Where do you see the advantages of digitalization for FM providers and, of course, for their clients?

**THOMZIK** We need to start by defining what we mean by digitalization. It used to refer to transformation of content into digital form but now we generally mean the integration of digital tools i.e. “Industrie 4.0” for facility services. We can already identify trends and successes; several data sources can be brought together on a smart data platform to facilitate early recognition of problems and aid development of solutions; elevator and escalator outages can be reliably forecasted; biometric systems simplify access control operations and space occupancy concepts; miniature sensors help to understand building performance better and to create detailed real-time building use analyses. And this is just the start.

**KUMMERT** However, disillusionment is common. I recommend that the FM sector formulate its expectations in connection with digitalization. It would set the effects of digitalization on a positive course. Otherwise, there is a danger of it remaining just a vague trend: everyone agrees that it is a good thing but no one can say why or for whom. I believe there would really be a reason for euphoria if transparent and largely objectively
Where do you see benefits?

**KUMMERT** One example: For years, technical facility management clients have been hearing promises of building automation equipped with IT-controlled measuring devices that will lead to a breakthrough. Our research suggests otherwise: unpredictable user behavior and differing building profiles require highly skilled technicians in the control center who can manage the flood of individual measurement data.

**KUMMERT** We suspect that the biggest improvement in productivity will come when autonomous, self-learning systems are used. However, the path to this type of solution for the FM sector, one which deploys artificial intelligence, is long and it would require huge effort. In the opinion of Beuth researchers it is beyond the capabilities of the industry. Development costs would stretch into two-digit millions. There is small group of digitalization winners already but these are consultants and market research institutes which collect, process and assess large amounts of digital data. We have this field of application, big data analysis, to thank for more transparency in terms of the protagonists, prices, benchmarks and the environment of the FM market.

**THOMZIK** My colleague’s explanation makes it clear: we are talking about a very large cog here. Nevertheless, my impression—which was confirmed at the recent INSerFM in Frankfurt/M.—was that not a few decision makers consider it merely an insignificant start-up scene that will barely affect them. This could lead to fatal consequences.

Let’s talk about the human factor. What developments do you foresee?

**KUMMERT** Our research shows that digitalization, no matter how far-reaching its deployment, is dependent on humans as observers, inspectors and controllers. The higher the level of digitalization, the more highly skilled personnel are necessary to manage the service process as a whole. In the light of today’s knowledge, autonomous digital solutions which replace human beings in facility services and facility management processes remain in the realms of fantasy.

**THOMZIK** I agree with you completely. Innovation is generated by human beings! But digitalization will change the working environment substantially and it is a very human reaction to perceive the advance of algorithms as a threat. Human beings are not just enablers but also the greatest barrier to innovation. The concern and insecurity that personnel feel about the changes brought on by digitalization do not differ from the concern that candle makers felt about the first light bulbs. I assume that there will be a significant shifts; the digital process demands new skills.

**KUMMERT** If we’re honest, we have to admit that successful digitalization projects are reserved to meta-media companies like Alphabet (Google) and internet giants like Amazon or strongly funded sectors like the automotive and engineering industries. Constraints in the FM sector are primarily the shortage of personnel and financial resources. In this context, the sector must be alert to the developments of Think Tanks and the R&D departments of IT and technology companies—service robotics, automation...
and digitalization. Strategic alliances and cooperation with the drivers of digitalization are extremely important.

For example?

**KUMMERT** I think Dussmann Service is making good progress here. Its cooperation with the Fraunhofer Institute on service robotics demonstrates its recognition of the necessity for active participation in automation and digitalization projects.

**THOMZIK** I would like to add to the list of constraints starting with a shortage of personnel: Additional factors are the lack of courage to carry out truly radical transformation and the lack of personnel skills. Here it is again, the human factor. Integration into organizational units often fails when traditional privileges, ownership and budgets are threatened and when an obsolescent level of competence is protected. Instead, we must dare to break new ground, something always associated with uncertainty. At minimum, a fringe of dynamic people who are prepared to take risks is necessary and a promoter who holds a protective umbrella over the digitalization team.

**Where do you see the FM market in ten years?**

**THOMZIK** The development of digital systems will not be linear but exponential. The question is, who will drive the development. The results of the enquiry by the governmental expert commission are devastating: an increasing number of new players dominate the strategically important access to the end consumer and threaten the existence of established providers. We can only hope that the euphoria we touched on at the beginning of this conversation does not turn into anxious, despondent petulance because the “digital elephants” such as Google and Apple dominate the speed of digital transformation or the “digital piranhas”, hungry start-ups, conquer parts of the digital and traditional markets of the established FM players. We have to start building our digital platforms and shaping inevitable developments proactively to avoid being shaped ourselves.

**KUMMERT** The FM market will experience several external technological pushes from the meta-media, from IT and internet companies and from the engineering sector who will attempt to replace traditional FM services and business models in part or in their entirety. It is a matter of how market demand develops (market pull) and what clients prefer. Rising wages imply that future technical solutions will have increasing financial advantages over traditional labor-intensive services and that substitution potential will grow. In our opinion, some FM services will be restructured bringing about substantial change. Only well-prepared, flexible FM companies will survive these changes and harness them for their own benefit.

**Thank you for your time.**

**The interviewees**

Prof. Dr. rer. oec Markus Thomzik has been a lecturer and researcher in the mechanical engineering and facilities management department at Westfälische Hochschule in Gelsenkirchen since 2005. He is also a research professor at the Institut für angewandte Innovationsforschung e. V. at the Ruhr University in Bochum. In 2010, on behalf of the German Facility Management Association (GEFMA), he headed the first reliable study on the economic significance of the FM sector. His most recent project is an empirical study of market participants’ assessment of digitalization in FM.

Prof. Dipl-Kfm. Kai Kummert started lecturing at the Beuth Hochschule für Technik in Berlin in 2007 where he heads department IV for architecture and technical management. He took on responsibility for the college’s competence center for construction, property and facility management in 2008. His research on digitalization has identified three phases of evolution: digital preparation of information, IT-supported assistance systems and ultimately, self-learning systems.