THE CIRCULAR OPPORTUNITY

HARNESSING THE POWER OF PRODUCT-AS-A-SERVICE IN GREEN TECH

BNP PARIBAS
LEASING SOLUTIONS

Equipment finance for a changing world

ABOUT THIS REPORT

This sector report forms part of the more detailed report, "The Circular Opportunity: Harnessing the Power of Product-as-Service", which was commissioned by BNP Paribas and BNP Paribas Leasing Solutions. The research was conducted by Do Well Do Good, a purpose-led strategy consultancy. The report aims to contribute to advancing Product-as-a-Service (PaaS) business models, in line with the European Union's efforts to promote the transition towards a circular economy.

The report offers an overview of the role of the PaaS in the circular economy ecosystem. It also explores two key sectors in depth, examining how agricultural equipment and green tech have responded to opportunities and challenges presented by PaaS models. These industries have been identified as core sectors for BNP Paribas Leasing Solutions due to their significant economic impact and the possibility of integrating PaaS models into their operations. Additional insights have also been gathered across four other sectors – heavy vehicles, healthcare, IT, and construction.

While researching this report, interviews were conducted with 28 industry experts across six industries, who were asked to share their comprehensive understanding of how PaaS models are transforming traditional business practices in their field.

You can access the full report and more insights into Product-as-a-Service models here.

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INTRODUCTION

Regulators in the EU, and the world over, have made their intentions clear – linear consumption models must become a thing of the past if we are to tackle the immense challenges of climate change and resource scarcity.

The EU's target to transition to a fully circular economy by 2050 sets a firm deadline, just over two decades away, to achieve seismic and systemic changes to the way we design, produce, distribute, sell, buy, use, and dispose of goods and services. This will require new laws, new technologies, new processes, and new business models. But most crucially, this transition will require a level of global collaboration, trust, partnership, and goodwill throughout the value chain and across industries and borders.

If circularity is the concept that can lead us to a more sustainable future, now we urgently need practical tools to help make progress on the ground. New financial models and operating systems that prioritize servitization will be important levers that enable organizations to adopt the principles of a circular economy in practice.

Product-as-a-Service (PaaS) models support a shift away from purchasing products outright to buying the services, value, and benefits products provide. This has the potential to reduce the demand on natural resources, by laying the foundations for producers to take responsibility for assets throughout the entire product lifecycle and to retain the value of materials by keeping them in use.

Financial and contractual mechanisms, such as leasing, are a key part of the PaaS equation. Crucially, leasing can allow the use and possession of an asset to transfer between different parties, while ownership is maintained by one entity; and it encourages optimal use of assets over time.

Today, most of these circular service models are still in their infancy and all major sectors still have a long road ahead to develop mature PaaS offerings. Every part of the value chain must contribute to progressing this new, circular approach to production and consumption, and there are undoubtedly complex challenges ahead.

This mini report explores the role of PaaS in the agriculture sector. It forms part of the wider report, "The Circular Opportunity: Harnessing the Power of Product-as-a-Service". As part of this broader research, we discuss the role of service models in enabling a circular economy and the challenges and opportunities this presents for businesses.

PRODUCT-AS-A-SERVICE IN THE GREEN TECH SECTOR

In the race to reach net-zero by 2050, we are witnessing one of the greatest global collaborations of our time. International governments are united on decarbonization and across every industry, new solutions are being implemented to drive down environmental impact. At the same time technology is developing rapidly, creating new digital solutions that will drive the sustainable transition. This is creating demand for green tech assets that can support organizations to tackle rising energy costs, compliance requirements, and ESG requirements. PaaS models can provide access to green tech and support organizations to streamline their transition efforts, while delivering important ESG progress.

Trends in green tech

Energy security has become a driving force for investment due to pressure on global supply chains, fluctuating prices, and geopolitical uncertainty.

Renewable energy, like solar and wind power, is a key part of global decarbonization ambitions, but it also presents challenges with resource scarcity and waste management.

Rapid urbanization and digitalization are creating demand for green tech solutions, especially in cities. However, while subsidies and incentives exist to promote green tech adoption, they encourage traditional purchase and ownership over service models.

Sustainable mobility is an emerging trend, with consumers, businesses, and regulators beginning to seek cleaner, low-carbon ways to travel.

The PaaS opportunity

Promoting the energy transition:

The EU has set a renewable energy target of 42.5% by 2030 as part of its long-term drive to become the first climate neutral continent[xxix]. Just five years away, this will require the rapid decarbonization of Europe's energy supply and represents a huge economic opportunity for organizations willing to invest in and transition to renewables. Diversifying the energy sources powering business operations, can protect an organization from fluctuating energy prices and disrupted supply chains. PaaS contracts remove the upfront costs that can create barriers to investment, freeing up cash flow with predictable, planned monthly payments that are spread over the life of the contract. Value-add services that are included in PaaS contracts, like training, operational support, and maintenance, could have the potential to reduce pressure on internal resources, save costs, and improve efficiency.

