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Stage performances as means for linking sociotechnical imaginaries and projective genres in the discourse around urban air mobility

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Abstract

Sociotechnical imaginaries play a crucial role in the context of urban air mobility. At the beginning of this article, I present the Pop.Up, commonly described as 'air taxi', as one such vision. Taking the analysis of multiple visions as an orientation, I show secondly, how other temporal figures such as projective genres fulfil different functions to establish specific visions as dominant ones. By examining a press release about the Pop.Up, I show how distant futures are constructed trough explicating the problem of congestion in metropolitan cities. With the analysis of the stage performance by stakeholders from Airbus and Italdesign during the Geneva Motor Show 2017, where the Pop.Up was unveiled for the first time, I thirdly show that different futures fulfill different functions. Sociotechnical imaginaries visualized by concept videos demonstrate necessity, whereas projective genres communicated on a stage as collaborative action plans demonstrate feasibility. Stage performances, such as the one at the motor show, where the concept video was shown, offer a framework to establish specific sociotechnical visions. This linking between different future dimensions can be described as performative discourse strategy to make an artifact, in this case the Pop.Up, communicatively connectable to political discourses. The analysis of futures such as sociotechnical imaginaries regarding the question of politicization processes is thus supplemented by a perspective that examines projective genres such as collaborative action plans.

Keywords: Sociology of the future, Future studies, Science and technology, Studies, Sociotechnical futures, Projective genres

Introduction

Sociotechnical futures play a crucial role in the discourse around UAM. As imaginations of a future society, 'air taxis' shape the development and discursive negotiation of urban flight technologies. Whether in reports, demonstrations, or at exhibitions, air taxis are no longer a fantasy. Their development is being pushed further and further, and more and more air taxis are presented to different publics. Yet, the development of such urban flight technologies goes back to the early 2010s. Whether the Volocopter, the Pop.Up Next, the City Airbus, the Lilium Jet, or the Ehang 216, air taxis have been designed, developed, and tested over the last few years. Quite a few have already made their first unmanned maiden flights. Different development paths already have been established and dominate the discourse on what an air taxi could do or how it could function, from the take-off and landing technologies vtol (vertical-take-off-and-landing) and stol (short-take-off-and-landing), to the question of the right propulsion system (hydrogen or electric battery), to the idea of being able to simply order an air taxi

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as a service via app. To put it in the words of Jasanoff and Kim, "collectively held, institutionally stabilized, and publicly performed visions of desirable futures" [1], i.e., sociotechnical imaginaries, have long been established in the discourse around UAM. The question of "publicly performed" imaginaries in the discourse around UAM is of particular interest, as the central research object for this article, the Pop.Up was publicly presented by stakeholders from Airbus and Italdesign during a stage performance at the Geneva Motorshow 2017. This air taxi exemplifies several competing air taxi developments. The concept of UAM in general, and air taxis in particular, is repeatedly presented as solution approaches for grand challenges. Be it traffic congestion in inner cities, sustainable and quiet operation, accessibility for everyone, or the seemingly new mobility possibilities, grand challenges are the central reference problems that the concept UAM and the different air taxis try to solve. Visions of urban air mobility who address these grand challenges are discussed and debated in different social fields, e.g., science, technology development, politics, the civil public and the mass media, and can consequently be seen as "responses to transformational imperatives" [2], since they promise to solve societal problems. Here, sociotechnical imaginaries are "politically explicit [trough] the popular reference to grand challenges" [3].

The work of Hausstein and Lösch is of particular interest and serves as an orientation for this work as both authors emphasize the analysis of multiple and competing visions in such "clashes of visions" [2]. The focus is therefore not only on the analysis of dominant sociotechnical imaginaries but on taking a closer look at the entanglement between different visions. It is in this regard that this article will not only deal with sociotechnical futures, but also with other communicated futures in the context of UAM. Using the case of the Pop.Up, another temporal figure is relevant in addition to sociotechnical imaginaries, that of the projective genre [4]. Ayaß devotes herself to the various communicative forms of "overcoming the now" from a phenomenological perspective and notes a basic difference between projective genres, i.e., between future constructions in everyday life and imaginary conceptions of society in science fiction and utopias or dystopias [4]. This guiding distinction between projective genres and (sociotechnical) imaginaries is of central importance for this article, as projective genres deal neither with alternative designs of society (utopia/dystopia) nor necessarily as responses to transformational imperatives (visions). The focus is on future constructions that cannot be described as visions or imaginaries but, e.g., as common action plans. The analysis of sociotechnical visions, especially in the discourse around UAM, is thus complemented by the analysis of projective genres, i.e., a phenomenological perspective on action plans, their realization, communication, and intersubjective negotiation [4].

