Need for Speed: Practicing Speed in Times of Ecological Collapse

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Abstract

This article theorizes the climate hack as a space of overlapping and clashing timescapes: indebted to speed; set against catastrophic climate change and slow institutional change; and threaded with care, community, and collective intelligence carrying different temporalities. The case study examines a Swiss-centered, globally-dispersed group of climate activists, tech entrepreneurs, software engineers, designers, researchers and students meeting weekly since 2021 to build climate technologies. Based on six months of ethnographic fieldwork, this article explores how participants negotiate temporal dissonances in their hacking practice. The online meetings employ agile methods oriented towards speed, efficiency, and disruptive action. The urgency of "the hack" promising to "do something now" clashes with slow legacy infrastructures and bureaucratic systems, alongside contrasting temporal outlooks like long-term planning. Participants prioritize start-up methodologies to "get stuff done", yet acknowledge this model's imperative for action is part of the late capitalist timescape that accelerated climate change. Expanding on cognitive dissonance, we introduce temporal dissonance and propose that living with conflicting temporalities is a condition of climate action. Beyond recognizing that any space incorporates conflicting timescapes, we suggest addressing the climate crisis "now" means dealing with potentially unresolvable temporal dissonances. In the hack, temporal dissonances are side-lined to synchronize action. Efficiency-based temporal orders dominate despite investments in alternatives. We argue that not foregrounding temporal dissonances risks reproducing entrenched, privileged temporal orders that may accelerate rather than mitigate the climate crisis.

Keywords

climate hackathon; temporal dissonance; speed; synchronization; sustainable mobility.

1. Introduction

Speed is a central driver of environmental action and activism. For decades, the Intergovernmental Panel on Climate Change (IPCC) has urged industrialised economies to slow down the speed of global heating (IPCC 2023). More recently, in response to the widely felt "dramatic intensification" of climate change (Latour and Schultz 2022, 8), both activists and

others who have never participated in environmental activism are coming together in novel forms of environmental action. Acting quickly to slow down drastic climate transformation – by reducing car transport, forms of consumption, and flight travel – as fast as possible are all part of the discourse and practice of climate action.

When speed is considered a condition of meaningful environmental action, the power to perform speed, to define what and who does or doesn't count as fast, and the power to determine what must be sacrificed in the name of speed becomes crucial for environmental politics, practice, and justice. Our aim in this paper is to slow down to investigate the politics of speed at a moment when accelerating environmental changes and corresponding calls for urgent action threaten to sideline critical reflection as obstacles to action.

We draw on twelve months of participatory observation in a weekly climate hackathon based in Switzerland. The climate hackathon aims to accelerate environmental action and provides a rich site for investigating speed as a key ground of environmental politics.

In Barbara Adam's work, the concept of temporality captures how time is structured, valued, and experienced in practice (1998). Engaging with the notion that speed is established in practices and the editors' invitation to think through infrastructures of climate change, we revisit the climate hackathon as a site where speed is performed and negotiated through (digital) infrastructures.

The observed Swiss climate hackathon is a rich case because it demonstrates the potential of speed to mobilise action as well as how certain issues, questions, and concerns are silenced in the name of speed and efficiency. This climate hackathon, which we will pseudonymize as ClimateHack, was initiated by Swiss tech start-up entrepreneurs that we refer to as the ClimateHack Cooperative. Every Friday afternoon, the members of the cooperative host an online hackathon that we will refer to as the ClimateHack Sessions. These sessions include participants of all ages from public and private sectors based in various locations, including Columbia, Germany, India, the US, the UK, and Singapore. For the sake of clarity, the participants of these sessions will be addressed as "the hackers".

In pursuit of an "incredibly powerful method to move fast from problem to solution", our hackers repurpose practices of speed that value acceleration as a good for environmental action. During our time at the ClimateHack, they mainly focused on Swiss public transport. By following the ClimateHack both online and offline, we think through the politics of speed in times of environmental collapse by investigating what happens when practices of speed, such as hacking that emerged to manage fast-paced (digital) production, are employed to encourage Swiss car drivers to use public transport in an attempt to meet Swiss national emission targets.

In the first part of the paper, we situate the ClimateHack in the wider start-up, agile management, and hacking scene. We then show how speed is performed and valued within the decontextualised space of the ClimateHack sessions, and how the hackers bring the promise of speed that drives the online sessions to partners and sites outside the ClimateHack. Looking at how speed is performed in the ClimateHack Sessions and in relationship to partners enables us to think through the politics of speed in the ClimateHacks, and in environmental action more broadly.

2. Introducing the ClimateHack

To give a bit of background to our field, we first introduce some of the main actors. Doing so is not a straightforward task, as the organisational structure of the ClimateHack isn't immediately apparent, even to its participants[1]. In a young organisation that is still in the process of forming itself, the clarification of the roles and hierarchies is a sensitive topic. The following diagram (see Figure 1) represents our understanding of the organisational structure.

