

Doubts lead to action – smart metering: More than just a smart meter?

Politics has set the target: significantly improved energy efficiency and thereby reduced CO₂ emissions by 2020. The general conditions for this are laid out in the German Energy Industry Act. These mean great freedom of action but thereby of course also uncertainties. Time and again, talks with energy supply companies show that great freedom of action leads to considerable doubt. The result is minimum solutions which are limited to the installation of an electronic meter in the place of a mechanical meter, even though the technology is available for a comprehensive solution.

Politicians from across Europe have set themselves the target that 80% of meters at metering points within the EU should be "smart" by 2020, so that users may handle their energy consumption with greater awareness. Surveys in Europe have shown that, on average, 85% of consumers think this is a good idea. This now begs the question, what does a smart meter, or rather what does smart metrology involve?

Smart meters and the intended aim

Both users and manufacturers of meters have tried in various working committees and consortia to define a standard meter for the aforementioned task. This is a sensible approach, given the requirement

of procuring a large number of meters, approx. 45 million for the electricity sector alone, at reasonable cost. This action may also be explained by the fact that the political target specifies that the consumer must not be encumbered with additional costs compared with the current range of products and services.

The standardization discussion has come up with "electronic residential meters" or meters conformant to the Directive on energy end-use efficiency and energy services (for electricity and gas), which are distinguished by a digital display and the possibility of saving historical data such as the previous day, or the weekly, monthly and yearly cumulative totals. The user can call up this data and note it on

site. The question that now presents itself asks whether this really demonstrates the expected progress, compared with the mechanical meters in use today, particularly as the measuring principle is not up for debate.

Data such as consumption in kWh or m³ is not informative unless it is compared against reference values and thus converted into information. Presupposing the use of residential meters with electronic index, this means that consumers would have to compile their own statistics in order to receive reliable information for themselves. In addition, they must also acquire reference data from similar or identical consumer environments, in order to make decisions. That means that it is