One case that can be used as an example to show the relationship between sociotechnical imaginaries and projective genres is the stage performance of the representatives of Airbus and Italdesign at the Geneva Motor Show 2017. During this performance, a car called Zerouno and the air taxi called Pop.Up were presented. Various stakeholders came on stage and the prototypes of both projects were unveiled, with the unveiling of the Pop.Up being the highlight. A concept video of the Pop.Up was also shown shortly after its unveiling. All of this took place in front of members of the press. The unveiling of the Pop.Up was communicated as a "world premiere", and a video of the presentation was uploaded on YouTube. In addition, an "announcement" was published, providing further information about the Pop.Up project. The presentation of the Pop.Up follows a series of air taxi projects released since 2010. Airbus and Italdesign join other big companies such as Volocopter, Lilium, and Ehang in a competition to establish a vision regarding a technology that is not yet part of everyday life. The stage performance is therefore designed "to introduce and enforce their imaginaries by means of normative visions on what the future should look like" [2]. The Pop.Up was not only chosen as an example of how such a vision of the "mobility transition [might look like], ranging from visions of autonomous driving, electromobility, multimodal transport concepts in combination with sharing concepts to the car-free city" [2]. It was also chosen as an example of a highly discussed and contested technology that is ideal for investigating the entanglement of different futures, especially since different visions and technologies circulate around the discourse of UAM. It is during the stage performance that not only sociotechnical imaginaries are communicated or multiple visions are being negotiated. More than that, different futures such as projective genres also constitute an improvement and a stabilization of positions and specific power constellations.

The central thesis of this paper is that the entanglement of multiple visions and projective genres unfold a political potential that constitutes the Pop.Up as communicatively connectable for political discourses as well. The two central temporal figures, i.e., sociotechnical visions and projective genres, are produced interactively and demonstrate *feasibility* and *necessity*. In this way, actors from the economy (investors) and politics (local politicians) are implicitly and explicitly called to account. On the one hand, investments must continue to be made and on the other hand, the urban infrastructure must be aligned with the Pop.Up. In the case of the Pop.Up, the

responsibility to solve the problem of traffic congestion is thus divided among non-present actors. One could say, the Pop.Up shall therefore become a political object.

Future constructions between sociotechnical imaginaries and common action plans

The study of futures has a long tradition in sociology. With the concept of "present futures" Niklas Luhmann emphasizes the present-based nature of futures [5]. Future is also important in Alfred Schütz' work, as a central feature of action is to draft an action plan of a future experience [6]. In the course of establishing STS, sociotechnical imaginaries also played a major role for Bijker et al., who were concerned, among other things, with investigating the performative role of imaginaries and future imaginations as one element in the social construction of technology [7].

Dierkes et al. examined the coordinative function of sociotechnical futures with their "Leitbild" concept [8]. There, sociotechnical futures serve as "reference frameworks" for the actors involved and influence decisions in the development of new technologies. Along their "image function", guiding images were primarily attributed a coordinative function in the development of new technologies. Following this, Grin and Grunwald develop the concept of "guiding vision" to show the performative character of such future visions, i.e., to differentiate the integrating and coordinating function of sociotechnical future visions in different stages of technology development [9]. The exchange between sociology and STS has continued to evolve over the years, shaping the scholarly discourse around sociotechnical imaginaries [10–13].

A reciprocal influence with TA cannot be denied either. Whether as "practices of foresight" [14–16] or in the field of RRI [17, 18], the analysis of sociotechnical futures also plays a major role in TA, as it involves generating "knowledge for action in confrontation with just emerging or ongoing processes, without knowing the outcome of the processes" ([19], see also [20]). Although the focus in TA is more on providing instructions for political action and making predictions that are as precise as possible, it is not surprising that the various approaches in analysing futures also established the field of *future studies* [21, 22]. The article follows methodological approaches of a "hermeneutic of future technologies" [9, 23] by examining which meanings are ascribed to emergent technologies and how innovation or innovative potential is produced in the process. In addition to the analysis of sociotechnical futures, projective genres are also examined.

Ruth Ayaß's concept of projective genre follows Thomas Luckmann's analysis of communicative genres [24]. Projective genres are one family of genres in the "communicative household" [24], in which ones capacity

to plan, to decide, to reject shows itself [4]. It is based on the empirical observation that, in addition to sociotechnical imaginaries, action plans are also produced interactively and communicated situationally as near futures. The difference between near and far futures is meant to emphasize the difference with respect to the spanned time of projective genres and sociotechnical imaginaries. Are they about, for example, corporate action plans that will be fulfilled in the next months, or imaginaries of a future society, that are far away? As mentioned above, the article also follows the work of Hausstein and Lösch, who stress that the analysis of single stabilizing visions is not sufficient to reconstruct power constellations and processes of politicization [2]. Therefore, the questions that follow are what role do other futures play in establishing dominant imaginaries? How do they interact and constitute processes of politicization? To answer these questions, the analysis of sociotechnical visions is extended by the analysis of projective genres. The aim of the analysis is to reconstruct the functions of other futures and how these futures help to establish one dominant vision. It is shown that the establishment of dominant visions of the future is also conditioned by the communication of common futures, which are used by stakeholders to enforce their own visions. In the following chapter, the analysis of the press release will show how futures are constructed through the explication of a reference problem.