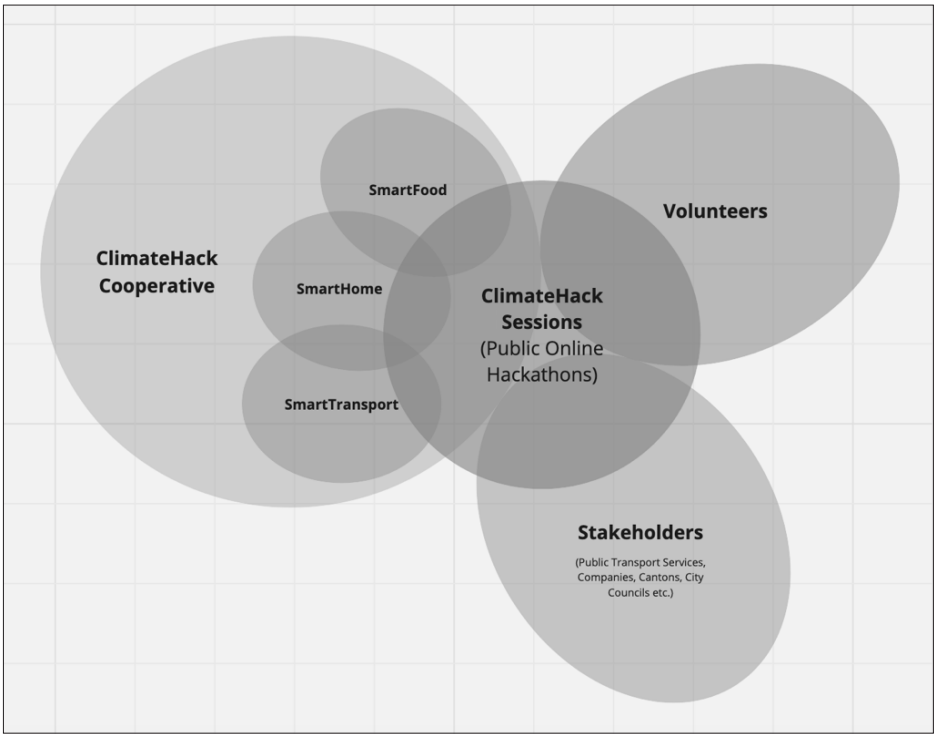

Figure 1.
ClimateHack's organisational structure (mapped by the research team).

At the heart of ClimateHack are the public ClimateHack Sessions that act as both an innovation lab (which generates a constant influx of ideas and re-evaluations of ideas) and a recruitment tool for the three subgroups of the ClimateHack Cooperative that are dedicated to the sustainable transition of food, homes and transportation. Each of the subgroups is incorporated as an independent cooperative under the umbrella of the ClimateHack Cooperative. Regular hackers might be hired to join SmartFood, SmartHome or SmartTransportation. In this paper, we focus on SmartTransportation, which is the most advanced in its financing, organisation and scope.

ClimateHackFridays began in 2021 when a Swiss start-up entrepreneur turned his attention toward doing something about climate change. After a lucrative exit from a successful start-up, followed by a sabbatical and some dabbling in another enterprise, Dominic wondered what he "would tell his kids in ten years" when they asked him, "What did you do, with all your possibilities, while the world went to shit?".

Facing his imaginary future children and further propelled by the Fridays for Futures movement, Dominic – a former frequent flyer – took a long train ride from Switzerland to Scotland to attend the COP26 climate summit. Trying to establish a network of useful contacts from his Glaswegian hotel room, Dominic noticed that neither the police-cordoned policy crowd nor the climate activists had time for a start-up entrepreneur. Yet, in the spirit of start-up culture, Dominic loved a good failure and returned home determined to "activate one million climate hackers to close the gap between climate protest and climate action".

Dominic's call to action soon gave rise to the ClimateHack Sessions. By the time we joined the sessions, Dominic and a regular core group of volunteers had abandoned the ambition to build a massive movement of climate hackers in favour of a regular online hack. Since 2021, every Friday from 3 pm to 5 pm (CET), a group of tech start-up entrepreneurs, software engineers, psychologists, designers, researchers, retired managers, students, and young professionals have been joining the online ClimateHack Sessions to "do something" about climate change. While most participants come from German-speaking Switzerland, where the organization is based, the ClimateHack has become international, and people from elsewhere help shape it. For example, a young couple of physicists-turned-app-developers from Bogotá do most of the coding. Some committed participants turn up weekly; others join sporadically, and the odd visitor drops in occasionally or sticks around for a session or two.

The focus on speed in the ClimateHack is informed by corporate start-up culture's efforts to accelerate innovation and capitalisation cycles and thus precedes, and perhaps even contradicts, environmental concerns. The following section provides a brief history of hacking, allowing us to situate the ClimateHack's focus on speed in the broader culture of agile start-up and software development.

3. Hacking Speed

Hacking, which can be defined both as creative play with new technologies while sharing one's skill with others (Levy 1984) or cleverly and quickly circumventing imposed technical limitations of a computer system (Coleman 2013) is no longer only practiced exclusively by "basement geeks" and subversive "security nerds" but has moved into the public and private sector. Today, hacking sprints, where a group of software developers work on something together for a short amount of time, have been adopted by cities, civic organizations, as well as the corporate tech office and the software start-up through "hackathons". Computer science and communications scholar Lilly Irani ascribes the appeal of hackathons to the premise of "high-velocity, demo-driven collaboration", which hones "fast development with a visionary's hand" (Irani 2015, 816). Irani highlights that both internal and publicly facing hackathons have become a way to enact entrepreneurial citizenship (*ibid.*). Irani's observation resonates

with our experience at the ClimateHack, where people enact entrepreneurial agendas in the name of the common good of emission reduction, combining entrepreneurial and responsible citizenship. Hacking through "hackathons" has thus ceased to be an expert, software-driven domain and has been reinvented as a tool for collective problem solving. For example, in urban initiatives to create "smart cities", hackathons have become a tool of contributing to the

> transition from managerial to entrepreneurial urban governance by demonstrating how technological innovations can improve the delivery of public services and how markets can respond to emergent conditions and sustain such service provision and urban development. (Perng et. al 2018)[2]

In line with the idea that digital tools transform issues, hacking expanded from developing code to hacking solutions for any problem. For example, since 2015, the EU's main climate innovation initiative, Climate-Kic, promotes "climathons" that are run in partnership with the UN Environment Programme, local organising committees, and municipalities as a tool to "tackle climate breakdown". Clearly, hackathons have entered the climate change arena. "Climathons", the website blurb reads, are "an opportunity to collaborate, rethink and come up with creative solutions to help cities make a fundamental transition to a sustainable future" (ClimateKIC 2019). The double promise of hackathons to create disruptive systemic change through "creative solutions", and to involve various participants in doing so, appeals to a broad group of people who want to do something about climate change, while businesses and governments continue to lose public trust, dramatically failing to even remotely reach climate targets.

As exceptional spaces set aside from ordinary time and politics, hackathons promise rapid change, heroic action, and futuristic data-driven innovation. It isn't a coincidence that speed-induced concepts, such as efficiency, velocity, or agility, that feature heavily within hackathons originate in the labour processes of start-up and corporate tech culture. As acceleration "became a key measure of progress" in our modern societies (Wajcman and Dodd 2017, 2), and digital media technologies were linked to such progress, the software industry started to foster a culture of acceleration.

