

Our Digital Society

The Relentless Revolution

By Nikolaus Nützel



„When an online retailer analyzes customers' shopping records in order to make suggestions for further purchases, one-third of the users respond positively to such proposals,“ says Thomas Hess. *Source: Peter Endig/dpa*

Digitalization, a product of advances in electronics, is transforming economic life. Information systems analyst Thomas Hess studies the diverse impacts of such technological innovation on different sectors of the economy.

In the computer industry the transition from being leader of the pack to filing for bankruptcy can be very brief. – Just ask the management of the American computer manufacturer Commodore. In the early 1980s the firm was at the forefront of the initial drive toward digitalization of the Western world. Commodore's C64 was the first home computer to reach sales figures in the millions. But the company went bankrupt almost 20 years ago and the only place you're likely to find a C64 today is in a technology museum.

Riding high in April, shot down in May

The list of high-technology stars that appeared from nowhere, took off like a rocket and were almost as rapidly eclipsed is a long one. Formerly big names like Digital Equipment or Atari are now known only to old hands. Netscape's browser once introduced millions of users to the internet, the service provider CompuServe made "e-mail" a household word and an indispensable tool. But within a very few years these firms had crashed from the commanding heights of their field into oblivion.

Thomas Hess uses the term "disruptive technological innovations" when asked to explain why, in the digital world, it is possible to go from dominance to

insignificance in the proverbial blink of an eye. As Director of the Institute for Information Systems and New Media at LMU, he wants to understand how the ongoing digital revolution is transforming economic life and, with it, the daily lives of nearly everyone on the planet.

What might a press baron like the legendary Axel Springer make of the fact that the firm he founded has divested itself of its print journals and is now pursuing an "online-first" strategy? Could Franz Burda, founder of the eponymous publishing house, have imagined that the company would someday make money out of a digital dating agency and an online pet-food shop? Hess doubts that old-style patriarchs like these two could ever have envisaged such astonishing transformations, and he is equally skeptical when it comes to predicting the course of digitalization of the global economy over the next 20 or 30 years. "One can devise various scenarios and try to assess their effects, but there are too many imponderables in such models," he says. He therefore prefers to design studies to determine how firms can best respond to the elemental challenges that digitalization poses for traditional media.

As Hess emphasizes, the wave of digitalization is not having equally disruptive

effects on all sectors of business. Though cement manufacturers now use computers to keep track of bookkeeping and optimize forward planning, the nuts and bolts of their business have not really changed over the past few decades. The raw materials are the same, and digitalization has had little impact on their acquisition and processing or on the marketing of the final product. Things are very different in the media: "There everything is in flux," Hess remarks, "absolutely everything."

Freebies everywhere?

News publishers now use so-called content management systems to organize how they collect and select information. As a rule, reporters and editors communicate electronically with informants and business partners. They revamp their organizational structures to ensure that their online content reflects and complements what is in the printed issues delivered to newsagents' shops. But the central problem that confronts them is this: How can digital products be marketed so as to generate reasonable profits? Indeed, is it possible to make a profit in this sphere at all?

For many consumers in the digital world, the idea that products and services cost money is not at all obvious. For years

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now, it has been possible and perfectly legal to obtain one's daily news from a range of sources for nothing. Thirty years ago, printed newspapers carried reports on political developments or natural disasters, columns of society gossip, weather forecasts, and millions of readers were ready to pay for the information. That is no longer the case. It is now quite simple to obtain the latest news on ministerial resignations, earthquakes, Hollywood divorces or upcoming heat waves for free.

The same is true for other media. Mass distribution of music, films or software, free of charge, now occurs online – not always in accordance with the law, but many users are undeterred by that little detail. And as Thomas Hess points out, even users who are prepared to pay for films or music find themselves in a very different position than they would have been in 30 years ago. "Anyone who bought an LP or a CD then had a concrete object to show for it, and most people are willing to pay for something they can touch or hold in their hands. In contrast, a data file is awfully abstract. If you bought a Rolling Stones album in the 1980s, you came back from the record shop in a good mood, looking forward to slitting the cellophane wrapper, placing the disc on the turntable and adjusting the pickup. It was obvious that a price had to be paid for such a sensuous experience. – What can a sound file offer in comparison?"

It is hardly surprising therefore that Hess and his colleagues devote much of their time to studying the digital customer's "willingness to pay". One investigation asked whether a business model based on making personalized news digests available to subscribers would be economically viable. The content would be selected by a computer program on the basis of the user's interests and of recommendations made by her circle of

friends. "We simply wanted to ascertain whether people would be prepared to pay to such an automated service," Hess explains. The result was quite encouraging for the media sector: People were indeed ready to pay.

That study suggested that participants would pay between 1.88 and 6.83 euros per month for such a service. Hess, however, emphasizes that nobody should treat these figures as a realistic basis for a business plan. For him, the interesting point is that customers are willing to pay for specific online services. How much they would actually pay is something that interested firms must find out for themselves.