Fig. 1: Business case components

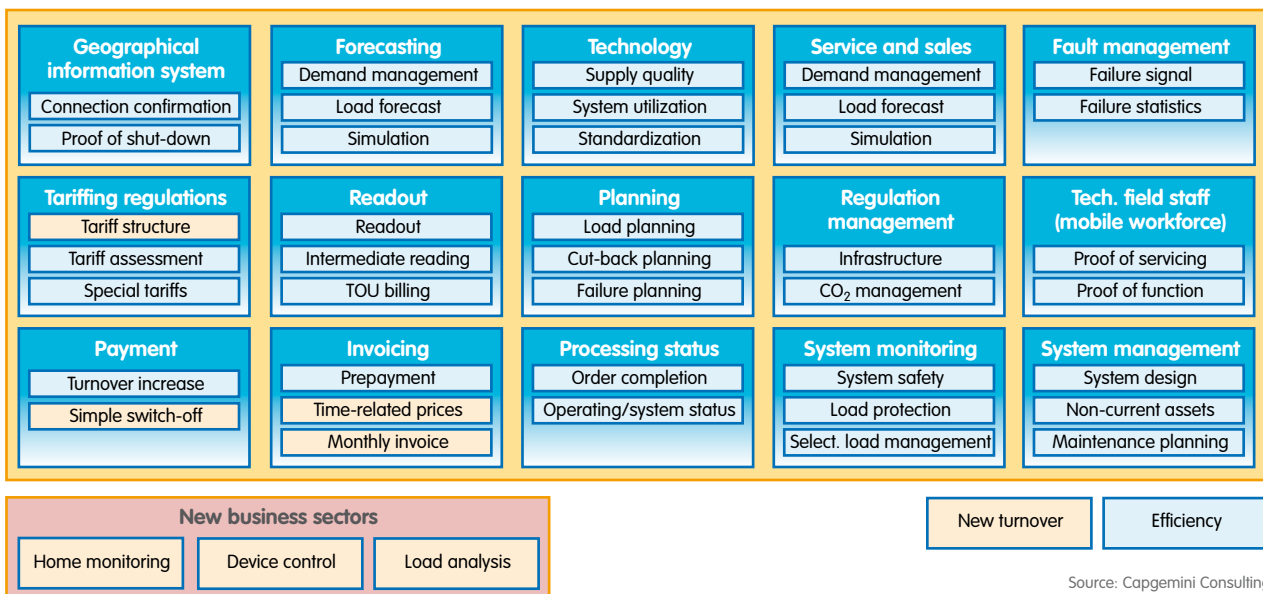
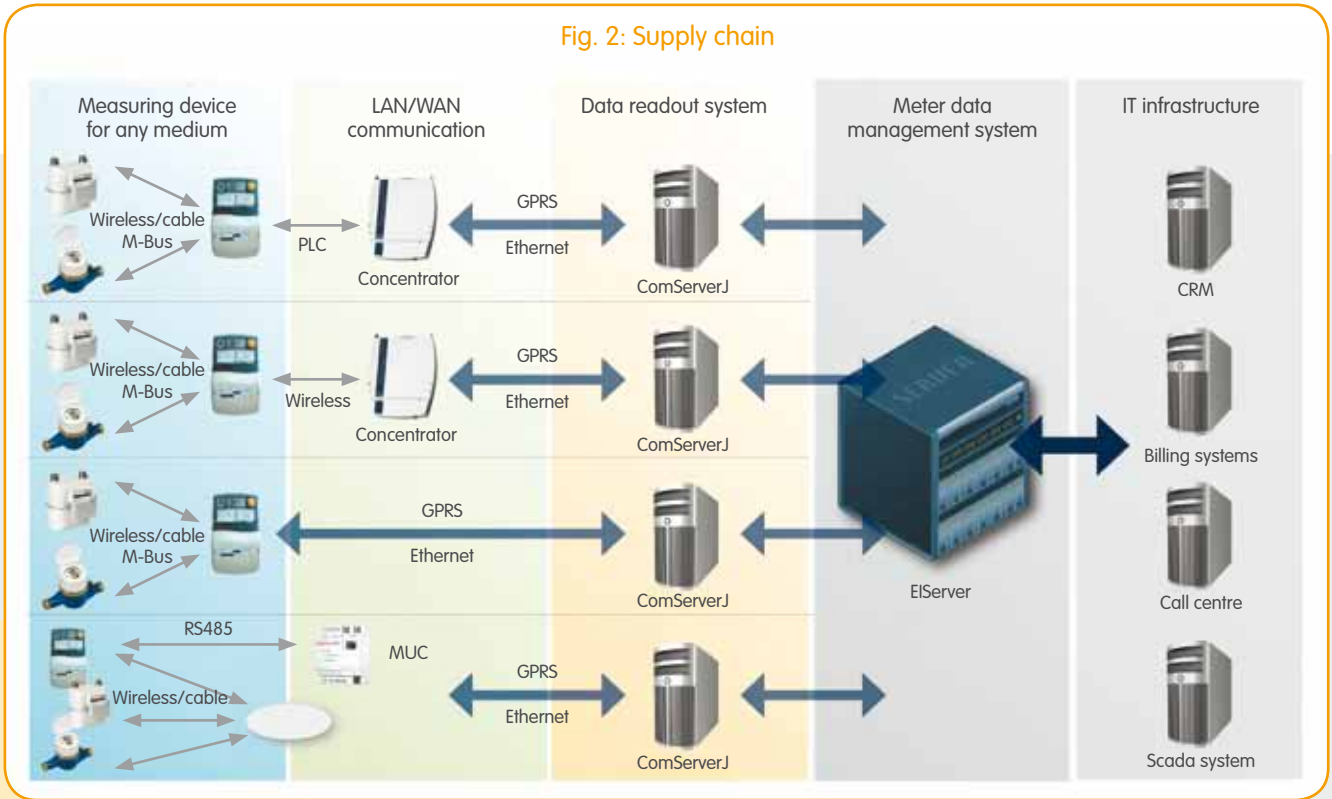


Fig. 2: Supply chain



not the meter that is smart; the intelligence continues to lie with the consumer and their readiness to compile the relevant information for decision-making through a time-consuming data collection process.

