

How to create viable business around Smart Metering

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With this white paper we want to dig deeper into the current situation of the Smart Metering market in Europe, and propose solutions for energy utilities to become an active player in this game instead of being tossed about by the waves of big internet corporations.

The smart energy market in Europe tends to be expensive, complex, limited and still not future-proof.

The energy utility market in Europe is highly regulated — as in many other regions of the world as well. Particularly when it comes to the transmission and use of highly granular data, companies have to deal with a bunch of rules concerning data protection and security, prescribed connectivity standards and even product designs that have to be offered, for example, to end customers. Some of these rules might have been established with good intentions. However, technological developments move fast, and are even accelerating in the last couple of years:

- Costs of highly capable hardware, even at industry standards, drops significantly and become affordable now for use cases, which have not been conceivable a few years ago.
- Connectivity standards based on Internet technology are emerging rapidly even for the smallest, least capable and lowest powered devices, with often much better performance than already established standards.

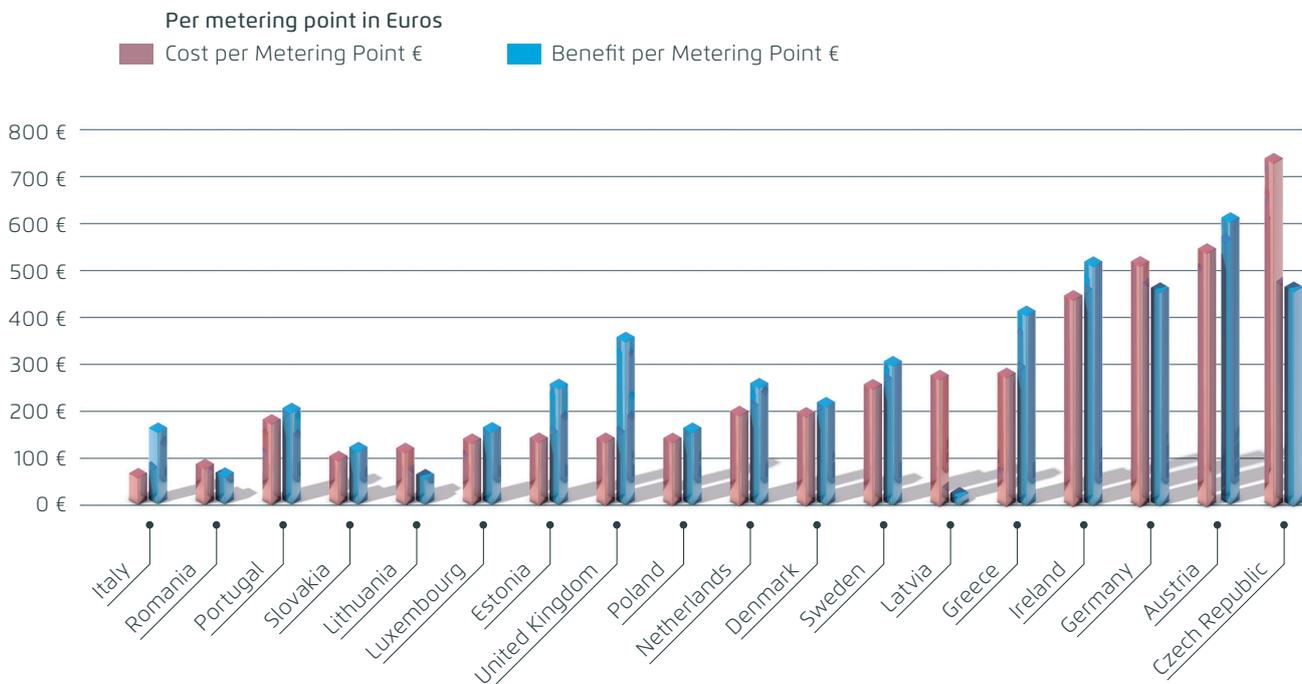
- New players (e.g., for metering devices) enter the market who do not carry the heritage of well established but outdated products and can concentrate on using cheap but highly reliable technology.
- Data-driven business models are developed that many incumbents in the utilities market are not used to. Utilities therefore face the threat that they are not capable of profitably using energy data which they enjoy first-hand access to. Instead they might be reduced to a mere infrastructure provider, whereas the data-driven business is done by someone else.