Future construction trough problem explication

The press release issued begins with the words "Italdesign and Airbus unveil Pop.Up, a trailblazing modular ground and air passenger concept vehicle system" [25]. The description "trailblazing" emphasizes the processual character of the development and produces a future-oriented action plan, which is that of advancing a path. The goal of this path is not concretized and remains largely vague. This openness can also be seen in the use of the term 'concept', which makes the Pop.Up communicatively compatible with different sociotechnical imaginaries that circulate in the discourse around UAM. Here, the action goal is communicated implicitly. It is the non-arrival at the end of the path. This implicit action goal is of particular importance because projective genres always imply action goals, regardless of the way they have been communicated, i.e., linguistically, in writing or other. The press release is a manifested mental draft and was published without an action goal. Still, the communication of a mental preliminary draft also pre-reflects the execution of a completed action, regardless of its outcome. The communication of the action plan puts the activity of moving forward in the foreground and the goal of non-arrival in the background. By emphasizing the activity, future is here brought down (undoing future), present

is brought forth (doing present). The activity is made available to the readers of the text, precisely because it is directed into the future and an option for action in the present. There is the possibility of participation in the practice of moving forward even though it is not explained how exactly this activity might look like. All those who know about the concept can participate in the further development. The press release gives a preview of what is yet to come, without concretizing it. No concrete or even finished technology is presented, which is why the Pop.Up is described as a "concept" rather than a technology. The presentation of the concept by Italdesign and Airbus constitutes both companies as authors of the future technology, which is currently a concept. Through the press release, both companies inform society about an action plan. This presentation implies, and at the same time reinforces, the invitation to participate in moving forward, because the concept differs from other air taxi concepts and developments by its "ground and air passenger concept vehicle system". Highlighting this idea marks a difference to other air taxi.

The Pop.Up concept is distinguished on the technical level by its "multimodularity", i.e., its ability to connect ground and air space. The emphasis on a technical aspect as a distinguishing feature can be described as practice of singularization [26], as the Pop.Up is presented as a special technical development, i.e., singular, despite all similarities to other concepts. What is interesting here is that unlike standardized goods, which are produced as singularity objects through reframing, there is no need for this reframing or "secondary production" [26]. The Pop.Up concept is purposefully produced as a singular entity from the beginning and from the ground up. In the further course, the concept is also brought forth as singular. The text after the headline refers to the motor show:

> *"During the 87th Geneva International Motor Show, Italdesign and Airbus world- premiered Pop.Up, the first modular, fully electric, zero emission concept vehicle system designed to relieve traffic congestion in crowded megacities"* [25]

This reference to the motor show emphasizes the event character of technological developments and must be made available to the public as an orientation for the further course, so that the concept of the Pop.Up remains communicatively connectable in the discourse around UAM. In the context of the press release, this practice of publishing can be understood as a *future practice*, since it is about imagining, calculating, or planning the future [27]. The option of being involved in the activity of moving forward is thus given a temporal frame of reference. The corresponding event is contextualized and specified not only by its mere mention and very central position

at the beginning of the text, but also by the action plan described above. Similar to Corn's comments on air travel [28], critical transitional phases in the process of technology development are thus stabilized by mobilizing a multitude of heterogeneous actors (see also [29]). This process of collective identity formation is constituted by spanning a time period beginning in the present and the option to participate in the development process of moving forward. Moreover, the Pop.Up concept stands not only for itself, but also for the stabilization of a sociotechnical vision, that of an urban flight space, which allows a specific flight practice that differs from the known air traffic. Other differences are marked in the further course of the press release to singularize the current concept and what it represents: the cooperation between airline and automotive industry, the configuration of a new urban airspace, the reference to the underlying AI platform, the possibility of ordering the air taxi in everyday life via an app, and the ability of the air taxi to fly and drive autonomously.