That the consumer no longer should nor wishes to pay for this is more than understandable. When using an electronic residential meter that does not communicate with a meter data management system that converts data into information, the aim of providing consumption transparency for the customer and bring about awareness and a willingness to improve energy efficiency will fail.

Smart meters vs. smart metrology

If one looks at how a vehicle is equipped today, compared with fifty or hundred years ago, we can see that drivers now receive a huge amount of data as standard, data which is made available to them as information – current and historical consumption average, distance to empty tank, rpm, the next service, etc. The current speed is also displayed, as was the case a hundred or fifty years ago. This is a compulsory piece of data and if it is not made available, a vehicle is not allowed on public roads. However, the additional data just mentioned contributes to the fact that the majority of today's drivers use this data to optimize their way of

driving and their consumption. Moreover, using this measurement data, the vehicle settings can be automatically verified and in some cases changed on modern vehicles. The speedometer and the rev counter provide the basic data, smart metrology generates the relevant information for the driver, without them needing to spend time collecting data themselves.

This must also be the aim for smart metrology for the energy and water industries.

Doubts in the business case

According to current statements from policy-makers in the energy industry, the calculation for the investment in smart metrology and the resulting costs almost always leads to a negative business case. This of course raises doubts, which usually rules out a positive follow-up action – namely preparing the conditions for smart metrology. If the business case is restricted to metrology operation and the corresponding current service, this assessment is absolutely right. But the business case encompasses a range of components (see Fig. 1), whose positive cost benefit can be settled not just in the metrology sphere. Let us take the monthly downpayments as an example: how much is the energy supply company willing to pay for making a consumption overview available to the customer every month, which shows the customer whether their prepayments are

sufficient for the period concerned? How much does it cost the company when they are in dispute with their customers about balancing payments? Using a system with a central data recording and evaluation component can bring about huge saving potential and commercial possibilities for the supply company in particular, like simplifying procedures when customers move house or new tariff models, etc. How much is the company prepared to pay the metrology operators (meter operators and service providers)? And how much more is the customer prepared to pay for improved information as a basis for personal energy management? Investigations in the USA have also established positive effects for the network operator, such as a reduction in capital costs by up to 15%. A metrology operator may also partake of this.

The business case for infrastructure investments – this of course includes smart metering – is certainly always complex and therefore harder to establish than for pure rationalization investments. A carefully considered and target-oriented approach is needed. What then often emerges from doubts are future-oriented ideas with new business sectors and services which deliver added value to all the parties involved in the long term.

Reliable partner for successful action

Elster has been supporting metrology in the energy and water industries for over one hundred years. Elster's enduring success is due, among other things, to the fact that it has adapted to technical necessities and changes in metrology at the right moment and has supplied its customers with modern, high-quality solutions. This is also true for the greatest change in metrology, the introduction of remote meter reading for the mass market. For this, Elster has significantly extended its product portfolio with the integration of EnergyICT, one of the world market leaders in the field of meter data

communication and meter data management. Using future-oriented meter technology in the gas, electricity and water sectors with integrated or external data communication, with the highly scalable meter data management system EIServer (Energy Information Server) and with project consultants with international experience in the field of smart metering, Elster now serves the entire supply chain from the meter at the metering point up to the transmission of plausible data to market partners from a single source (Fig. 2). Elster offers this not just as a ready-to-install total system solution to its customers, but also in the form of a business process service. The entire IT periphery of the solution is operated by Elster. Depending

on the design, with its subsidiary, EnergyICT, Elster not only operates the smart metering system, but also initiates and monitors the processes from the meter data readout through the plausibility check, up to data transmission. Worldwide operating companies are already using EnergyICT's expertise today and let them operate their data and business processes.

Set us a challenge. We would also be happy to talk to you personally in more detail.

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EnergyICT, a member company of the Elster Group