crucial values, like (digital) autonomy, participation, accessibility, freedom of speech, transparency and privacy. Because all selected scenarios depict a dystopian vision, it is noticeable that the threat of losing autonomy and individual rights in connection to enforced (artificial), sometimes totalitarian, control in offline and digital spaces, represents a crucial topic for the majority of participants. Additionally, participants tend not to perceive self-regulated community approaches as a solution. This perception could be based on the ongoing centralization and powershift to few central service providers jeopardizing one of the Internet's founding principles of an end-to-end network (De Filippi & Tréguer, 2015). More group results including participants from countries worldwide would be needed to derive conclusions representing diverse perspectives. A wider scope would allow to derive more meta-narratives and to analyze how the main themes are influenced by national contexts. The framework can also be applied to different thematic contexts by choosing topic-specific introductory brainstorming questions and providing adequate information material.

Finally, utilizing the findings of this research, it is emphasized that trust in the possibility and power of self-regulation of communities in digitized environments should be promoted and added to the societal discourse about future developments. To illustrate this potential and to conceive innovative ways of application, specific counter-narratives could be created in the course of further research using the described framework. The concept of common good in all its facets should serve as a guiding principle and play a crucial role in the generation of new approaches on digital public environments and digitized living environments. This process could be enhanced through design methods as presented in this paper. Ultimately, the integration of new perspectives, such as the derived value judgments, can inform the discourse and contribute to an adjustment of existing systems, thereby promoting individual responsibility, self-regulation approaches and new forms of social behavior within digital environments.

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