



# Servitisation to deploy energy efficiency: As a Service models in the European Environment

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## *Questions from participants*

Moderators:

- > Arno Nijrolder, Business Analyst Sustainable Energy at **EIT InnoEnergy**
- > Dimitris Karamitsos, Senior Energy Efficient Business Developer at **BASE**
- > Javier Martinez, Sustainable Finance Manager at **ANESE**
- > Mira Tayah, Expert Circular Economy at **AGORIA**

Speakers:

- > Alix Weil, Product Manager & Sustainable Energy Engineer at **Delta-EE**
- > Eduardo Moreira, Global Services Director at **Signify**
- > Iain McKechnie, Director of Strategic Programmes at **The Advanced Services Group**
- > Ian Robertson, Executive Director at **Invigors EMEA Ltd.**
- > Letizia Coradeschi, Associate, Energy Efficiency at **SUSI Partners**
- > Simon Lutzenberger, Head Sustainable Finance Solutions at **CHG-MERIDIAN**
- > Tomas Sanz de Santa María, Project Director at **GreenYellow**

# Session 1 – Perspectives from Technology Providers

## Questions for Iain McKechnie:

1

**Do you see differences among countries in implementing servitisation?**

A short answer is yes. The Scandinavian firms are very active, we see lots of activity in Switzerland and Germany but, perhaps surprisingly, the USA is one of our most active areas for servitisation support. More case studies at: [www.advancedservicesgroup.co.uk](http://www.advancedservicesgroup.co.uk). Live exhibitions at: [www.servitizationlive.com](http://www.servitizationlive.com) in October this year.

2

**Are clients comfortable with contracting for a long period of time? What happens if the customer cancels the subscription before CAPEX repayment?**

It can depend on the value of the asset. For example, if you have a multi-million Euro asset, perhaps with an operating life of over 25-years, then you would want to understand the performance history, to assess the risk, and then explore a value proposition with the customer that will provide them with an opportunity to 'co-create' new value and share risk. Both parties benefit. We have developed a 3-stage contract model that helps firms to contract for advanced services where the risks are clearly explained and understood, catered for and terms that allow for a cancellation - with penalties previously agreed. If you contact me: [i.mckechnie@aston.ac.uk](mailto:i.mckechnie@aston.ac.uk) then I will link you up with one of my research colleagues to ask them to share details with you.

3

**How can a company know whether servitisation has the potential to enhance their competitive advantage?**

By completing Unlock your Insight ([www.unlockyourinsight.co.uk](http://www.unlockyourinsight.co.uk)) - then consider using an Advanced Services Business Model template to build a picture of the size of the opportunity – with a starting point of segmentation.

4

**Which sectors, in your experience, have seen most benefit from servitisation?**

Energy; Transport; Aerospace; Food (examples of firms include Baxi/BDR Thermea; MAN Truck & Bus UK; AE Aerospace; Koolmill Systems) – a mix of large firms and SMEs.

5

**You have mentioned that the Advanced Services Group has guided more than 350 (?) companies in their servitisation journeys:**



*a) Is servitisation of service providers different from servitisation of OEMs? Are there any similarities?*

Yes. The service providers perhaps absorb more risk to be able to provide the 'capability or outcome' that a customer is looking for. The OEM can more readily help as it has the design, manufacturing, and servicing expertise available as part of the 'outcome' the customer needs. There are lots of other differences due to products, sectors, markets, or geographies but there is 1 main similarity – the executive team have vision & ambition to improve growth and margins through services. The key is to find a way to 'make the Customer more successful' – using suitable research models and advanced services business models & frameworks helps to understand the challenges and opportunities.

*b) Does servitisation experience of SMEs differ from servitisation experience of MNEs?*

No, in the sense that they are both on a transformative journey – but, yes, when you consider the agility that SMEs have and the ability to start, control and manage change processes due to the smaller number of decision-makers involved. That - and the length of the supply-chains.

*c) Can you share some insights on the revenue models that have proven to work?*

Revenue models, as per the research outputs from Prof Tim Baines and Dr Ali Bigdeli from The Advanced Services Group at Aston Business School, provide 6 revenue models for advanced services. In the main, the most successful firms adopt an 'outcome-based model (Type 5) or add a safety net in the form of a fixed revenue model (Types 1 or 2 – flat or profile models). Other types include Output and Usage-based models.

Best example – truck company – revenues growing from £50m to £600m over 10-years with margins increasing from 3% to 30% due to the services provided to customers (in supporting the asset).

Impact = low carbon emission, improved fuel consumption, increased uptime and reliability.



**What is the difference in servitisation strategies/journeys of companies focusing on serving their home market vs companies that focus on exporting most of their products/services?**

The main difference is being able to be located near the customer to provide the services that support the product/installed base. Remote sensing and prognostic/AI are helpful in monitoring the condition of the asset, but you have to be able to, in the main, service the product on-site at the customer's operations.