The lure of the complete version

The immediate and long-term repercussions of digitalization are of daily concern to Hess, but even he is surprised by many of the findings of his own research. Take, for example, the results of a study on so-called "freemium" models, in which users are offered free access to slimmed-down version of a software or music file – together with the option to purchase the full-scale version. The free version may lack important functions or users may be given access to an almost complete version for a specific period of time, after which they must buy the full version or lose access to the content altogether. An alternative approach is to make the free version available on a permanent basis – accompanied by so much intrusive advertising that the full potential of the file concerned cannot be used effectively exploited.

The result of the freemium study was quite clear-cut: Music fans were more likely to purchase the full version of a file if they had had access to it for a time and

then had to decide either to pay for it or be shut out altogether. – This was not what Hess had expected. "I had thought the incomplete version would be more effective in persuading the customer to part with his money," he says.

Apart from willingness to pay, the factor that interests Hess most is a central element of the digital economy: uncertainty. Online buyers are, by definition, at a further remove, both in the physical and psychological senses, from the vendor than is the customer who goes into a shoe-shop to look for – and try on – a new pair of winter boots. This distancing effect means that potential purchasers must consider whether they can trust the good intentions of a seller with whom they have no direct contact.

Winning the customer's confidence

Online retailers have generally attempted to gain customers' confidence by permitting free return or exchange of items or offering money-back guarantees. However, an online clothing store that allows customers to return garments that don't fit is in a very different situation from that of a firm that sells music or software over the internet. Unlike digital files, a pullover or a pair of trousers cannot be easily replicated. Nevertheless, Thomas Hess recommends that suppliers of digital files should also think about money-back guarantees. Research done at his Institute clearly shows that such assurances reduce the level of uncertainty among customers, and help build up trust. Of course, in the case of music files – to take one example – one must then ensure that the customer cannot continue indefinitely to play tracks that he hasn't paid for. Technically speaking, that's no problem, Hess says. "Although all such encrypting systems can in principle be decoded, you only need to make



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the task difficult enough to ensure that sales will cover the cost of the money-back policy."

Thomas Hess has no doubt that the media and the entertainment industry face further upheavals as a consequence of advances in digital technology. He is more reluctant to risk any predictions about its potential effects on other areas of everyday life. – But he is sure that computers, smartphones, cameras and playback devices of all sorts are set to become part of an "internet of appliances", and that the exchange of images, music and other forms of data will become even more pervasive than it is now. He is, however, not persuaded that the "intelligent household" is just around the corner – complete with a refrigerator which automatically orders fresh milk from the nearest supermarket when its sensors indicate that the carton in the dairy compartment is nearly empty. "One shouldn't confuse technical feasibility with commercial and public acceptance," he says. One can certainly produce an intelligent freezer, "but, as an economist, I would guess that there is little incentive to do so. You could never recover the development costs."

The customer profiled

Techniques that enable commercial entities to learn all about customers' likes and dislikes, on the other hand, are already in wide use. Hess believes that this development is irreversible, and that these tools will inevitably be refined further. As one who was born in 1967, he clearly remembers the widespread protests that accompanied the 1987 German census, when appeals were made to boycott the whole project, because the State had the temerity to ask its citizens to provide comparatively few data regarding their personal circumstances

and everyday lives. In stark contrast, online retailers, search-engine designers and telecommunications services now routinely construct profile that tell them exactly what and where each user was doing at virtually any given instant on any given day. For technical reasons alone, according to Hess, "there is no turning back here either." And speaking as an economist, he adds: "Many people are vaguely perturbed by this development, but obviously, for the majority of consumers the advantages offered by digital tools outweigh the potential risks."

Many studies have shown that when an online retailer analyzes customers' shopping records in order to make suggestions for further purchases, approximately one-third of the users respond positively to such proposals. "People find them useful. In other words, the customers benefit from firms' knowledge of their

personal data," he remarks soberly, and adds "This is apparently a price that we are willing to pay."

Does this also mean that the dominance of the biggest commercial data-crunchers – Google, Amazon or Facebook – is also set in stone? The question gives Hess pause. After all, those "disruptive technological innovations", which were the downfall of former superstars in the digital business like Commodore or Compuserve, could likewise end the hegemony of today's leaders. In the retail business, profit margins have always been modest, and that also holds for giants like Amazon, he points out. "And where profit margins are so thin, no retailer is ensured of survival." Hess also regards Google's dominance as anything but assured. "If someone else were to come up with a better, a really clever search algorithm, Google would undoubtedly have a problem."



Prof. Dr. Thomas Hess

Is Director of the Institute for Information Systems and New Media at LMU. Born in 1967, Hess studied Information Systems at the Technical University in Darmstadt, obtained his doctorate at the University of St. Gallen, and completed his *Habilitation* at Göttingen University in 2001. He then taught and carried out research there and in Augsburg, and later at Nanyang University in Singapore, before taking up his present post at LMU in 2001. He also serves as Coordinator of the Center for Internet Research and Media Integration and is a Member of the Board of Management of the Center for Digital Technology and Management, which is run jointly by LMU and the Technical University of Munich (TUM).