> *"The feasible concept is the result of Italdesign and Airbus' joint reflection on how to address the mobility challenges of megacities achievable for a majority, which has become one of the most pressing issues for commuters in megacities worldwide. With traffic congestion projected to hugely increase by 2030, the companies decided to combine their engineering expertise to tackle how to best achieve a sustainable, modular and multimodal urban mobility system – giving rise to the Pop.Up concept."* [25]

For this article, besides the heading, this sequence is extremely relevant, as the emphasis on cooperation is taken up as "joint reflection" and framed by a time marker "2030." The time marker constitutes a sociotechnical vision that refers to the two companies as an action guide. The use of terms such as "mobility challenges" and "sustainable" connects directly to narratives of grand challenges, as mobility and sustainability are central aspects in this discourse. The vision itself is vague. No concrete images of future societies are constructed, unlike in the concept video. The explication of a problem, that of congestion, on the other hand, is of central value for the press release and directly linked to multimodularity, which already functions as a difference marker in the headline: congestion relief is formulated as a concrete goal that can only be achieved by the corresponding technology.

The explication of the current reference problem of congestion, concretizes an action goal, which is that of congestion relief. Therefore, at this point, two futures are referred to as the following: first, a future present (Z2) is constructed in which the action goal has been achieved
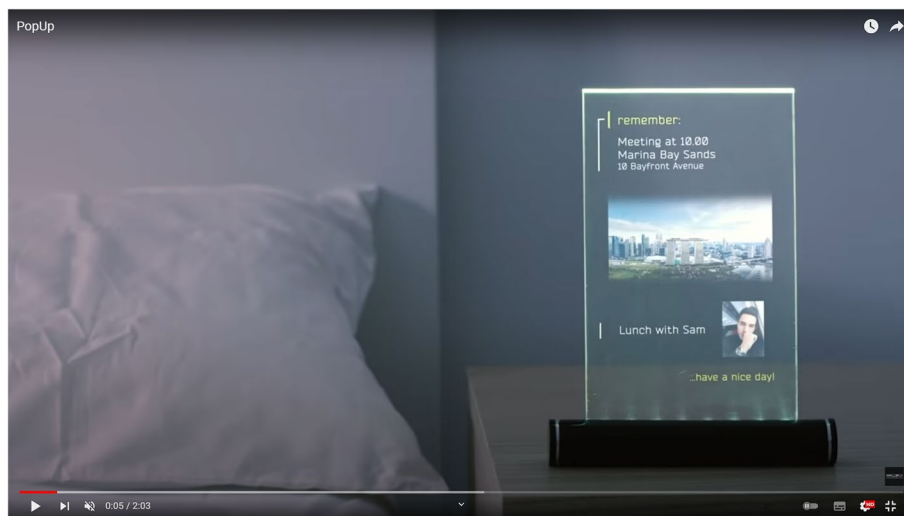
Fig. 1 The story of the Pop.Up begins here

and the problem of congestion in large cities has been solved. Second, this assumes a future (Z1) in which the technology was developed and could be used in everyday life. This means that the explication of a problem projects the Pop.Up concept into a future (Z1) in which it is developed as a technology and becomes socially accepted. This point in time (Z1) is the condition for a future (Z2) in which the goal of action will be achieved. Within its discursive embedding, the press release constitutes the Pop.Up concept as a boundary object. "[Boundary object] is an analytic concept of those scientific objects which both inhabit several intersecting social worlds […] and satisfy the informational requirements of each of them" [30]. This hybrid status is evident in the description of the Pop.Up in the press release, especially (but not only) along the dimension of time. The Pop.Up, although only described as concept, refers to the transition from Z1 to Z2, to a general problem (congestion) and a particular solution.

In the context of the press release, firstly, a collective identity is constructed; secondly, the specificity of the concept is emphasized through practices of differentiation; and thirdly, problem explications serve as a means of constructing distant futures.

Demonstrating necessity—concept videos as means for politicizing sociotechnical imaginaries

Like the press release, the concept video is a discourse fragment that was published by Italdesign. Both fragments give an insight on future constructions in UAM and how such futures may be taken up and communicated during stage performances. Unlike the press release, once the Pop.Up was unveiled at the motor show,

the concept video was also shown on stage. This first concept video of the Pop.Up was released by Italdesign and Airbus on Italdesign's YouTube channel [31]. In the video, a society is presented in which the Pop.Up is already integrated as a 'common technology'.

The main sequence of the first video (Fig. 1) shows a bed on the left side of the image, and a haptic interface made of glass on the right side of the image, which displays an appointment as a "reminder" and an image of the meeting location. As the main sequence continues, a woman is shown drinking coffee and using an "AI platform to manage the mobility system" on her tablet. The entire sequence takes place in a bright, tidy, almost clinically white living room. After the order has been executed via app, a subsequence is introduced. The Pop.Up pulls up in front of the door and is ready to transport the person who ordered it. "Shared, electric and autonomous vehicles" is the subtitle for this sequence, which is present while the video shows a society in which Pop.Up is already integrated. Other Pop.Up's can be seen on the streets and in the air, connected and communicating with each other. Other future technologies are also shown in the video that initially have nothing to do with the Pop.Up, e.g., the glass tablet used to order the Pop.Up, as well as a pair of glasses a man wears, that scan the Pop.Up as it lands. During the flight, the Pop.Up informs the passenger about current city plans (Fig. 2)—the construction of a bicycle route and the opening of a "street art" exhibition and cars can also be seen on the streets. Next, a futuristic looking train station is shown. It houses three modern trains, which in turn transport several Pop.Up capsules.