Software itself – in its very logic of production – is about acceleration. With each next software iteration, the functionality (the click, the route, the search result, etc.) should become even faster, more seamless, and so forth. This "intentional, goal-directed processes of transport, communication, and production that can be defined as technological acceleration" (Rosa 2013, 82). Although it is not always easy to measure the average speed of these processes, Rosa explains that the general tendency to accelerate in the realm of technology is undeniable (*ibid.*).

The main drivers of this discourse are industry-wide software development management tools or "methodologies". The most prominent tool throughout the global software industry is something called the "Scrum" or "Agile" methodology. The internet changed how software was built and deployed because it allowed continuous updating, making it very reactive to market demands. A need for "agility" emerged. With this "agile turn" (Gürses and Van Hoboken 2018), software's complexity, distribution, and infrastructure changed, as well as the temporal orders of production. A new production order, characterised by short development cycles, continuous testing, and greater simplicity of design (Douglas 2015), also attempted to speed up

the developers' work and the delivery of their products to customers and users. While Scrum was not initially intended for software development, it became key to the new temporal orders of software development emphasizing and encouraging rapid and flexible response to change.

While we won't get into further details of Scrum or Agile in software development, it is important to mention it here as it is one of the central methods that temporally order the work of the participants in any hackathon. While our climate hackers don't explicitly use the Agile methodology during the ClimateHack Sessions, its culture of speed and efficiency is ingrained in the structure of the hackathon. As we will highlight below, the hackathon is a method – much like Agile or Scrum – that organizes work in such a way to foster quick ideas and quick iterations, leaving little room or understanding for slowdown (Bialski 2020). Before we turn to the way in which speed is performed in the ClimateHack sessions we observed, we briefly introduce Swiss public transport as the hackers' main field of intervention.

4. Hacking Swiss Public Transport

On the lookout for issues with sizeable climate impact and keen to utilise the power of their Swiss networks, the hackers directed their efforts to a well identified, but poorly addressed conundrum in Swiss public transport. Switzerland has one of the world's most extensive and well-funded public transport networks. And still, most people moving about Switzerland continue to use their cars most of the time. The enormous infrastructure expenditure of the last three decades failed to shift the "modal split", a transport industry term meaning the pivotal variable of public transport, measuring the total passenger-kilometres travelled by public transport compared to the total person kilometre travelled by private motorised transport. In Switzerland, this national indicator stubbornly sticks to about 21 percent[3] (Citec Ingéneurs SA 2021). 21 percent is a top score in the global ranking, and yet, measured against emission reduction targets, it remains dramatically insufficient (Petersen 2016).

Having so far failed to reach the emission reduction targets of the 2015 Paris Agreement, the Swiss government committed to national net-zero greenhouse emission targets for 2050. The 2021 CO_2 Act is setting interim emission targets for 2030 and as part of these efforts, the Swiss government committed to doubling the modal split of public transport to 42 per cent by 2030[4]. Like all climate targets, the doubling of public transport use is at once i) incredibly ambitious, ii) dramatically insufficient, and iii) out of reach without the kinds of drastic transformations that, at this point, neither politics nor industry is willing to consider seriously.

The hackers promised to address this deadlock. Within a few months, the hackers built the SmartTransportApp, a mobility data analysis and visualisation app uses mobility data from Switzerland's largest mobile phone operator to analyse mobility patterns. It became evident to us that this highly motivated but ill-defined group of climate hackers had grand ambitions. By their own admission, they knew next to nothing about public transport, and yet they aimed to accomplish a significant modal split shift. This shift is something the industry has struggled with for decades, and this goal aligned with a major Swiss Government legislation aimed at building a publicly financed mobility data infrastructure to enable sustainable mobility innovation (Swiss Federal Council 2022). Finally, after having struggled to secure a

collaboration with any of the major European rail companies, the ClimateHack succeeded in partnering with three Swiss public transport companies and a canton – cantons being responsible for commissioning and financing public transport in Switzerland. This promise to bring speedy change to a Swiss public transport landscape characterised as conservative, overregulated, and utterly unable to lead the required transition was at the core of the hackers' pitch. In July 2022, the initial partners took a leap of faith and invested to fund six months of staff hours, rolling stock, and access to public transport networks to run collective experiments led by the climate hackers. The ClimateHack leaders founded a nonprofit cooperative. They hired a salaried core team recruited from the regular hack participants and set up the first spin-out SmartTransport dedicated to innovation in Swiss public transport. To identify how the hack's technical infrastructure and working methods perform, enable, and value speed, we need to sketch out what happens in the weekly ClimateHack Sessions.

5. Performing Speed in the Hack

During a typical ClimateHack session, hackathon participants click through the ClimateHack website, where they are asked to click on a "Join LIVE Hack" link and then get redirected to the online hackathon platform run by the virtual event platform Veertly (an external company that has nothing to do with our ClimateHack group). The Hackathon begins with a general virtual "room" where the ClimateHack Session hosts introduce what will be "hacked" that day, summarize what was done during the more recent hacks, and usually lead the entire team in a quick introduction round.

After the introduction, the hackers split up into different groups, choosing one of the thematic rooms, such as the "food hack", "mobility hack", or "green housing hack". The sessions can become hectic, which is hardly surprising because the hack sessions are designed to be hectic. When a hacker enters the working room of her choice, the hack-room host gives her another introduction to what will be "hacked". Each hack-room is organized based on a set of hack-exercises. Facts about the given session and topic are presented on a "Miro board" (an online visualization tool), and the type of introduction differs from host to host. For example, Oscar from the food hack working room would present screenshots of the carbon footprint of different types of foods and supply chains, with sources included (quoting newspapers such as the *Guardian*, the Swiss federal statistical office, or online statistics platforms such as ourworldindata.org). Gianna, who hosts the green housing hack, prefers to dive right in and uses a collective visualisation exercise as an entry point for the discussion: she assigns each hacker the same picture of a (rather American-looking, upper middle-class) house. Following this introduction, all participants are encouraged to add digital sticky notes (via the Miroboard) to the parts of the house where they see potential for energy-saving measures. No experts or sources are introduced for the whole of the hack; instead, the exercise draws entirely on the knowledge in the room to get the participants' "brain juices flowing" in the desired direction.

