

What is infrastructure?

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Although a familiar word, what does infrastructure really mean? We can all come up with examples of infrastructures if asked. For instance, the electricity grid, public transportation, highways and roads are all examples of infrastructures. Recently we have also seen the emergence –and increased importance –of digital infrastructures, such as the internet, the world wide web, and Facebook. Many organizations now have information infrastructures (Monteiro et al., 2013) such as company-wide file systems, employee directories, and more specialized work-oriented infrastructures such as electronic health records in hospitals (Hanseth & Lundberg, 2001).

These systems have several commonalities. One is that they are all “invisible” as long as they do their intended duty. They become visible only when they break down. Another commonality is that they are often (not always, see e.g. Plantin et al., 2018) developed in a decentralized manner. Infrastructures are almost always developed over a long period of time, involving different groups of users and designers. It is often difficult to tell where the boundaries of an infrastructure are, and who its users are (Monteiro et al., 2013). Moreover, “infrastructure is a fundamentally relational concept. It becomes infrastructure in relation to organized practices” (Star & Ruhleder, 1996, p. 113), supporting the local peculiarities and the global standards (similar to a boundary object, Star, 2010).

Studying infrastructures is important due to several reasons. Digitalization has resulted in (digital) infrastructures invading every corner of our lives, bringing with them challenges of privacy, political influence, polarization, to name just a few. Attention to infrastructures has also become central due to challenges related to sustainability. Infrastructures are “both engine and barrier for change; both customizable and rigid” (Star & Ruhleder, 1996, p. 111). Even when political and social norms change, it can be difficult to change infrastructures due to their rigidity. For instance, national infrastructures for segregation can continue to function even if segregation as a political system is abolished (Bowker & Star, 2000).

Therefore, traditional design methods might not be adequate to change infrastructures. Many existing design methods assume a “clean slate” approach where designers are expected to employ creativity and co-creation to design new solutions together with immediate user groups (Sanders & Stappers, 2008). On the other hand, infrastructure researchers are interested in methods that acknowledge the “installed base” of technological, social, and political structures. Examples of such methods are participatory infrastructuring (Karasti, 2014), “knotworking” (Bødker et al., 2017) and repair (Mikalsen et al., 2018). These methods try to tackle broader and longitudinal design issues: “Infrastructuring provides a useful frame for

understanding and addressing projects in which technology is developed over time, arenas, and communities of users and practices [...], and in which various groups of users participate in various stages and at various times” (Bødker et al., 2017, p. 246).

For sure we need creativity to change our infrastructures to better deal with future societal and environmental challenges. However, we also need better methods to implement creative solutions on top of the “installed base” of technologies that constitute existing infrastructures.

Reading list

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