Fig. 2 Pop.Up provides information about city plans

Fig. 3 Between future and fiction: Visions of future societies

While futures in the press release are constructed through the explication of congestion as a reference problem, the concept video has a different focus. By depicting the everyday world, identification processes are constituted cinematically. Topics such as professional careers and relationships are dealt with. Here, the Pop.Up not only solves problems of urban infrastructure, but also of a private nature. It is presented as an essential component in everyday life. Despite the identification processes set in motion, the concept video breaks with the viewers' everyday knowledge. It designs a society that is brought forth as an alternative based on certain characteristics (see Fig. 3). These characteristics are elaborated in the

following and confronted with the context in which the video was released. It is only through this contextual confrontation that the concept video can be understood as a specific film genre. As it refers to a potential product of the future, the content of the film, i.e., the sociotechnical vision itself, is not pure fiction or pure alternativity, but a design of a future society. In the following, the context of the video will be explained first. Subsequently, references to those features that break with the viewers' everyday knowledge and thus mark a difference from the present society will be made.

The concept video was released simultaneously to the world premiere and the announcement. Although

Fig. 4 The reveal of the Pop.Up

the Pop.Up was in the "development stage" [32] at that time, the concept video, similar to the announcement, has an informal character as a public document. Unlike the press release, however, the video does not present an action plan or even an implicit call for participating in an activity. Instead, the video informs about a future present (Z2) that is visualized as sociotechnical vision. The concept video is used to modulate technology that does not yet exist, as technology that is already integrated in a society. In this fictional world, the Pop.Up is part of the society represented by the concept video.

In order to produce a depicted world as an alternative to the present, "defamiliarization strategies" [33] are used so that known and unknown elements are (re)formed. Spiegel describes defamiliarization strategies as the "collision between known and unknown elements" [33] within science fiction. Such elements are already staged in the opening sequence. The display made of glass has the same function as a smartphone and a mobile device and goes even further. It greets Sara and reminds her of today's appointment. The display of an image of Sara is an element of familiarity, it is primarily addressed not to Sara herself, but to the viewers. Sara is a person who has appointments "remember: Meeting at 10.00…" (see Fig. 1) and meets with other people: "Lunch with Sam" (see Fig. 1).

In the examined concept video, technologies are primarily defamiliarized, i.e., constructed as unknown elements. The haptic interface made of glass, the tablet, also made of glass, with which the Pop.Up is ordered in the further course, and a pair of glasses used to scan the Pop.Up. The climax of these defamiliarization strategies is reached with the arrival of the Pop.Up in front of Sara's

house (Fig. 4) and highlighted by the increase in volume and the change in music, from quieter tones to harder beats. By subsequently centring the Pop.Up in the middle of the frame, musical climax is once again tied to the Pop.Up's appearance. Such a cinematic treatment can also be understood as a practice of singularization. The Pop.Up will be staged as special in comparison to other technologies shown. A special status is attributed to the Pop.Up through cinematic aspects (music and editing) and its design, which can be understood as unfamiliar or unusual, as it breaks with knowledge about common technologies such as cars in everyday life. The technologies presented in the video create an irritation with the viewers' everyday knowledge due to their design. Defamiliarization is conditioned through a contrast to everyday knowledge about technologies and mobility. The various elements are unfamiliar to some viewers of the video. To those who participated in the development of the Pop.Up or know the discourse around UAM, the Pop.Up does not appear as an unknown artifact.

The moment of defamiliarization reaches its climax when the Pop.Up begins to fly (Fig. 5). Here, defamiliarization is created not only by showing a design, but primarily by showing a function. Although the Pop.Up has been staged as an autonomously driving car up to this point, it is precisely this moment in which not only the Pop.Up, but mobility in general becomes defamiliarized. At this point, the video not only breaks with a common idea of what automobiles must accomplish but also, the airspace itself is reconfigured by such an irritation. First, it is now no longer conceivable only for airplanes, because second, it provides an unused space for freight and transport traffic in urban air with the

Fig. 5 The Pop.Up begins to fly

help of emerging technologies such as urban air vehicles. Therefore, the concept video does not only present another autonomously driving and flying object with an innovative design, but also a new picture of mobility. This conception of society implies at the same time the development of an infrastructure oriented towards the Pop.Up. The reconfiguration of space is at the same time coupled to the production of a new infrastructure. Parking spaces or, in the case of other air taxi, runways are needed just as much as digital infrastructures that enable communication between the artifacts.