Most hack-room hosts don't explain the reasoning behind the choice of methods or the tightly timed tasks. Participants, for example, are invited to add virtual sticky notes with ideas for energy efficiency in buildings on top of the picture of a house, while a count-down

timer provides a visual reminder of how much time is left for each given exercise. Often music is played in the background (chosen by the hack-room host) as an auditive timekeeper, helping hackers keep track of when the exercise begins and ends. When the music is playing, conversations and questions are postponed for another time. During most sessions, hackers work in sprints of two to five minutes.

One of the most popular collaborative formats is an Agile-inspired method called the "tower of ideas": there are three columns of post-its, and the hackers write three ideas – for example, on how to save energy in buildings – on the lowest row of post-its. Then, the hackers switch to the "tower" of post-its to their right. They are then invited to improve on the ideas of their neighbouring hacker in the row of post-its just above the one from the last round, and so on.

The exercise works on the premise that keywords can convey ideas on small post-its without context (usually, the idea must be formulated within two minutes and with fewer than seven words). Another premise of the exercise is that participants can improve on an idea in less than two minutes without the opportunity to converse with the original author of the idea about her intent. Also, the participants rarely react with statements such as, "I can't improve this idea". We didn't encounter any negative reactions to the ideas or hacking process during our fieldwork. Comments that might negate or question ideas are not shared. After the group has run out of time, the best ideas, or rather the ideas on the top row of the tower, are voted on by the whole group. Ideas deemed the best by this process then go on to be presented to the whole hack in another hack room called the "pitch stage".

In the "pitch stage" room, one hacker is assigned to "sell" the idea in a catchy and "attractive" way, tasked with conveying an idea that supposedly reflects the views and efforts of the whole sub-group. Pitching requires an aura of efficiency and winning confidence that contributes to the hack's image as a place where "stuff gets done". The audience expresses agreement, excitement, or praise with digital emoticons. Negative reactions are discouraged and can only be expressed with a "🥲" emoji or silence. After the pitch stage, everybody is invited to the digital lounge room for pre-weekend beers and an informal chat. The most productive conversations often occur in the *slow* space of the lounge.

6. Performing Speed through Abstraction and Temporal Framing

Drawing on Barbara Adam's (1998) understanding of temporality and our observations of the hack, we reiterate that speed, like all temporalities, is a relational effect. What counts as fast or slow depends on one's frame of reference, and framing time requires negating some relations and realities as out of scope. Referring to processes of abstraction in laboratory science, Adam writes that in the lab:

> abstracted from interdependencies and context, processes can be controlled, programmed, manipulated, changed, speeded up and slowed down. (*ibid.*, 39)

In line with Adam and the tradition of laboratory studies (for a foundational text, see Latour and Woolgar 1986), we suggest that the online infrastructure that powers the ClimateHack's

distributed virtual meetings allows the hackers to translate complex questions about Swiss public transport into the abstract space of the digital whiteboard, while the SmartTransportApp that they are developing allows them to track and predict national mobility patterns. The app and digital whiteboard can be understood as a kind of quick and dirty laboratory that allows hackers to render complex issues into abstract and manageable formats (post-its and mobility patterns) that lend themselves to rapid experimentation.

Porting complex issues into the infrastructured timescape of the digital ClimateHack Sessions only enables speed when time is framed and thus made productive. In the two-hour sessions, time is considered scarce, which makes speedy action a prerequisite. Once issues are abstracted into *insights*, *challenges*, and *opportunities*, they can be split into subtasks that are timed by a countdown timer located at the top right-hand-corner of the screen and motivational background music that provides the session with a certain tempo. A ClimateHack Session, in short, enables efficient *ideation* by making issues available in an abstract format within tight temporal frames.

Rapidly translating, often still quite vague ideas into executable experiments requires quick decision-making. Silent voting helps identify which ideas might be of value. Still, decisions about which ideas to pursue, in the end, are made by the ClimateHack leaders, often outside of the session and with little transparency or accountability to the ClimateHack Session participants. In the jargon of the hack, culling valuable ideas from the larger "crop" of ideas is called *harvesting*. The ClimateHack Sessions perform speed by establishing separate timeframes for collective idea generation and goal-oriented decision-making. Harvesting is how ideas are moved from one time frame to another.

Barbara Adam argues that the speed of journalism "as the here and now of events" makes it impossible for news media to grasp "chronic environmental hazards associated with the industrial way of life" (1998, 20). Adam's point that some time frames might make it hard or even impossible to grasp realities that unfold outside of that frame opens up the question of whether ideas fall outside of the temporal framing of the session because they cannot be grasped or are disregarded as slow impediments. The following examples show that the ClimateHack invites a broad range of contributions and participants while ultimately tending to limit the scope of ideas in the name of speed.

Isidro participated in the ClimateHack sessions for several months. Dialling in from Arizona, he was much appreciated for skillfully attending to the well-being of the collective. And he brought something else that is harder to pin down. Unlike most participants, who tend to follow the ClimateHack's flow, he calmly claimed space for his contributions in the busy agenda of the hack. Identifying as a Two-Spirit Indigenous climate activist, he would find a moment at the beginning of each hack to "honour our ancestors" (as he would call it) and to offer a short mantra for a future when Indigenous people everywhere stand united as custodians of the land. Isidro's vision of an Indigenous-led climate coalition brought to the sessions the insight that the environmental crisis cannot be addressed independently of the colonial and post-colonial realities that continue to shape environmental degradation. In our reading, Isidro's appeal to "our ancestors" evoked a shared humanity while also serving as an invitation to pay attention to differences in how participants understand, relate to and are affected by climate change. The fast-paced sessions are designed to level differences between participants to enable acceleration.

By pointing out that climate change futures and pasts affect hack participants differently, Isidro created frictions in the flow of the hack that opened up room for questions of climate justice and positionality that do not fit easily into the session's focus on getting stuff done.