Driving sustainable mobility:

New regulations from low emission zones to diesel bans in cities, as well as targets and subsidies for vehicle electrification, are prompting some organizations to transition their fleets to electric. PaaS contracts reduce the complexity and expense of this transformation, by bundling services such as batteries and charging stations. Through collaboration in the PaaS ecosystem, financial institutions, energy providers, manufacturers, dealers, installers, local authorities can work together to make sustainable mobility a reality.

Incentivizing sustainable product design:

Manufacturers are ideally positioned to implement PaaS models, as they have deep product knowledge, control over product development, access to detailed operational data, and the ability to scale solutions. Those leading the transition towards service-based business models are offering significant value to customers and differentiating their brand in a competitive marketplace. By cooperating across the PaaS ecosystem, manufacturers can increase sales and cash flow, secure additional information on clients' needs, develop well-rounded contracts, and extend the reach of their marketing campaigns.

What's next? Addressing the challenges to PaaS adoption

The green tech sector is a key enabler of the energy transition and the shift to low carbon alternatives. Its focus on innovation makes it an ideal sector to adopt PaaS solutions, however the sector still needs to consider how to:

- Design green tech with repair, reuse, and recycling in mind, and address resource scarcity.
- Collaborate across often fragmented and complex eco-systems.
- Evolve contracts to solve for discrepancies between asset and contract duration.
- Educate the market about the opportunities and benefits presented by PaaS models.

A snapshot of PaaS potential:
EV chargers

The EV charger market is growing:

The electric vehicle (EV) charger market has experienced rapid development, with a 31% CAGR from 2016 to 2022 in the EU27+UK.

Continued growth will be driven by regulatory forces:

The EU's 2014 Alternative Fuel Infrastructure Directive (AFID) sets targets for charger installation, including one public charger for every 10 EVs by 2020. Various countries offer tax reductions and subsidies to promote EV adoption and charger installation. For example, The Netherlands offers substantial tax incentives for EV infrastructure.[xxx]

EV technology is evolving rapidly:

New innovations like high-power fast chargers, solar-powered chargers, Vehicle-to-Grid (V2G) technology, wireless charging, and smart energy management systems are changing the EV landscape. Emerging concepts such as Battery-as-a-Service (BaaS) are also enhancing user experience and operational efficiency.

Collaboration is needed across a complex ecosystem:

The EV charger market is characterized by complex interdependencies between different stakeholders who manufacture, supply, maintain, connect, and power EV systems. The industry has seen some consolidation, with major players acquiring smaller companies or forming partnerships to enhance their market presence, however, more collaboration is needed.

Charging Point Operators can facilitate PaaS adoption:

Clients in the EV market have varied needs, ranging from charging their own fleets to selling electricity as a core business. Charging Point Operators (CPOs) are crucial facilitators, managing stations for end-customers and providing operation, maintenance, installation, and billing services. CPOs can also offer membership plans and charging credits, catering to these diverse market demands through integrated services.

PAAS IN ACTION

VIRTA: An end-to-end EV charging solution

The business

Virta offers an end-to-end EV charging solution for organizations wanting to establish or scale an EV charging business. Virta's digital EV charging platform is used by over 1,000 private and public companies and organizations in retail, hotel, real estate, parking, petrol retail, automotive, and energy industries. These customers operate over 100,000 chargers in 35 countries, forming the "Powered by Virta" network.[xxxi]

PaaS features

Virta supports its customers with charging station installation, IT infrastructure, payments and invoicing, fleet management, customer and driver support, roaming and station analytics - all provided under one contract.

Benefits for customers

Virta streamlines EV operations for its clients by providing EV charging solutions and says it can save customers up to 50% in CAPEX and OPEX[xxxii]. This end-to-end approach eliminates hidden operational costs, reduces supply chain complexity, and simplifies administrative tasks.

Circular impact

Virta enables organizations to establish or grow their EV charging business with integrated end-to-end services, such as maintenance and data analytics, helping to maximize hardware utilization and lifespan.

WHAT OUR EXPERTS TOLD US:

According to a Senior Executive working in the supply & installation of EV charging solutions..

"With the rapid evolution of EV charging technology, our financing models are designed to anticipate the need for upgrades, ensuring customers always have access to the latest innovations. Manufacturers also need to set up systems so that end-of-life EV charging terminals are returned to them for recovery and reconditioning, and then they can give them for sale to the second-hand market."