All of this causes high uncertainty in the energy utilities industry. Many players do not dare to move at all because they might bet on the wrong horse and are finally stuck with an outdated solution. A high time for many strategy consultants who enjoy lucrative project orders to help overcome this opaque situation. And this might even be the right way as long as the project does not stop at high flying digitalization ideas but gets quick to the core of the business — with solutions that are reasonably fast, cost-effectively implemented, robust and also future-proof but adaptable enough to allow for growth into new business areas over time.

On the next pages we show you:

- The lack of economically viable solutions and the reasons for this situation
- A case study showing how to create a viable business model around Smart Metering

The cost situation shows low involvement



Source — European Commission: <http://ses.jrc.ec.europa.eu/smart-metering-deployment-european-union>

There is a long history of Smart Metering analyses for the European utility markets. Since the European Commission has begun to collect the relevant data from the respective markets, there is some good overview available about where things stand.

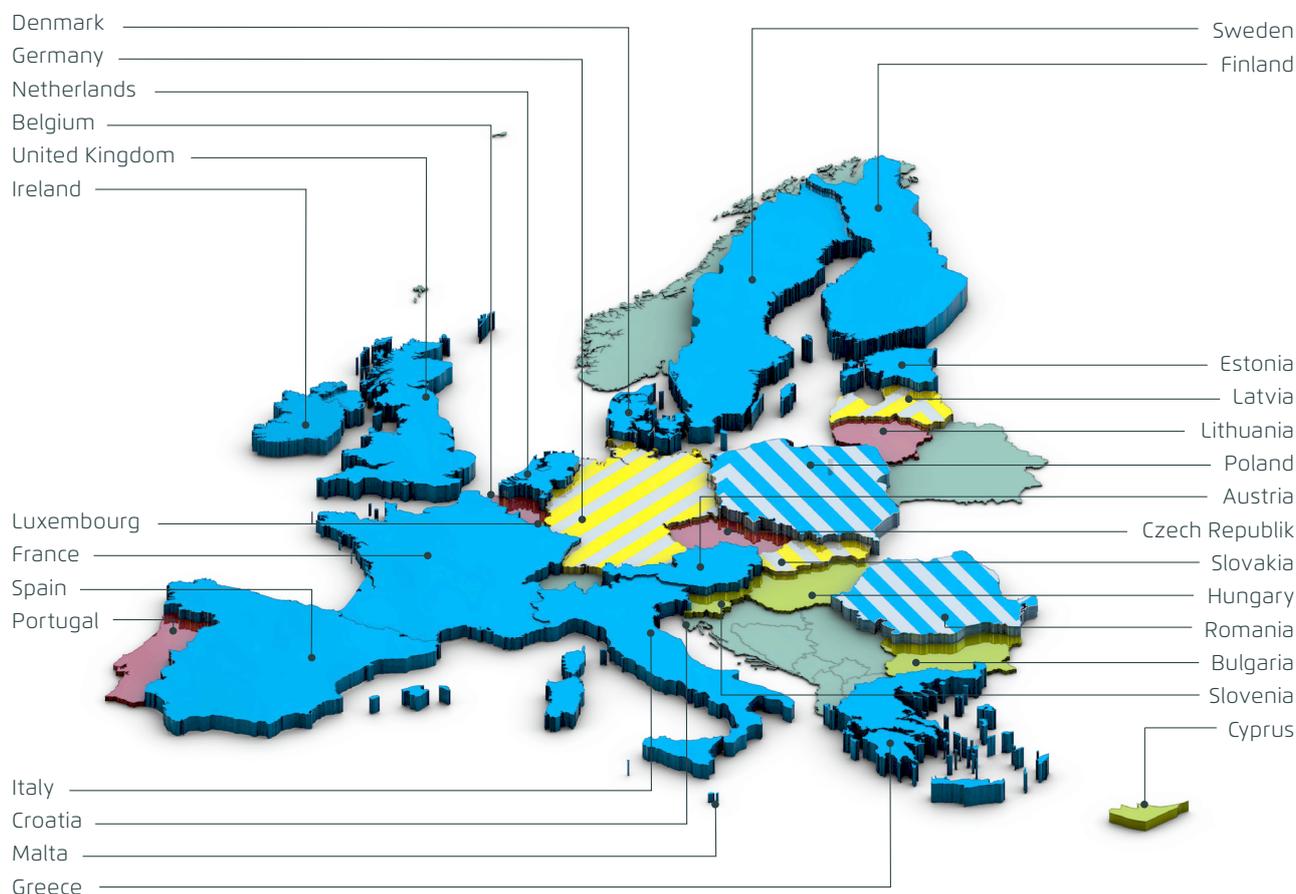
To be able to assess the costs and the expected benefits from a Smart Meter roll out, different studies for almost each individual country have been conducted.