Isidro's story is one example of our observation that the focus on speed shapes what can and cannot be articulated in the ClimateHack Sessions. In a different incident, the hackers spent one week running real-life hackathons with hundreds of young people. One of the key findings was that young people, especially young women, feel unsafe on public transport, but to the frustration of some hackers, the hack leaders did not take up solutions that promised a safer journey. The leaders seemed to be unable to hear needs that weren't in line with their start-up mindset, as if needs were relevant if they had something to do with speed, practicability, affordability, and efficacy. One of the frustrated hackers said, "The hack operates at a speed that does not allow for empathy". Issues that fall outside of the frame of speed tend to not register in the ClimateHack; and a focus on speed makes it hard for the hack leaders to recognise realities that lie outside of their own frame of experience such those of indigenous climate activist or young women on public transport.

In another instance, Francisca, the lead designer, confronted Dominic at end of a week-long in-person hackathon because she felt that she and a fellow developer named Ines had been repeatedly disrupted by male colleagues who took work out of their hands in the name of speed. Dominic apologised and added that there is just no time to negotiate carefully in the heat of the moment, arguing that a hack is like a war room where some forms of care and deliberation must be side-lined to enable rapid problem-solving. Francisca questioned whether working to exhaustion while skipping meals and sleep is the only way to perform speed. She recalled that she delivered excellent and timely results in her previous job at an all-female design agency where collaboration and mutual care were considered crucial to sustained performance under pressure.

Issues that do not fit the ClimateHack's temporal frame, such as emotions, negativity, critique, community for community's sake, or overt politics, tend to be politely side-lined as slow. Speed is performed in relationship to the time frames that structure the hacking sessions, and in relation to the conceptual time frames that shape which issues the ClimateHack can or cannot consider. Having started to unpack how speed is performed in the ClimateHack Sessions, we turn to the role speed plays in the hacker's partnerships with industry and public service actors.

7. Real Solutions Beyond the Hack

While the figure of speed is deployed within the hack sessions, it is also essential in convincing stakeholders that ClimateHack Cooperative aspires to work beyond the online space and create "real solutions" offline.

The ClimateHack Cooperative positions itself as an incubator for creative climate solutions. But to bring the ideas to fruition, they must be transplanted into big corporations who are *doing* the doing. In the following section we will outline how the hack moves from being a space of ideation to applying its ideas in practice. The ClimateHack Cooperative understands ideation as a public matter. Authorship is framed almost as a public good and ideas and solutions are framed as the results of the swarm intelligence of the hack. Implementing *solutions* by contrast is the job of middle managers and experts within relevant companies. In this regard, ClimateHack

Cooperative is not a start-up incubator because it isn't centred around treasured assets that will allow for the scaling of businesses. Instead, the ClimateHack is happy to give away its ideas and thus also its authorship for free in the name of its larger goal "to save the world".

As we mentioned in a previous section, from the group of drop-in volunteers that join every Friday, there is a small core-team that is paid a regular salary from the money the ClimateHack Cooperative raises from public and private companies. The core team has convinced some of the biggest transport companies in Switzerland to get involved. This is highly important to the whole ClimateHack endeavour, as these companies help realize and test the hackers' ideas within the material and organizational infrastructure of the "real world". The public and private companies (in this case, various public and private transport companies), as well as the local canton where the climate hack is based, are willing to take a chance on the unorthodox methods of ClimateHack Cooperative because they are faced with the fact that, during the last decades, they didn't manage create any drastic change in their practices to mitigate the climate crisis (in our case, to compete with the car).

A select number of representatives from the canton as well as private and public companies began joining the weekly ClimateHack Sessions. Sometimes, their participation in resulted non-public hacks. It remains unclear if the cooperative shields such sessions from public engagement or if the companies protect their ideation phase from the public. These private hack sessions are sometimes carried out in the offices of said companies; sometimes they take place in a private room of the online hack (which happens simultaneously to the public hacks). Before the ClimateHack Sessions, the core-team – sometimes joined by employees of the involved companies – hosts meetings to prepare the sessions, which are also not open to the public and presumably have a different character than a typical ClimateHack Session. The ClimateHack Cooperative provides its tools – such as Agile methods, their special "start-up sauce" or their motivational energy, the Veertly infrastructure, and the SmartTransportApp (that analyses anonymized mobile phone data of the traffic in Switzerland) – to the industry stakeholders and acts as a facilitator for pilot projects that involve more than one company. The participating companies provide funding, staff and infrastructure to roll the experiments out in real life.

8. Pitching Speed

Somewhat remarkably, the ClimateHack Cooperative gained serious traction in the Swiss public transportation scene within months, even though they entered with zero knowledge about public transport or sustainable transition. So far, the most productive spin-off of ClimateHack is the subgroup called "SmartTransport". A year on, the hackers formed a working alliance of three Swiss public transport companies and a canton, gained funding to hire a growing team, and entered conversations with the Swiss Ministry of Transportation while pursuing leads in Lichtenstein, Austria, and Germany. The hackers used their SmartTransport project to develop the SmartTransportApp, a mobility tracking and prediction app that analyses mobility patterns in Switzerland based on mobility location data. Along the way, the hackers learned much about the practicalities and politics of public transportation and built an extensive network of contacts and a portfolio of experimental real-world interventions.

Returning to the moment when the ClimateHack Cooperative first formed the coalition of public transport companies helps to illustrate how the promise of speed granted the hackers credibility in an industry that struggled for decades to achieve a shift in modal split. This was a big day for the ClimateHack. The three Swiss public transport companies had finally agreed to join the ClimateHack for an initial six months of real-world experiments in public transport, and this was the first time that the ClimateHack was in a sustained relationship with external partners. With the incoming funds, some of the most committed hackers were hired to work full-time on the project now run as a newly founded not-for-profit cooperative. The purpose of that day's meeting was to onboard staff from the participating companies. Dominic, joined by the companies' CEOs and hackers from the core group, pitched the project to an audience of mostly male, white-collar railroaders with a penchant for train-themed zoom backgrounds.