## Questions for Eduardo Moreira:

1

**What is needed for a facility to benefit from Light as a Service? Is there any focus segment or type of customer?**

Most of the customers could benefit from Light as a Services, provided the credit situation is not an impediment. Usually, we see more free cashflow generation in projects with 500+ light points, 4000 hours burning hours on the lighting system, and with at least 4-5 years tenor on the building on facility to get the full benefit. Other customers and situations are also attended, depending on the conditions. We have also saw many multinational companies benefiting from Light as a Services for their international deployments, in which we are responsible on projects in multiple sites and countries.

2

**What were the typical challenges Signify's customers faced when implementing a Light as a Service program? How could they overcome these topics?**

These are the typical challenges we have mapped so far, with the corresponding way to overcome in the sequence:

- 1) Procurement process:
  - > Procuring a service is different than procuring a product.
  - > Focus on a best value (over economic life-time) procurement process instead of lower price of the goods.
- 2) Early legal involvement:
  - > Outcome based performance contracts need to be assessed in more details than standard T&C for the purchase of products to secure your benefits over time.
  - > Give your legal department time to go through the proposed agreement.
- 3) Accounting assessment:
  - > An off-balance treatment might be possible in the right set-up, depending on the interpretation of your auditors' team.
  - > Involve your technical accounting team to work with legal on the agreement to make it a true service agreement if this is your need.
- 4) Operational responsibilities:
  - > Define upfront a clear responsibility matrix for your teams and the Light as a Service subcontractor.
  - > Preferable engage with 1 partner for the end-2-end and avoid grey areas of accountability, unless necessary.

## Questions for Alix Weil:

1

### Why are providers hesitant to develop new offers in the residential sector?

We see three main reasons:

- > One is regulation – either supportive regulations are not there to enable these models, or where they are they are complex to navigate, so many prospective service providers consider these models to be too high risk.
- > Another is capabilities – to deliver service-based models providers need to increase their capabilities through acquisitions or partnerships. For example, building up an installation force takes time, particularly where there are already installer shortages. Finding financing partners is also challenging where the business model is yet unproven.
- > The third is scalability – because of the hardware involved in delivering energy as a service models, and the fact that each home will have unique requirements, it is difficult to reach the required scale to achieve profitability.

2

### Are clients comfortable with contracting for a long period of time?

This varies by country. In places like Germany where households invest a lot in their heating systems and expect them to last a long time, more people are comfortable with longer contracts. It also helps that leasing of other assets such as vehicles is becoming increasingly common. In places like the UK where heating systems are relatively cheap and households are used to paying upfront, more people are wary of committing to long contracts. This is why it is important that there are clear benefits with contracting and options for ending the contract early if necessary.


3

### What happens if the customer cancels the subscription before capex repayment? / What happens if customers stop paying in a HaaS contract?

First of all, this risk should be included in the service design stage. There are several strategies at the design stage to mitigate it, for instance:

- > Targeting a specific kind of customer – B2B (real estate, housing corporation, etc.) rather than B2C
- > Have shorter contract length
- > Include a deposit / upfront charge
- > Have an insurance
- > Pricing the risk in

At the service execution stage, if a customer stops paying, the ideal solution remains to transfer the contract, and this is what HaaS providers are mostly doing in



practice today. In some cases, the service provider can cease or reduce service provision. However, often there are regulations preventing to leave the customer without heat, but the service could potentially be reduced e.g. maintaining property at 16°C. Recovering the asset is uncommon.

4

#### How are HaaS propositions going to evolve in the next 10 years?

Nowadays, less than 1% of heating appliances are sold on “as a service” contract in the residential sector. According to our forecasts, by 2030, this number could reach 10%.

We also expect the technologies and sectors covered by these contracts to evolve. For instance, an increasing number of contracts will be with heat pumps, while nowadays boilers dominate the market. Connectivity for remote diagnostics and optimisation should also become more common. Finally, more solutions for communal solutions and multifamily homes will be developed.

5

#### Are there noticeable discrepancies in HaaS uptake between countries?

Yes, there are some discrepancies. For instance:

- > In the Netherland, boiler rental is common today. It has a growing popularity as short-term solution. Heat pump leasing models are also starting to appear for retrofit and new build (e.g. Econic).
- > In Germany these models were initially offered by energy suppliers thanks to supportive regulations, and now there is an increasing number of manufacturers and heating specialists entering the market. The popularity of heat appliance rental is growing.
- > France and Italy are slower markets, but we expect more energy suppliers to launch finance + maintenance combos. HVAC manufacturers could also enter the market.

The United Kingdom has a high potential – as it was shown in our 2020 customer survey -, but there is a limited appetite from prospective service providers today.