The result is that only in a few cases the proposed benefits of the suggested technical solution significantly exceed the expected cost. In many cases the benefits, however, are „following“ the expected costs which indicates that there is a lot of politics involved. At least, it is not very sensible to assume that the costs of the technical solutions do vary in that amount —although often similar technology is used. And at the same time, the expected benefit almost matches — or only slightly exceeds — the expected costs.

The result is obvious:

- Uncertainty about the real benefits
- Reluctance/hesitation to move quickly and go to the market fast
- Perception that this whole exercise is only wanted by the regulators which puts utilities in a defensive position
- No creativity from the business side for real use cases and benefits that go beyond what the regulators envision

Big plans for electricity but low degree of realization



Source — European Commission: <http://ses.jrc.ec.europa.eu/smart-metering-deployment-european-union>

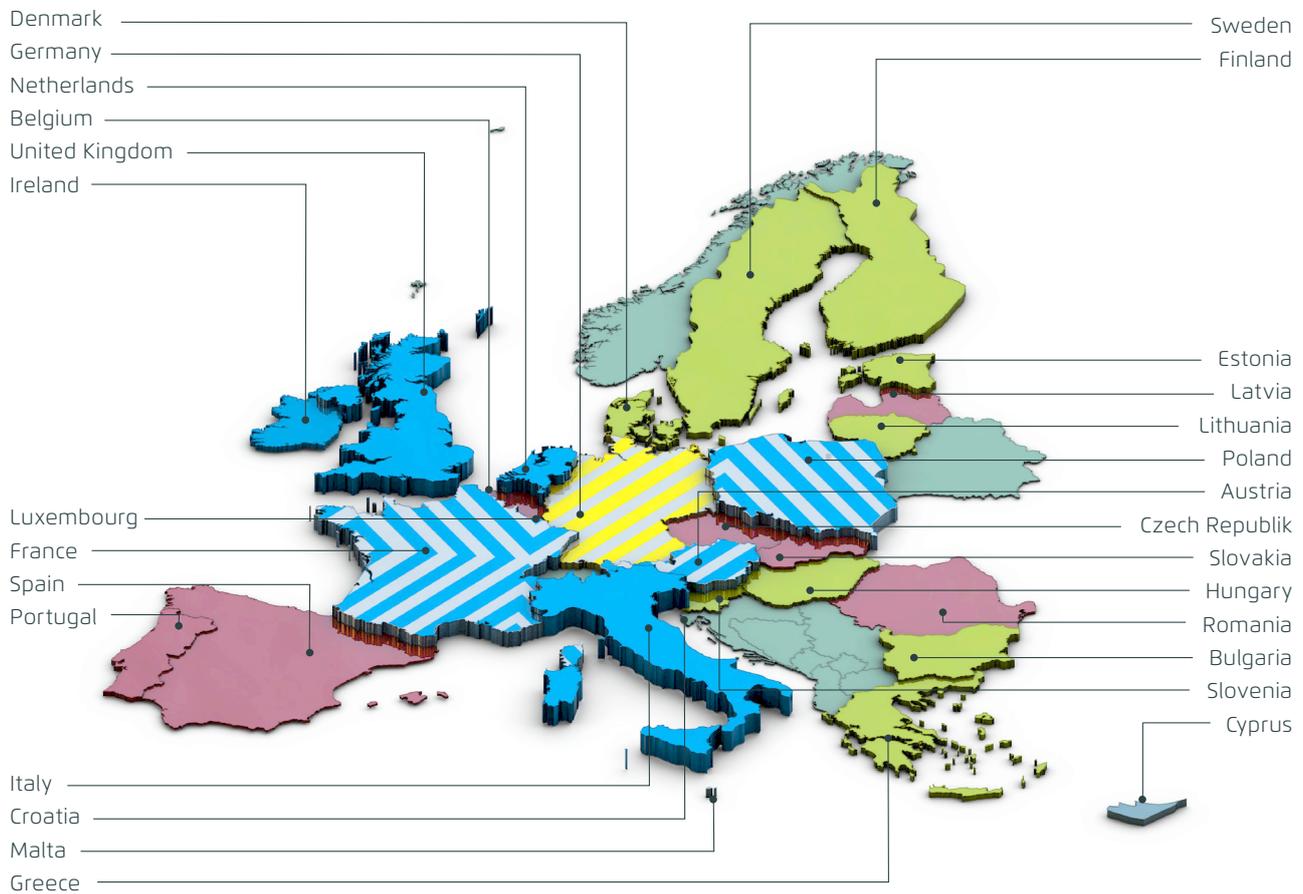
Smart Electricity Metering Roll-Out

- yes
- ▨ yes, official decision pending
- no, based on country's current assessment
- no decision yet
- ▨ selective

For the electricity market, the rollout plans are most advanced. The reason is simple. No one (household or commercial enterprise) does not use electricity. So, the market in terms of volume is the biggest one. Besides this, there have already been solutions for continuous meter readings in the past. So, this market does not start at zero. Whether this is a good thing or a bad thing, however, has to be discussed.

The reality, however, is that the number of meters in most markets is between 5 % and 20 % — even in markets with very high-flying goals regarding coverage and time plan.

Plans for gas and other utilities barely existant



Source — European Commission: <http://ses.jrc.ec.europa.eu/smart-metering-deployment-european-union>