Everyone discussed this pitch in the previous hack, and while several hackers suggested that there is too much to take in, Dominic pushed back, saying, "We sold them speed, and that is what they need to feel". Presenting a well-timed cascade of ideas, persuasive numbers, personal anecdotes, and ambitious timelines, Dominic, flanked by the CEOs, delivered a stellar pitch, as usual.

Ideas for the experiments, he explained, "have been co-created with citizens" in areas where the "AI has identified a high potential for shifting car drivers to public transport". Each experiment is scheduled to run for a couple of months, which is incredibly ambitious, especially in the world of public transport, where project timelines often stretch to decades. "We're coming from a very different world to public transport, the digital and start-up world", Dominic continued, inviting his audience to imagine that seasoned railroaders too can break free from the frustrating and comforting constraints of their jobs to join the club of the fast and daring. Having explained that those who experience slow infrastructure development and frustrating municipal politics can do something about climate change, Dominic moves on to address anticipated fears around experimentation.

> The word "experiment" [*Dominic said*] is carefully chosen [...]. I understand that it creates scepticism, [*he told the mobility representatives*], when you're about punctuality, tact and reliability [...] understand all that [...] But I believe to drive innovation, we can't always think about the entire network.

Instead of being afraid of massive change, he suggested that:

> [*they*] try it [...] small; as small as possible; try it minimally invasive, like a surgeon who begins with a very small scalpel, so that it doesn't hurt much at all, so that I can be extremely brave, in this small experiment, that I can do things that I would never do on a national level.

If successful, these experiments will be scaled by a factor of ten and eventually rolled out nationally before being exported as best practices around the world.

Framing time is as crucial to the promise of scale in the pitch. The proposed experiments can be fast precisely because they are small. Pursuing small and fast experiments enables a *feeling of speed* in the face of the paralyzing scope of the changes required to meet the emission reduction goals while also serving to manage risk.

In the logic of the ClimateHack, the small, contained experiments serve as seeds of change, because those that have proven successful will eventually be rolled out at scale. "Small, experimental, incremental steps", in the words of one of the CEOs, "will allow us to eventually reach the big quantum leaps". Scaling up is the ultimate promise of techno-scientific acceleration based on the notion that labour-intensive, situated experiments can eventually be sufficiently abstracted so that they can work more or less independently of the given context. The experiments that the ClimateHack proposes are time and resource-intensive, requiring intimate and ongoing conversations with all participants about their specific circumstances, needs, and worries. Caring for specifics in this way is slow and costly and, in the realm of the ClimateHack, can only be justified with the promise that much of this work will eventually be streamlined and automated at scale. That the acceleration of scale implies abstraction is evident in the metaphor of "going viral" that the hackers frequently employ, which suggests that once the virus is out of the lab, it no longer requires care or attention to detail because it will spread rapidly and indiscriminately.

> We can bring speed [*Dominic promises*] but we need, and that's really important, we need you. We can bring speed, but we do need you, and only standing shoulder by shoulder can this work [...]. My wish is that we adopt these values: first, it's better to be fast than perfect. Second, an experiment in practice is better than a study. And third, we need to work together to be able to work at high speed.

One of the CEOs chimes in to support Dominic, saying, "It's all about breaking new ground; it's all about brave, clever, explorative forward chances". His colleague chips in, declaring that:

> We're not doing this for our companies; we're doing this for the larger goal, for the sector, but of course also for the population... and if we succeed than we have a pioneering role, not just in Switzerland, but also in Europe... and that alone makes it worth to take the risk.

Promising speed, first through temporal framing and consequent scaling up, enables the hackers to recruit initially sceptical partners. Over and over, we observed that the hackers' promise of speed elicited a shift in initially sceptical audiences, instilling a difficult-to-quantify feeling of possibility that the thus far unmanageable or unthinkable might indeed be possible if only we dared unite behind the bandwagon of speed. The promise of speed, made tangible through the promise of contained experiments and the potential for scale, provides the hackers with a mobilising power that changes the horizon of possibility, at least for the moment of the pitch. It also serves, to use the terms of a classic study of alliance building, as an enrolment device that establishes the climate hack as an obligatory passage point for public transport innovation (Callon 1986).

If speed grants the ClimateHack credibility and authority, their power is always conditional on delivering speed, which brings us back to the question of how speed is performed, not in the abstract space of the online hack, but in the "real world". Orlando and Ines, two young AI developers from Bogotá, do the work of making the analytics engine of

the SmartTransportApp shine. They work mostly in the background, even if their work is mentioned and praised. Orlando shares with us that:

> We used to work at a fast but still normal working pace. But back then, nobody from the Swiss transport companies would listen to us. It was only when we made the first intensive weeklong work sprint and proved to them that we could do things at a miraculous speed that they would even sit down with us for a meeting.

The experience of having to excel to be good enough is familiar to many immigrant and minority workers, but in the case of the ClimateHack, the pressure to demonstrate miraculous speed extends beyond particular workers in the hack. Dominic, for one, confirmed Orlando's observation that only by virtue of being exceptionally fast are they taken seriously by their partners in public transport and municipal bureaucrats. When speed is a condition of valuable work, it must be performed independently of the question of whether it furthers the goal of reducing emissions.

A few weeks after the railroaders joined, Dominic signalled a shift. Some of the public transport managers and bureaucrats who were now obliged to attend the ClimateHack Sessions proved to be enthusiastic participants who seemed to value the playful exploration outside their usual institutional constraints. Others, however, resisted the hack more or less actively, seemingly out to prove right their initial scepticism that a bunch of tech outsiders would be able to solve long-standing industry issues. Changing the strategy and scope of the ClimateHack Sessions, Dominic said, "The majority of the work has to happen over the week so that we can blow their minds in the ClimateHack Sessions with what we have achieved". Dominic's insight that demonstrating speed to some (during the ClimateHack Sessions) requires hiding the work of others (during the week) resonates with geographer Doreen Massey's observation that the speed of some requires the hard and often unacknowledged work and immobility of others (Massey 1994). Evoking Erving Goffman's conceptual division between back and frontstage performances (2007), we suggest that working hard backstage enables the performance of speed on the frontstage of the ClimateHack Sessions.