This infrastructure is a prerequisite for the implementation of the technology (Z1) and the subsequent solution of the congestion problem (Z2). The concept video thus informs the public about the necessary prerequisites that must be in place so that the technology can assert itself accordingly. The reference to a point in time (Z1*), which is considered a prerequisite for (Z1), generates political pressure to act, especially since it is communicated as sociotechnical vision on stage. Here, the visualization of such a vision not only shows how society should look like from the perspective of the stakeholders. It also shows the requirements that are needed for such a vision to be reached and therefore points to societal changes that must be made. The reference to such a point in time (Z1*) does not only stand for itself. The scenario is designed with cinematic means as a completed story, i.e., as a sociotechnical vision, which can only be achieved if corresponding infrastructures are developed. This addresses, above all, actors from politics. They must ensure that appropriate infrastructures are created (Z1*) so that the technology can become established (Z1) and the problem of traffic congestion in inner cities can be solved (Z2).

According to Kracauer, cinematic means enable to 'record physical reality' [34]. Bohnsack offers, based on Kracauer, Balázs, and Panofsky, access to the production of physical reality, incorporated gestures, and facial expressions [35]. The positioning of bodies and objects in the physical space of the depicted reality in an image as well as the relationship of the images to each other (moving image-video) enable the production of dense descriptions of a closed world. Concept videos can thus be described as a cinematic genre that operates in the mode of describing the world and presenting condensed sociotechnical futures "at a glance." The knowledge production of how such a vision might look like and the specific requirements constitute the concept video as a political instrument that can be taken up and used in the context of stage performances. Also, the concept must be published to stabilize visions of urban air mobility. However, these attempts to stabilize such visions carry a risk precisely because of the defamiliarization strategies: "What sounds like a science fiction novel is already set to become reality in the coming years" [36][1] marks an interesting difference, which is that between science fiction and sociotechnical imaginaries. The explicit negation of the fantastic illustrates the proximity to the SF genre. This proximity is established primarily through the defamiliarization strategies used in the video. It needs linguistic and written means to mark the difference to the SF genre. This undoing fiction must be discursively brought forth again and again, so that the sociotechnical imaginary is

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[1] This sequence is translated by the author. The original german wording is "Was sich nach einem Science-Fiction-Roman anhört, soll bereits in den kommenden Jahren Realität werden."

not shifted into the sphere of fictionality. For this reason, there must be regular reports on current developments. Only in this way does the concept video remain a political instrument that can continue to be used. With their concept of "interpretative flexibility" [7], Bijker and Pinch already drew attention to the fact that technological developments can be interpreted and processed differently depending on the participation framework [37]. This also applies to air taxis. For example, developments of air taxis are taken up in drone racing [38] or used as science fiction elements in film (i.e., Bladerunner 2049).

In the discourse around urban air mobility, the concept video functions, on the one hand, as stabilization of sociotechnical visions, as air taxis are presented as common technologies in a future present and not as sports equipment or science fiction elements. On the other hand, the presented sociotechnical imaginary functions as a demonstrator of necessity, the implicit call to create an infrastructure that is considered a prerequisite for the Pop.Up, modulates the concept video as a political instrument and thus makes the Pop.Up communicatively connectable to political discourses, for example, regarding urban planning and more generally mobility in large cities. The relevance of both functions also becomes clear in the context of the stage presentation. There, the concept video was shown after the unveiling of the Pop.Up.

Demonstrating feasibility—the interactive construction of collaborative action plans

The presentation of the Pop.Up during the stage performance at the Geneva Motor Show was recorded and uploaded on YouTube via Italdesign's official channel [39]. The analysis focuses on three stakeholders entering the stage during the presentation. E.C[2] is part of Italdesign and functions as moderator who introduces the guests that enter the stage. H.Z, another stakeholder from Italdesign and L.S., a cooperation partner from Airbus also enter the stage during the process, especially when it comes to presenting and unveiling the Pop.Up.

The video begins with a sequence in which the camera pans through the room. At the center of this first sequence are three elements: the car "ZeroUno", wrapped in a cape, the Pop.Up hidden behind a curtain, and the press audience gathered around the stage. E.C. enters the stage and welcomes the audience. The positioning of the actors and artifacts on and around the stage increases the importance of the situation—the hidden artifacts generate curiosity and the press audience illustrates the relevance of the event. The latter is also emphasized in E.C's first speech. After thanking all participants for their

presence, he describes the two covered artifacts as "two big news." Such a description fulfils a double function. On the one hand, it is addressed to the press audience and emphasizes the importance of the covered artifacts. It implicitly indicates that the two veiled artifacts must be reported on. At the same time, an "anonymous perceptual collective" [40] is addressed, as the presentation is also directed to the audience in front of the screens. Through this mass media performance, which is characterized by the indirect relationship between performance and perception, a collective consciousness is constructed out of two groups: the press representatives and the audience in front of the screens.