Smart Gas Metering Roll-Out

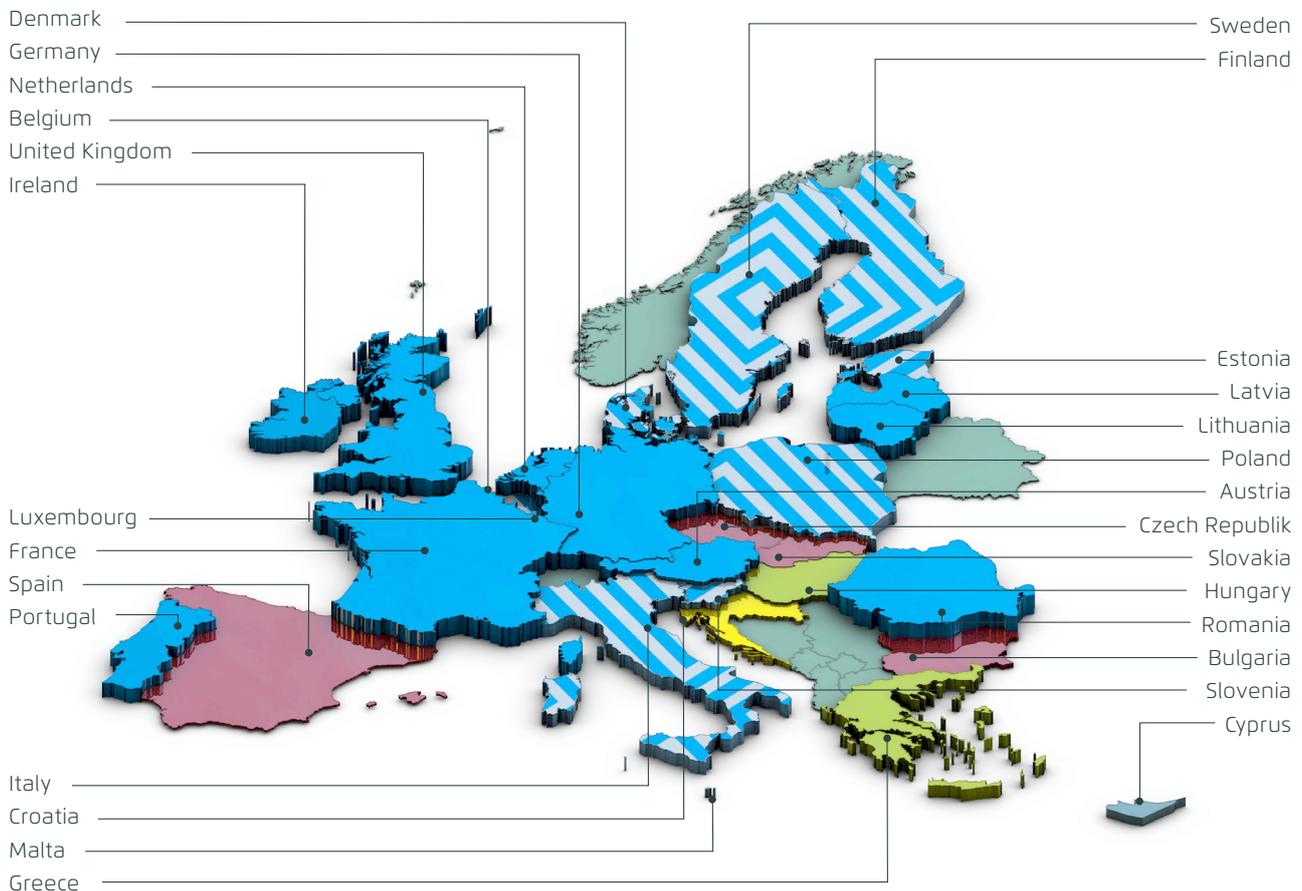
- yes
- yes, official decision pending
- no, based on country's current assesment
- no decision yet
- selective

In contrast to electricity, the plans for a Smart Meter rollout for gas (and the same goes for water, heat, etc.) are barely existent.

This is not only due to technically more challenging solutions but also to the fact that the traditional reason for Smart Metering — a more energy-efficient behavior of end-users — is even less likely to happen when it comes to gas, water, etc.

Again, it is clearly visible that the pure focus on "energy efficiency", accompanied by strong regulatory guidelines, leads to a lack of creativity to come up with more commercially viable and reasonable solutions.

Data granularity determines future use cases



Source — European Commission: <http://ses.jrc.ec.europa.eu/smart-metering-deployment-european-union>

Meters update readings frequently enough to use energy savings schemes

- yes
- partly
- no
- not available
- new EU member

But the situation is even worse: Front runner states like Spain, Italy, Sweden, Denmark, and Finland, who have early adopted quite ambitious plans for a Smart Meter rollout, use technologies that do not seem to be future-proof in a way that they would allow data-driven business models and more customer insight based on highly granular data. Only some countries like the UK and the Netherlands have at least adopted a technology that allows for these use cases in the future.

This means, predominantly only the regulators' request has been implemented.

A clear vision to transform the energy industry from a heavy asset-based business model to a data and customer-centric business model has been missed out.

The effect might be that in a few years' time, the front runners will have to replace the technology that has cost billions to be rolled out in the first place to realize use cases which the fast followers are able to adopt right away.