A few months later, Dominic reflected, "It sometimes seems as if the ClimateHack Sessions have become weekly rituals of speed and collaboration while the main work takes place elsewhere". Whether conceptualised through Goffman's frontstage-backstage binary or Dominic's notion of performative ritual, we suggest that the ClimateHack is only able to achieve its desired speed by rendering labour and infrastructures largely invisible.

Sociologist Arlene Kaplan Daniels (Daniels 1987) coined the term "invisible work" to describe gendered and racialised labour like care work, housework, or volunteer work that makes society possible while being culturally and economically devalued and frequently delegated to women and minority workers. The corresponding notion of invisible infrastructures goes back to the work of Susan Lee Star and Geoffrey Bowker who coined the term to highlight how infrastructures that enable and constrain social practices tend to fade into the background (2000). In line with the notion of invisible work, we observe that the care it takes to build and maintain communities of hackers and partners, as well as the digital infrastructures of the ClimateHack, is a rarely acknowledged condition of the performance of speed. While care work is rendered invisible other kinds of work is celebrated in the ClimateHack Sessions.

In pitches and informal chats, the hackers frequently share tales of working long and hard while achieving surprising results, strategic victories or analytical breakthroughs. We argue that fetishising some work as exceptional is the flipside of rendering support work and infrastructures invisible. We propose, in other words, that deleting some work and celebrating other work enables the hackers to perform, what we will call, *heroic speed*.

Besides rendering care work largely invisible and other kinds of work as exceptional, the hackers perform speed by pitching it as an inert technological capability. The SmartTransport app that the hackers are developing, often simply called the A.I., provides seemingly instantaneous insights into where people have travelled and will travel in stunning detail and resolution on a population level. The hackers, for example, identified the parking lot of a major local employer as the source of 20 million annual car kilometres by tracing in and outgoing traffic. Pulled up during presentations, this digital map does not fail to impress. The mobility data and prediction provide valuable insights for traffic planners and mobility interventions, but there is more: the abstraction of real-life movement into elegant lines and dots gives viewers a sense that real-life mobility patterns might be just as easy and quick to manipulate as their digital representations. Programming the A.I. to a point that it can provide instantaneous data insights requires long hours of development work. The difference in time zones between Columbia and Switzerland means that the hackers often promise their partners data insights that miraculously materialise overnight, i.e., the Columbian working day. When the A.I. requires more attention than Orlando and Ines can summon, they subcontract to developers from their Columbian network. Known to the other hackers only as the Columbians, these invisible workers are working from a distant, radically different reality to enable the A.I. to operate seemingly automatically. Feminist scholar of science and technology Lucy Suchman elegantly shows how making technologies work during demonstration events requires infrastructure and labour, which is cut during demonstration events so that the technical object can appear self-sufficient and self-actualizing (Suchman et al. 2002). In line with Suchman's observation, we conclude that the speed of the A.I. and the speed of the hack experiments equally depend on the deletion and mythification of labour, care, and infrastructure. Testing ideas from the ClimateHack Sessions through the data models of their mobility pattern prediction app, and then conducing real-life experiments, allows the hackers to extend the digital laboratory of the ClimateHack Sessions into the "real world". While doing so, they also build feedback loops through the AB testing marketing messages on social media, as well as evaluate people's responses to the real-life experiments. The performance of speed in the sessions and the performance of speed through data modelling and rapid, small-scale real-life experiments are coupled in a resource and labour-intensive loop that maintains speed. Maintaining speed perpetuates the promise that some ideas will eventually scale and enable significant emission reductions, which, if successful, would justify the initial expense. Testing is how the hackers maintain the promise that the exceptional *heroic* speed of small, short-term experiments will eventually lead to solutions that can be scaled up and rolled out. Noting that scaling up implies acceleration, we suggest that the promised speed of scaling up is crucial to justifying small, specific, and resource-intensive experiments.

So far, we described how the ClimateHack's digital infrastructures, tools, methods, and timeframes prioritise and perform speed. We argued that the ClimateHack's focus on speedy

forms of idea generation, technological solutions, rapid real-world testing, and short-term timeframes affects what does and does not count as fast and valuable. Following the hackers from their ideation sessions to the "real" world, we also showed that as experts in speed, the hackers must be exceptionally fast to retain their credibility with various collaborators and partners. We further conceptualised speed as a relational effect achieved in practice. Having noted that the performance of speed in the hack renders enabling care work and infrastructures invisible so that speed can stand out as a miraculous achievement, we proposed the notion of *heroic speed*. Exceptional speed achieved in specific, resource-intense experiments is justified with the promise that solutions will eventually scale up.

9. Speed as a Mode of Doing Politics

Having shown that in the hack, promising, defining, and delivering speed comes with the power to define the framework, methods, and timeframes of meaningful action, we return to our opening promise to think through the politics of speed. The ClimateHack's timers, post-it notes, pitching phases, digital modelling, rapid experiments and short-term consultancy contracts prioritise speed in ways that make some realities urgent while rendering others less relevant or invisible. Second-wave feminists, the black power movement and the civil rights and student movements of the 1960s fought to expand what counts as politics to reveal how oppressive norms shape and constrain the lived reality of oppressed groups. Feminist and black feminist activists and intellectuals, in particular, have worked to demonstrate and undo the bifurcation of politics into official public politics and the domestic sphere (see, for example, Hanisch 1970; Lorde 1984; Moraga and Anzaldúa 1981). The rallying cry, "The Personal is Political", continues to inspire scholars and activists because it powerfully summarises the crucial insight that political and economic structures shape racialised and gendered personal experiences. Science and technology studies expanded the claim that the personal is political to technoscientific practices, artefacts and infrastructures. Dispensing with the notion of unbiased technoscience, scholars such as Donna Haraway (1988) have demonstrated how practices, infrastructures, scientific methods, and artefacts order, value, and distribute realities. In his classic study, for example, Langdon Winner asks, "Do Artifacts Have Politics?" and writes that "Many technical devices and systems important in everyday life contain possibilities for many different ways of ordering human activity" (1980, 127). Whether consciously or not, Winner argues, actors such as climate hackathons and green start-ups establish technologies that influence, for example, what route people drive to work, what forms of life are considered valuable, and which kinds of future visions can and cannot be addressed in the name of green transformation. Bruno Latour suggested that technoscientific development, innovation, and implementation – and, by extension, all human practice – can be understood as ways of doing politics by other means (1988).

