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Engineering by Seduction

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We're going to talk a bit about seduction, which might seem a bit odd considering it's engineering we're talking about. Let me explain. The possibilities in terms of how we move around and live our lives have become much more varied in the past thirty years. For example, if we want to get in touch with someone, we can call them on the phone, send them a text message, arrange a meeting with them, write to them, go and see them… The options are plentiful, and the examples numerous. We all have ways of relating to space and to the extensive uses of the various means at our disposal and that we use in our daily lives. With all of these choices, everyone eventually develops a lifestyle in relation to these techniques. This has implications for engineering, particularly that of travel as we have lots of alternatives to choose from, and people living in the same neighbourhood can use very different ways of getting around and going about their activities. It's not unusual for people to be in different places at different times: just because we live in the same neighbourhood doesn't we necessarily meet one another. It's a feature of modern life, or rather contemporary life.

The importance of seducing users

My point about seduction is that, in a system that offers us so many choices, in order for a new technical solution to succeed, it needs to be seductive. It needs to reflect what people want to do, their aspirations as well as their limitations, because we don't live in a world free from limitations. We need a kind of cultural revolution in engineering because we've never really thought about services - particularly transport services - in these terms until now. Often, when we think about a service, we simply think about making it available to the public, without really thinking about the fact that it's going to be used by this public.

The example of the Geneva tram network

If this all sounds abstract, let's use an example we worked on at the EPFL: the reorganisation of the Geneva tram network in 2011. About twenty years ago, like many European cities, Geneva decided to bring back the tramway. It happened in stages, one section after the other. In 2010-2011, Geneva had a seven-line network,

built in successive waves over a 10-year period. There was one thing about the network that people really liked. Each line served several destinations. In other words, there were several lines, and each stop was served by trams going in different directions, so you didn't have to change in the city centre and could make several direct trips across the city.

A new, more efficient but less popular network

But from a technical point of view, the network was quite difficult to run. So, in December 2011, they decided to change their operating concept and replace these dual lines with one line on each route. This meant that, at a given stop, you now only have one line to choose from, whereas before you had two or three. So there are a lot more changeovers on the network, particularly in the city centre. This network was very unpopular with users. It was heavily criticised, and Geneva public transport lost users. The public authorities found this hard to understand, saying: "it is unbelievable. We decide to simplify the network to improve the offer. Admittedly, we got rid of direct connections, but the service is faster, more frequent and there are more trams. There's only one line, but there's a tram every three minutes, whereas before there were two or three lines, but one tram every five minutes."

The importance of taking user expectations into account

When we ask ourselves why this network was so unpopular, it brings us back to the question of seduction and of user logics. What users in Geneva mainly want - for different reasons - are direct, comfortable journeys, because public spaces in the city centre aren't very practical. There's quite a lot of motor traffic, so changing lines there is rather unpleasant. So, even though service is faster and more frequent, in the end, users didn't consider the new network better than the old one. This is a good example of what we mean about engineering by seduction. If you want to change a network in order to increase the use of public transport, you need to first think about how the public feels about the different services. And if you want to attract new users, you need to seduce them, and to do that, you need to take their expectations into account. In this case, they didn't want faster or more frequent travels. What they really wanted were direct journeys.

Reconciling the technological and human dimensions

The example of the tram network illustrates what I want to say about engineering by seduction, but there are countless others as well. What's important is not so much

the example, but what it says about how we need to develop engineering in order to influence practices. It's absolutely vital to offer services that reflect the needs of users. So, what we said about the tram network also applies to the rail service, as well as to lots of other urban services that have nothing to do with transport. Housing issues are also linked to this general problem. What we need to remember is that there needs to be a lot more dialogue in engineering. There's the technical dimension, which seeks the best technical solution, like with Geneva's tram network. Technically, the new network is more efficient than the old one, but that's not the only dimension! There's also the human dimension - the "demand" aspect - and we need to reconcile the two and work together in greater depth. If the right technical solution is a bad solution from the point of view of the user, then it's most likely the wrong engineering solution. And that's the cultural revolution we need to bring about.

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Seduction is a key dimension of engineering today. When we develop a new transport system, we need to focus on more than just its technical performance - we need think about how users are likely to perceive it. Vincent Kaufmann explains what we can learn from Geneva.

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