

Here today, gone tomorrow: Rise and fall of technology hypes a matter of association

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Stopped or in pole position? The shifting fortunes of fuel cell technology. Credit: European Union, 2012

Exaggerated hopes for new technologies arise through associations with other socially relevant expectations. This is the key finding of a study funded by the Austrian Science Fund FWF. The study analysed the "rise and fall" of technology hypes based on fuel cell technology as an alternative vehicle propulsion concept. This technology, which was on

the brink of being launched in the late 1990s following huge fanfare and investment, was overtaken by the hype surrounding battery-operated electric cars. Based on media reports and expert interviews, the study examined the dynamics of the expectations behind this series of events. The results have been used to develop an analytical concept that could help to identify such dynamics in political and commercial contexts.

Technology can revolutionise our lives. And belief in technology is crucial to its success: Systems that are based on old technologies – or that support them – must be abandoned and reinvented. If the desire to do this is recognised in good time, time and money will be invested in the development of the corresponding technology; if it is not, the support for it dissipates. This interaction between development and expectation can end in progress or frustration. Exactly how this process repeatedly gives rise to hypes – and subsequent disappointment – was analysed by a project on [fuel cell technology](#) funded by the Austrian Science Fund FWF.

Unbridled Enthusiasm

"In the area of mobility, in particular, great white hopes replace each other in rapid succession. In the late 1990s, hydrogen-based fuel [cell technology](#) was seen as enormously promising", explains Dr. Matthias Weber from the AIT (Austrian Institute of Technology), whose team collaborated on the study with colleagues from the EAWAG, a Swiss research institute within the ETH domain. "However, as early as 2003, electromobility started to offer a new perspective – and hope. Later again, biofuels were seen as the next big thing for a time. Meanwhile, however, this enthusiasm has been replaced by considerable scepticism."

Dr. Weber and his team analysed how the initial hope in the fuel cells soon escalated into hype. Five different areas of discourse were defined as a basis for the study: mass media, politics, expert circles, finance and

the stock exchange. A detailed discourse analysis was carried out for these areas based on numerous media reports and surveys carried out at selected specialist conferences. A further 30 interviews were held with stakeholders from the innovation systems and evaluated. It emerged from this research that excessive expectations of a technology's performance constitute one reason for the emergence of hypes – however, this is far from the only factor at work here.

Reinforced Links

The study also revealed that the linking of expectations in different areas can contribute to the emergence of hypes. As Björn Budde, who is completing his doctoral thesis as part of this project, explains: "The expectations of the fuel cell technology were linked with the expectations surrounding a completely new hydrogen-based economy. Needless to say, this increased the associated expectations enormously." But that is not all. The discourse analysis and evaluation of the interviews also demonstrated that the linking of the [fuel cell](#) technology with a hydrogen-based economy actually prompted hopes of a solution to the problems of climate change and oil dependency. "The greater the hopes associated with the technological development, however, the deeper the disappointment may be if the expectations are not fulfilled quickly", adds Budde. It also emerged here that hypes are not a phenomenon unique to the mass media. They also arose in several of the discourses studied, ranging from the [mass media](#) to science and politics, and this resulted in the mutual reinforcement of the enthusiasm in the different areas.

This linking is also the cause of an important effect discovered by the FWF-project: The assessment of a technology can change dramatically when expectations shift to a different but associated area. Against this background, a new conceptual framework was developed in the context of the study, that of "network expectations". This analytical concept also

enables the evaluation of non-technological expectations as part of the evaluation of the future potential of new technologies. Thus, this method could make an important contribution to the early understanding of where and how technology-related hopes may turn to disappointment – and how this disappointment can, perhaps, be avoided.

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