The members of the ClimateHack cooperative tend to insist that their actions, artefacts, and methods are strictly technical or economical and thus non-political. Sociologist David Tyfield, in contrast to the hackers' understanding of technology and hacking as non-political, argues that sustainable technology development and deployment is unimaginable without

massive state subsidies (2018). He argues that liberal narratives of self-actualising technology and free market-driven innovation, also favoured by the hackers, can only be maintained if the crucial role of state funding, infrastructure, education, and policy is largely ignored. Concluding that green innovation projects are inherently political because they order what kinds of futures and interventions become imaginable or not, Tyfield proposes the notion of innovation as politics. Considering speed as politics matters because politics are frequently veiled in the name of speed. Once we think about hacking as a mode of doing politics by other means, we can ask what kinds of unacknowledged political assumptions play out in the ClimateHack.

10. Speed Circumvents Politics

Although the hackers are frustrated that many of their working hours are spent on liaising with government officials, local politicians, and state-funded public transport companies, they insist that their *real* innovation work has nothing to do with official politics or what in STS terms is sometimes called politics with a capital P. Bracketing the ClimateHack's implicit politics allows the hackers to position the speedy hack as a site outside of official politics that by contrast is characterised as cumbersome, incompetent, and slow. A participant in a ClimateHack Session populated mainly by government and company mobility managers remarked that "an alliance of the biggest employers taking the lead would be quicker and more agile than politics". Insinuating that speedy action can outpace politics is a roundabout way of understanding speed as a way of doing politics by other means. Establishing the ClimateHack as an initiative where change can manifest relatively unhindered by institutional constraints at a speed that potentially circumvents official politics has allowed the hackers to mobilise partners, participants, and resources to realise a series of real-life experiments that industry insiders initially considered impossible to pull off. The ClimateHack demonstrates the power and perhaps even the necessity of forming new alliances for environmental action outside established institutions. Rather than offering a coherent logic for action, we suggest that appeals to speed allow actors to mobilise people, organisations and resources while remaining ambivalent about effects and intentions.

11. Practicing Speed Otherwise

If speed is a mode of doing politics by other means, then the means through which speed is achieved matter. Let's recall that in Barbara Adam's work (1998), temporalities such as speed are an effect of how time is structured, valued, and experienced in practice. All practices in this way of thinking imply specific temporalities (and thus certain forms of slowness, speeds, and rhythms), as well as normative judgments about what counts as a good or bad pace. The insight that value judgments, for example, about speed are embedded and reproduced in practices is core to the so-called "practice turn" in the social sciences that prioritises practices as the focus of analysis[5]. With a focus on practices in mind, we can revisit Isidro and Francisca's stories as moments when different practices and theories of speed clashed and the implicit politics of speed in the hack became available for negotiation. Francisca and Isidro's stories stand

in here for many other moments in the hack where participants take the time to care for each other, for the organisation, or for the projects they pursue in ways that don't fit the mould of heroic speed. Our point is not to draw a binary between heroic speed and embodied pace, or to suggest that the hack is devoid of practices of care but to point out practices of care and collective production are frequently rendered secondary or harvested in the name of heroic speed.

As mentioned above, Dominic associated the ClimateHack with a war room in his confrontation with Francisca. We noted that dominant theories of speed associate speed with military logics, justifying mobilisation and abstraction to bypass political deliberation. We showed that practicing speed in war mode requires rendering supporting infrastructures, practices of care, and explicit politics invisible. And while we acknowledge the mobilising power of heroic speed in the hacker's pitches, and while immediate environmental emergencies, such as floodings or heatwaves, might justify the logic of a "war room", we ultimately side with Francisca, who, in our understanding, proposes that the ongoing urgencies of overlapping environmental and social crisis require forms of practising speed that centre care, embodiment, connectedness and attention to differences. We might think of attempts to work towards meaningful impact without giving in to the logic of heroic speed as attempts to establish a situated, embodied pace. We argue that reconceptualising speed is necessary because the logic of heroic "war speed" drives regimes of accelerating production and extraction at the root of the environmental crisis and the post-colonial realities that characterise it.

At the same time, calls for slowing down are unsatisfying in the face of environmental collapse that requires timely action. During an interview with Isidro, we tried to frame his care for the collective and Indigenous politics in opposition to the hack's dedication to speed. Isidro resisted our binary framing of care as slow or other to speed, patiently pointing out that in his understanding, caring for ancestors and other participants is not about slowing down, but about elevating the ClimateHack's pace and scope. Like Francisca, Isidro invites us to let go of the slow/fast binary in search of ways of practising speed that gather momentum through care, embodiment, and connectedness. To arrive at a working concept of speed for environmental action, we must resist both the seduction of heroic speed and binary thinking that romanticizes slowness as the antidote for speed.

Notes

[1] The organisational structure shown in Figure 1 was created by us and embraced by one of the central figures of the ClimateHack (who we pseudonymised as Dominic), while another member of the core group (who we call Francisca) rejected it.

[2] Hackathons are not always technically oriented and can also be "issue-driven" – focusing on social themes and conditions (Lodato and Disalvo 2016). That said, we focus here on more software-driven, technosolutionist approaches to hackathons.

[3] The hackers work with the figure 21% and rely on a sample census from 2015 based on interviews conducted with 57'090 citizens.

[4] The Swiss Energy Strategy 2050 in Public Transport (ESPT 2050) provides more detail on how global Swiss emission reduction targets translate into public transport targets pivoting on a shift in modal split.

[5] Versions of the idea that people's multiple, partially overlapping doings establish actual and possible socio-technical worlds, value judgments, and emission patterns are central, amongst others, to the work of Boltanski and Thévenot (2006), Mol (2002), and Shove (2022).

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