The further course of the stage performance is also about stabilization processes of collectives. After the presentation of the ZeroUno, H.Z. is invited on stage. He introduces the unveiling of the Pop.Up by first thanking the audience for their attention. The introductory sequence is of particular interest in many respects.

> "When we look on our skills for today's road it is something we are very proud of because it [was] generated by a team of 1000 people. On the other side, the same people who can generate the skills that we need to also generate the mobility for the future and we all know that the mobility of the future will be different than the mobility of today. So for sure, there will be mobility systems." [39] (06:39-07:00)

First, the reconstruction of the past brings the collective of the participants ("team") to the fore. At the same time, this emphasis is linked to a common path ("road") that has been taken so far. The narrative of moving forward together is linked to the successful story of the company. The business story told in this sequence through the practice of narration thus frames the call for participation on the one hand and marks a difference between members of the company and those who are not—"the same people who can generate the skills that we need." The narrative of a successful company is also produced performatively, i.e., not only linguistically. 'Exceptional people', i.e., cooperation partners, CEOs, and others are invited onto the stage to talk about the Pop.Up and the corresponding mobility concept. Together, such a stage performance reveals the performativity of the performance in aspects such as the bodily co-presence of the actors, whereby actors include both performers and audience, who confirm the stage events and their performance to each other in performative acts, such as spatiality, temporality, corporeality, sound and phonology, eventfulness, duration, and rhythm [41, 42].

In this first sequence, the veiled Pop.Up is brought forth performatively as a representative of the imagined mobility concept similar to the press release. The "mobility of

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[2] Persons were anonymized.

the future" is nevertheless a main topic and directly connects to the function of the concept video as visualization of a sociotechnical vision. The description of the Pop.Up concept as a "system" implies a network of different elements that must be given for a successful social integration of the technology. The representational function of the Pop.Up is emphasized once again after its unveiling:

> "So, ladies and gentlemen, this is not just an object. It's a mobility system and we are going to explain it to you with the video that we created for you. To give you more detail, please have a look. Enjoy." [39] (09:30-09:40)

The unveiling itself is staged as a great spectacle. As the large white curtain falls, the music reaches its climax. The music, accompanied by drumbeats, becomes louder and faster. It ends abruptly a few seconds after the curtain has fallen. The Pop.Up, although unveiled as a material artifact, is reinterpreted as representing the concept of mobility. This reinterpretation in front of a press audience, in front of a running camera, i.e., in front of an anonymous perception collective and in joint cooperation with business partners, requires a specific "impression management" [43]. In the further course, the representation of one's own role, the role of the other cooperation partners, and the material artifacts on stage must be reciprocally confirmed over again. L.S., another stakeholder of Italdesign and Airbus, already entered the stage for this purpose. He represents Airbus and symbolizes together with H.Z. the two central companies involved in the development: Italdesign and Airbus. The reciprocal confirmation is indicated in the mode of asking and answering—also physically by nodding in agreement. H.Z. asks L.S. about the Pop.Up. In the process, collaborative action plans are communicated and concretized along the dimension of time: "we will fly later this year, our first demonstrator." Also, the future implicitly communicated by the concept video (Z1), in which the technology has prevailed, but the problem has not yet been solved, is dated: "But ehm, we expect (that) commercial, uh, commercially available service to see the world in perhaps as little as 7 to 10 years." This construction of the future adds a time dimension to the implicit call for the establishment of a corresponding infrastructure even though it does not stand for a specific roadmap. The communication of the time span firstly refers to the requirements that must be met in order to fulfil this specific sociotechnical vision in the future. It is not a roadmap, but a concretization when this future could become reality, even though the specific date is yet unknown, which is marked by the hesitations "ehm", "uh", and "perhaps".

Although the Pop.Up is reinterpreted, it unfolds its own performance during its unveiling. As a material artifact, it is presented to both, a press audience and an anonymous internet audience. In doing so, it takes on the function of an evidence object as it demonstrates the feasibility of the project. On the one hand, it confirms the previous narrative of the successful business history and stabilizes the previous participation structure (Italdesign and Airbus) by referring to the previous state of development, which is confirmed by H.Z's rhetorical question before the unveiling: "... are we going to show what we created?" The interactive construction of collaborative action plans with the help of the evidence object, i.e., the communication and negotiation, is a *demonstration of feasibility*. Even though the Pop.Up is just a prototype, it plays a crucial role during the stage performance. It not only shows what is possible but also what has been done until now. In this sense, it confirms the performance of a successful business history and gives a glimpse of a sociotechnical vision that does not seem that far off anymore. This insight is being amplified as the mass media presentation of the Pop.Up as mobility system emphasizes its feasibility and establishes commitment, not only to the outside world but also reciprocally to each other. While the concept video and the presentation of the collaborative action plan refer to the potential future, the Pop.Up, as material artifact in the present, documents the past. Only the linking of both temporal figures on one stage constitutes both, the concept video and the material artifact, as a "communicative resource" [4], which potentially links the Pop.Up to political discourses. Furthermore, by publishing the video on YouTube, the stage performance itself became an exhibition object, a video on a platform that can be accessed at any time [44]. The video of the stage performance refers to the concept video and thus stabilizes the corresponding vision of the future. The documentation of the stage performance is even more central than the stabilization of the future vision, i.e., the performative confirmation of the cooperation partners among themselves with regard to their collaborative action plans.

