

Making Time in Maintenance Work

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Infrastructure, in a simple (though somewhat flawed) formulation, refers to the prior work [...] that supports and enables the activity we are really engaged in doing.

Slota and Bowker (2017: 529), emphasis added.

In engaging technologies and the built environment within the social sciences, there have increasingly been appeals to escape what Arjun Appadurai calls the “trap of trajectorism” (2013: 223) guiding a great many narratives of socio-technical change, by more thoroughly examining the intricacies of time and temporalities in our collective interactions with science and technology, and recognizing their many and diverse “temporal textures and choreographies” (Felt 2016).

This proposition seems particularly relevant when we consider the rhythms, cycles, rituals, (a)synchronicities, and time horizons of infrastructural configurations. The

modernist “infrastructural ideal” (Graham and Marvin 2001) is all too often one of progress and evolution after all, and frequently linked to understanding developments over time in terms of linearity and coherence. What the modernist ideal makes provisions for are networks that evolve into publicly owned services available to everyone at any place. The modernist ideal understands infrastructure gladly as a matter of moving through a directed, systematic series of technological and innovative *additions* that make up its evolution.

Science and technology studies remind us that such “evolution” is not linear. For Star and Ruhleder (1996), infrastructure evolves in a modular fashion and is never built in one go. Neither is it built from one central place nor by one single institution or person. Such modularity is instructively visualized in Thomas Hughes’ classic study *Networks of Power* (1983). Here, a series of monochrome schema reproduces the historical evolution of the Pennsylvania electricity network in 1900, 1910, 1920, and 1930. Until 1930, an uncounted number of distributed power stations and local networks were connected in a unified and cohesive electricity system that covered the entire state of Pennsylvania. The picture of modular evolution is even more complicated, though, when Stewart Brand, in his book *How Buildings Learn* (1994), elaborates on a hotel building on the seafront at Popham Beach, Maine. As he places two photos taken 86 years apart (1905 and 1991) side by side, the degradation of the building is made clearly visible. Here, modular evolution seems to move away from the progressive understanding of linear addition and upgrading; subtraction and downgrading become relevant parts of the modularity of infrastructure. Such accounts produce an awareness of more elaborate relations to time than trajectorism provides.

Important to this reconfiguring is an understanding of an infrastructure that “advances” in time not only through adding or demolishing new and old parts but through a multiplicity of other engagements, such as investment, maintenance and repair, adaption, misuse, or neglect. In the case of the Popham beach building, the absence of continued upkeep (maintenance) is the main driver leading to its downgrading over the years. Once we take “infrastructures-in-use” (Shove 2016) into view, it makes sense to not set progress or stagnation as the sole configurators of infrastructural time. Rather we would think of infrastructure “as a moving modulator regulating different intensities of engagement, redirecting users’ attention, mixing and putting people together, concentrating flows of actors and distributing them so as to compose a productive force in time-space” (Latour and Yaneva 2008: 87). Instead of asking how infrastructure moves from one state to the next along a single progressive timeline, this mini-programme invites us to wonder when infrastructure is (Star and Ruhleder 1996: 114), at what places, for whom, and how. Studying practices of repair and maintenance work opens up possibilities to understand how time is mobilized and brought to bear by different actors within infrastructural settings.

“Prior work” revisited: How time is produced in a maintenance setting

In what precedes, time is addressed from the perspective of its effects on infrastructure. But while these effects can take several forms, time itself nevertheless

appears as an external and stable variable. Such a reification of infrastructural time can be avoided if we pay attention to what ethnomethodologists call “perspicuous settings” (see e.g. Garfinkel and Wieder 1992; Garfinkel 2002) – in this case, situations where time is actively produced by those involved in infrastructure work. In such settings, time is intersubjectively oriented to, defined and established as relevant, and consequential for the infrastructure at hand. In other words, and inspired by Lynch and Bogen’s (1996) study of the endogenous production of historicity in the Iran-Contra Hearings, we can treat the historicity of the infrastructure as first and foremost a practical concern of its parties and practitioners.

To illustrate this aspect of infrastructural time, we draw from our studies on the work of caretakers as professionals in charge of housing infrastructures in Switzerland (Strebel 2015; Sormani, Strebel and Bovet 2015; Bovet and Strebel 2019). Among numerous ways in which time matters to the participants in these settings, we can first mention the retrospective-prospective orientation of repair interventions, where the repaired thing is compared to how it was before it failed, but also anticipated in its future, post-repair, uses. For example, when the caretaker M. invites a tenant to manipulate a repaired tap, he warns him that “it’s still running a little hard because it has new joints in it.” This formulation acknowledges that the tap is not restored to its initial state but also promises that it will improve over time. In other words, the tenant is asked to give time to the repaired tap.

While in the previous case, time remains a variable external to the intervention, it can also become a defining and internal aspect of repair. We have found several instances where a central concern of the caretaker is to know who intervened before him in the housing infrastructure. This concern is institutionalized through the increasing requirement to protocolize interventions into an infrastructure, which

The tenant is asked to give time to the repaired tap.
Photo: Ignaz Strebel.



makes available a record of what was repaired or maintained and by whom. In the absence of such a protocol, the diagnosis is part of the situated work that prepares for the intervention. Take, for example, E., a caretaker working full time for a real estate agency, who enters the flat of a family who had called him to let him know that there is hardly any water coming out of their bathroom taps. E. goes into the bathroom and begins working on the aerators on the faucet. As this is not successful, a few moments later he moves to the kitchen. The tenant informs him that “less and less water has been running since this guy [a sanitation technician] mounted that.” E. recognizes that someone else has worked here before by mumbling, “Yes, he didn’t open up there” and pointing at the main water tap for the flat. With this conversation, the tenant and E. not only immediately establish the continued functioning of running water as a collective endeavour over time, but also acknowledge its complicated temporal configuration, going against what would be the common-sense “temporal sequence” of a maintenance intervention (and, thus, of the temporal unfolding of infrastructure): It is not simply a breakdown that has “occurred” and is now followed by a repair. Rather, someone else maintained this faucet *before*, and it broke down *after* such work, and because of it. In what follows, E. speculates that through talking to that previous technician on the phone he will eventually be able to diagnose and fix the problem.

Conclusion: Time as an endogenous property of doing infrastructure

Time and the temporalities of infrastructure are not only conceptually relevant in understanding socio-material relations, but also of very practical concern to any members of society engaging in such relations. We have shown how infrastructural time can not only be pointedly alluded to through social analysis (as in the quote from Slota and Bowker above), but how remarks of a similar nature might in fact actually be mobilized and made relevant in intersubjective orientation towards an infrastructural configuration (reference to “prior work” is a very common interactional feature employed in maintenance interventions). Far from being solely a concern of social theory, or of practices of city planning and policy, time is also an endogenous property of the work that goes into the continuous doing, redoing, and undoing of infrastructure, produced in mundane, everyday situations of socio-technical engagement. Studying repair and maintenance work reveals that the production of infrastructures depends on “the coordinate nature of time” (Crabtree, Rouncefield and Tolmie 2011: 98). What we have discovered when looking at building caretaker work is that they use “time and temporal artefacts to coordinate the timely accomplishment of work” (ibid.). The manifold temporal choreographies or the “endless dance of maintenance” (Denis and Pontille 2019: 170) are not imposed from the outside of such work by a time schedule or by step-by-step instruction; rather, they are internally produced through such work, always in rhythm with the next move that needs to be made.

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