## Questions for Tomas Sanz de Santa María:

1

Is it possible to implement these models without including the maintenance?" Or "is maintenance included in the model"?

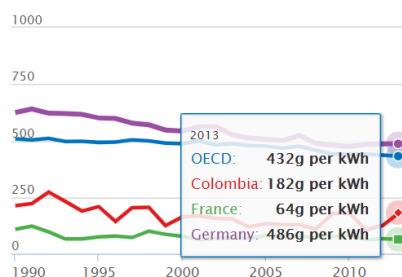
It depends, we believe it is better for maintenance to be included within our scope but that of course makes has an impact on the yearly invoice. If the client believes its in-house trained technicians can execute all the maintenance activities recommended by the manufacturer then we can negotiate leaving the maintenance in the hands of the client. However, this puts the client in risk of voiding warranties and not achieving the energy savings expected

2

Could you explain how you monitor the GhG emission reductions ? Do you use real-time g of CO2 / KWh or an average ? Does as a service help implement ISO50001 for SMEs?

We take an average from each country's Tons of CO2/kWh. It's not the same to save 100 kWh of energy in a country with a coal-based electricity grid vs on a country based on a nuclear electricity grid. For gas savings the average stays the same. For now, we use an average, but real time monitoring of the CO2 reduction could be implemented in the future through our monitoring system pulling the value from a database.

CO2 from electricity generation (g/kWh)



Having a reduction on carbon footprint will definitively help in the implementation of ISO50001 but we tend to focus more on larger business and not in SME's.

3

How does this compare to a PPA in solar?

The first name we gave to CaaS before knowing the term was catching on was Cold PPA. It can be very similar. In solar we use the strategy "take or pay" meaning that if the client doesn't consume a minimum amount of energy produced by the solar panels, they should still pay for it.

In CaaS we prefer to frame it in a way that you pay the minimum and then the variability comes from the amount of thermal energy consumed and the electric energy required to produce it

## Session 2 – Perspectives from Financiers

### Questions for Letizia Coradeschi:

1

#### How do you standardise the investment analysis?

When signing a framework or facility agreement with an ESCO / technology partner, we can standardize our investment analysis based on *inter alia* pre-agreed (i) rating threshold for the end clients, (ii) project contract template between the ESCO and the end clients, (iii) same features among financed projects, (iv) standard addendum to the financing contract between SUSI and the ESCO.

2

#### Does SUSI partners take energy market risk? Does the Signify framework sit in your debt or equity portfolio?

SUSI can take limited market risk (e.g., retail electricity price), but we would rather not take substantial market risk (e.g., full volume risk). However, we tend to be quite flexible in the sizing of our financing: our assessment is tailored to the structure of the underlying project contract and the fee payment mechanism.

The framework agreement with Signify is part of our credit platform.

3


#### If your 3-party model is an off-balance sheet solution for client, what does the “investment amortization” payment represent?

The tri-partite scheme represented in the slides is a simplification of the flow of funds and does not necessarily mean that the end client will pay a separate amortization fee to SUSI. SUSI will rather identify a predictable portion of the contractual fee (to be paid by the end client to the ESCO under the underlying project contract) which is supposed to be related to the remuneration of capital expenditures. However, since we are talking about a “servitisation” model, the ownership of the assets will remain with the ESCO and, as such, it should not sit on the end client balance sheet.

4

#### To get how EE investments should go, we need strong policy (mandatory), + solid long-term mobilisation of financing institutions and players like the ones today. How does SUSI position itself there?





We cannot do much in terms of government policies, but we have managed to invest over EUR 400 million in energy efficiency projects across Europe so far. Our financing tenor goes up to 15 years, thus we are able to sign long-term framework agreements with the ESCOs / technology partners to finance operating and pipeline projects and help them to scale up their businesses.

### **Questions for Ian Robertson:**

1

**What are some common methods of mitigating corporate or public credit risk in emerging markets?**

There are a number of practical ways of mitigating the risk when the equipment is recovered, as I mentioned in the presentation around redeploying equipment and providing it with a second life where it can recover some of the potential loss from the original default. This relies on people understanding the equipment well and having developed secondary market channels. Value can also be created through refurbishment and a direct sale of the equipment. Typically, most value will be recovered by putting it back into another EaaS contract. In terms of other aspects to consider, is the monitoring of the equipment. If it's not being used as much as anticipated, this might be a leading indicator that the client is struggling and might merit some closer attention & potentially to take proactive action. There are also specific process aspects that can be looked at e.g., remote inspections & condition capture as well as then having a well-developed remarketing platform. Risk pools & recourse can also be considered


2

**How can finance providers help the EaaS Servitisation journey?**

Finance providers are able to help crystallise the economics benefits from improved asset condition, through the residual value which they can reflect in the end customer pricing. The finance companies help the OEMs by using their capital and balance sheets and with the right structures can also assist in revenue recognition as well as taking on risks such as credit and asset risk.