Conclusion

Stage performances offer a framework in which multiple sociotechnical visions and projective genres are linked. With the help of the concept video, a specific and sociotechnical vision is visualized in which the Pop.Up is neither a sports device as in the case of drone racing, nor a science-fiction element, but primarily a mobility system that functions as means of transportation. The concept video stabilizes such a vision as a dominant one and with it the development path of the Pop.Up. The defamiliarization strategies used in the video fulfil a central function.

They frame the shown concept of society as an alternative concept of society, so that the concept video itself can, without contextual knowledge, be read as science fiction. This potential reading is deconstructed during the stage performance by communicating collaborative action plans and using the artifact to refer to both past developments and future action plans. It is in this regard that the communication of other futures such as projective genres constitute the sociotechnical vision as potential future and not 'just' as science fiction and therefore as powerful orientation that can influence decision-making in the further process.

The interactive communication of collaborative action plans is the processing of "projective genres." The concept video is integrated into the stage presentation as a visualization of a sociotechnical imagination and presents the Pop.Up as a mobility technology of the future. The Pop.Up was unveiled on stage and is a documentation of the development so far. Around it, a business story is told, which is reciprocally confirmed and thus becomes binding in a double sense. The action plan is confirmed reciprocally between the cooperation partners, and in front of an audience. The Pop.Up takes on the function of an evidence object and documents the development to date. It is also an object of solution and points to a future present in which the problem of traffic congestion in large cities is solved.

The relevance of a reference problem, for which the Pop.Up is a solution, becomes especially clear in the comparison between the press release and the concept video. The explication of the reference problem in the press release constructs a present future that is processed on stage as a projective genre. The option to engage in the activity of moving forward in the press release is given a temporal frame of reference and taken up on stage and stretched further by referring to upcoming events. "We will fly later this year" [39]. The political potential to address the Pop.Up as a "public issue" [44], and thus to make it the subject of political discourse, is conditioned by the integration of the concept video. Only the implicit reference to a point in time Z1*, which draws attention to the need to create an infrastructure geared towards the Pop.Up, shifts the responsibility to create the conditions so that technology can solve the problem to political actors. Political actors are thus implicitly addressed, as only they can ensure that appropriate infrastructures are created (Z1*) so that the technology can become established (Z1) and the problem of traffic congestion in inner cities can thus be solved (Z2).

The visualized sociotechnical vision is stabilized on stage by communicating a problem and its solution, but above all, it is constituted as potential future rather than fiction by linking it to the business story, the future action plans and the material artifact as evidence object. The linking of both temporal figures on one stage, i.e., sociotechnical imaginaries and projective genres, can thus be understood as a performative discourse strategy that makes the Pop.Up communicatively connectable to political discourses. The explication of congestion as a central reference problem is at the same time a reference to grand challenges, as it implicitly takes up the topic of the "Sustainability City." The building of a Pop.Up-oriented infrastructure presupposes a reconfiguration of the urban airspace, which also and especially affects the infrastructure in large cities. The visualized sociotechnical imaginaries demonstrate a necessity of the project, while the projective genres processed on stage demonstrate a feasibility of the project. Only by linking both temporal figures on one stage, the Pop.Up as a technology is made communicatively connectable to political discourses.

The aim of this paper was to show that the stabilization of sociotechnical visions and therefore of stakeholders and specific power constellations can only be understood accordingly by analyzing the intersections of different futures in the same communication process. Projective genres such as future action plans help to constitute visions not as mere fiction but as potential futures that are furthermore linked to (past) business stories and (future) business action plans. From this perspective, the analysis of projective genres can provide insight into conditions when visions become "a capacity and resource in the political economies of late modern societies" [2]. Another aspect connected to the topic of this article which might be of interest for further work is the examination of the role of projective gernes in processes of decision-making.

Availability of data and materials
As the data is publicly available, all the data generated or analyzed during this study is included in this published article [and its supplementary information files].

Declarations

Ethics approval and consent to participate
Not applicable.

Consent for publication
Not applicable.

Competing interests
The author declares no competing interests.

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