Case Study:

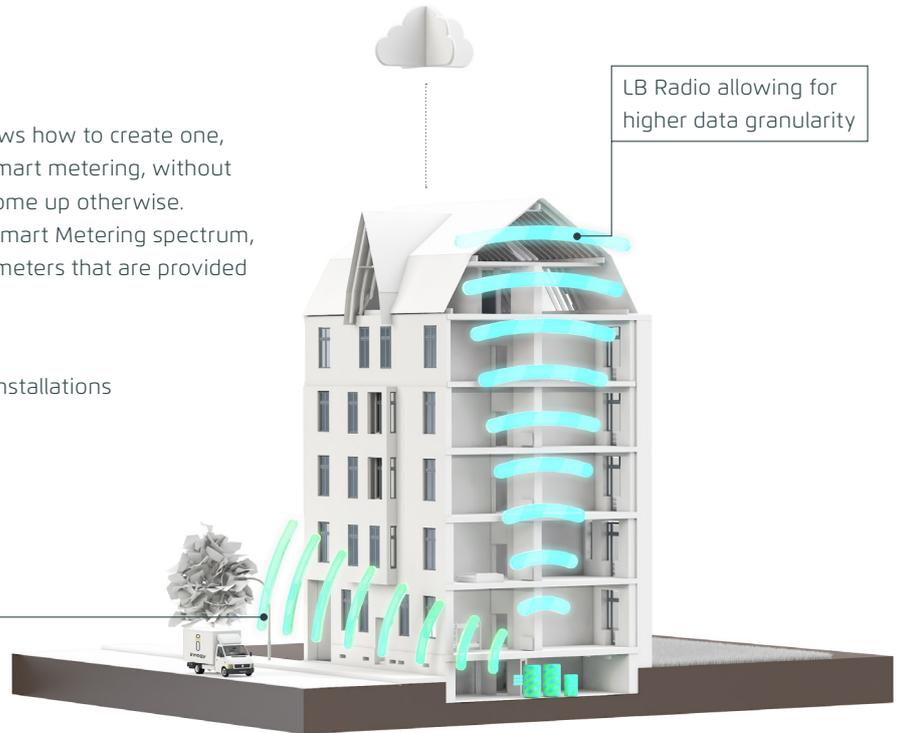
How a german utility reduces process costs and deepens customer insights with smart meters

The case of the german energy utility innogy shows how to create one, or rather two viable business models based on smart metering, without making huge investments that would not have come up otherwise. Instead of focusing on the regulated part of the Smart Metering spectrum, innogy concentrates on regular digital electricity meters that are provided to households today anyway in case of:

- New builds
- Larger renovations that also include electricity installations
- Old meters exceeding their lifetime
- Old meters exceeding the term of their official calibration approval

LoRa allowing for remote reading

LB Radio allowing for higher data granularity



In those cases, innogy “smartens up” regular digital meters and equippes them with a cost-effective dual radio technology that enables to switch between degrees of radio bandwidth and radio range.

The intelligent Smart Meters decide autonomously which radio to use. Thereby, innogy realizes both, a significant reduction of processing costs and generation of customer insights.

- Grid operators can collect meter reads by supplying, for example, the mailman with a receiving device and thus reducing their processing costs for billing and invoicing.
- At the same time, the meters allow for highly granular energy data to be transmitted to every household (or the landlord of a property) via cost-effective customer gateways. This consumption data comes up to a meter read per second (!), allowing for deep customer insight regarding customer consumption behavior and offers a variety of use cases starting from an improved grid balance management, portfolio management, or customer engagement for the retail side of the business.

This technology does not only allow for electricity meters to be included but also for gas, water, heat, and any other kind of meters.

Success Factors:

- State of the Art data protection
- Data protection even in case of changing users of a particular meter
- Automatically self-adjusting radio range depending on the particular building situation (number of stories/levels, etc.)
- Consumption data with a high granularity and low latency
 - one or two family home (2 levels): meter reads all 1-2s , latency of 5-15s
 - Small multi family home (3-4 levels): meter reads all 3-5s, latency of 30-60s
 - Large multi family home (up to 12 levels): meter reads all 7-25s, latency of 120-180s
- Easy to connect devices for visualization already existing at the customer’s home (tablet, smart phone, Notebook, etc.)
- Very cost-effective in terms of hardware, installation, and operation
- Option to enhance the system with internet-based services
- Walk-by reading or even drive-by reading for simple “digital meters”

Interested in realizing a viable Smart Energy solution?

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