3

**What issues do you commonly see with OEMs as they embark on their journey into financing solutions?**



There is often an incomplete understanding of customer needs, and this is often even more the case when it comes to financing solutions. Many companies underestimate the variety of different financing companies and are surprised when their traditional players are unable to support the financing needs that their clients require in the EaaS model.

As this might have traditionally been a non-core activity for many businesses in the past, there are seldom the competences and market knowledge to know which parties to engage with and how best to do so.



#### What is your approach to the EaaS journey?

We at Invigors typically start with some discovery and challenge sessions with a cross functional team to identify the critical elements of the value proposition in some detail, but also to tease out critical point of attention and key business constraints. Depending on the internal competences we can then accompany clients through all elements from business case support, through funder screening, evaluation, negotiation and “on-boarding” and program animation. Our broad capabilities enable us also to identify and support on critical building blocks such as the operational, systems, process, and staffing competences necessary to deliver success.

### Questions for Simon Lutzenberger:




Do you see breakthroughs in specific sectors or products/product categories when it comes to the application of pay-per-use/hour/outcome/...? I mean: applying this kind of payment model around specifically where it hasn't been fashionable, but is now coming off the ground? or in other words: are there sectors or product categories where your company is entering for the first time or where growth is most visible

We see demand from various industries, e.g., food & beverage, but also discrete manufacturing. Whenever there is a substantial amount of uncertainty on future usage of the equipment, overall economic outlook and similar, we see lots of interest in those areas. COVID certainly accelerated that.



Do you have any experience with heat recovery systems in a as a service setting (any type of heat exchangers or other options)? And if so, what metrics apply when designing the revenue model?



Yes, we are working with a vendor in that space. We proposed kWh of heat as the metric, but so far, they chose a different metric instead. Generally, we recommend choosing a metric that closely correlates with the economic success derived from using the asset

3

### “Discrete manufacturing”; what does that stand for?

Discrete manufacturing means manufacturing of products in single units, like cars, machines and similar. The opposite is the process industry, where there are continuous processes going on to produce a “flow” of product; examples for process industry are an oil refinery, chemical industry, steel production, food, and beverage

4

### How do you embed the notion of circular economy for your applications?

CHG’s business model is based on refurbishing and then selling the used assets, once the first customer stops using them and returns them. We don’t earn our margins from interest rate like a “regular” bank, but from giving these assets a second life. So, you could argue that at the core of our business model, there has always been the circular economy idea, long before that term was being widely used.

That approach works for virtually any asset, from low tech, like logistics containers, up to high end medical devices, MRI, and the likes – and anything in between. The higher the quality of the asset, the longer-lived it is, the better our approach works.

5

### How easy is it to embed “residual value” for more complex applications such as Heat as a Service or Cooling as a Service?

Generally speaking, this is a tough task for “regular” banks, as their expertise is around money, not heating and cooling systems, or any other machinery.

For us, it’s easy. Last year, we gave 880k assets a second life, remarketed them – so our Remarketing teams have substantial experience with how the FMV develops over time for almost any kind of technology. We use that experience to determine the expected FMV after the expected usage term and will even guarantee it to the customer, so CHG takes the RV risk.

Sometimes, when working with a vendor who operates their own refurbished program, this even adds more flexibility, as it opens up ways to have very short contract terms in cases where the FMV development over time would not allow for an attractive usage model – when working with a vendor, we usually find a solution to these scenarios also, essentially enabling multiple sequential very short usage terms for various end customers on the same asset.



## How do you typically finance “as a Service” projects? How is your relationship between CHG-Meridian, the user, the vendor/ solution provider, and the bank/ investor?

CHG is vendor- and bank-independent. So, while we finance virtually any kind of technology from any vendor, we also do the refinancing with local banks. Generally, the choice of refinancing partner depends on geography, type of asset, usage model being considered and a few more parameters. However, our customer never has a direct contractual relationship with the refinancing partner.

Traditionally, we have been working with the end user directly, so the end user would have a contract with CHG. However, the customer would choose the vendor, their local service partner, system integrator and so on, we don't interfere with any of those choices. We only build the usage model around the metrics we agree with the customer.

Now, specifically for consumption-based models, we are working more and more with vendors of the assets, where the end user would not be aware of CHG providing the financing behind the scenes. In that scenario, we would only have a contract with the vendor, not with the end customer.

The benefits, independent of the chosen model, are:

- > Regular bank loan interest rates instead of “investment style” margin expectations
- > CHG takes the Residual Value risk
- > We can bill by any metric that can reasonably be measured, independent of the limitations of the “local bank” refinancing partner