A snapshot of PaaS potential: Lighting solutions

The LED lighting market is experiencing significant growth:

The LED lighting market is projected to maintain a 10% CAGR from 2023 to 2030,[xxxiii] driven by population growth, regulatory measures, environmental awareness, energy price fluctuations, technological advancements, and declining LED prices.

The regulatory environment supports a transition to LED:

EU regulations like the Single Lighting Regulation and the Eco-design Directive mandate the phase-out of outdated lighting technologies, as well as enhanced efficiency and recyclability standards. Nations like Italy provide tax rebates to support the transition to LED lighting, further boosting market growth.

Innovation is driving efficiency gains:

LED efficacy has improved by 4 lumens per watt annually since 2010[xxxiv]. Advances in smart lighting, like DC chips and Li-Fi, promise enhanced energy efficiency and improved integration with building systems.[xxxv]

Manufacturers and consumers are shifting towards Light-as-a-Service:

Manufacturers and suppliers are increasingly focusing on lighting systems, as some customers seek to avoid capital expenditure on non-strategic assets. LaaS provides preventive and corrective maintenance, parts procurement, and advanced monitoring through apps, offering flexibility and reducing impact on EBITDA.

LaaS offers and contracts are still maturing:

Companies providing genuine LaaS contracts can command premium pricing given the enhanced flexibility. However, these companies can face operational challenges with collection and retrieval, particularly if clients default during the contract period, making asset retrieval challenging.

WHAT OUR EXPERTS TOLD US:

Executive Sales and Marketing Director, Tellco

"Increasingly, customers are gravitating towards Light-as-a-Service (LaaS) solutions rather than outright purchasing, driven by a reluctance to allocate capital expenditure for non-strategic assets, which could negatively impact their EBITDA." [xxxvi]

PAAS IN ACTION

SIGNIFY: Light-as-a-Service

The business

Formerly known as Philips Lighting, Signify provides an end-to-end solution encompassing the planning and design of new lighting systems, equipment installation, the removal of outdated fixtures, ongoing system operations, maintenance, and optimization services.

PaaS features

Using an "outcome-based performance contract", Signify charges a monthly fee based on agreed performance metrics. This includes services, such as maintenance and repair of lighting solutions and performance optimization throughout the contract duration.

Benefits for customers

Signify highlights its superior light quality and cost savings, which it delivers through the enhanced performance of LEDs, dynamic light level adjustments, and remote monitoring to mitigate maintenance needs. By maintaining ownership of the luminaries, Signify is responsible for end-of-contract and end-of-life handling of an organization's lighting assets. The company says that through its LaaS contracts, customers can reduce maintenance costs by up to 60%.[xxxvii]

Circular impact

Signify says switching to connected LEDs can reduce the built environment's lighting-related energy consumption by up to 80%, which in turn reduces lighting-related carbon footprint and supports organizations to move toward achieving carbon neutrality. A connected lighting system also helps to keep track of energy savings, identifying both efficiencies and areas where improvements can be made. The company recycles or repurposes all luminaires at the conclusion of their life or contract, with a zero-waste-to-landfill objective.[xxxix]

A snapshot of PaaS potential: Solar

Renewables are a key focus of the EU and other jurisdictions:

The 2022 EU Solar Energy Strategy targets 320 GW of solar electricity production by 2025 and 750 GW by 2030.[xlviii] Initiatives like the Pact for Skills and the European Solar PV Industry Alliance support this growth. The EU Renewable Energy Directive and national regulations, such as France's mandate for PV installation on parking spaces and new commercial buildings, further promote solar energy adoption.

The Solar-as-a-Service market is still developing:

Currently, Solar-as-a-Service offerings primarily take the form of Power Purchase Agreements (PPAs), which can be better suited for larger projects. Despite regulatory support and market momentum, widespread PaaS implementation in the solar sector remains an ambition and requires further development.

Potential of batteries:

Batteries complement solar panels by storing excess energy and ensuring continuous power supply. Coupling batteries with PV systems in Energy-as-a-Service contracts could drive the development of more robust PaaS models. Emerging models like Schneider Electric's grid-interactive buildings highlight the integration of energy optimization algorithms, enhancing the appeal of these contracts.

Recycling and reuse of solar panels remains challenging:

The EU Waste from Electrical and Electronic Equipment (WEEE) directive targets 80% recycling of used solar panels. While silicon-based panels achieve 95% recovery rates, thin-film panels, which represent 30% of end-of-life panels, pose greater challenges. The technology that will allow for the reuse of solar panels is still developing, and upcycling is also limited due to material impurities and the challenge of recovering precious elements.[l]

Greater collaboration needed in the solar industry:

Manufacturers of solar panels are largely based outside the EU, while smaller regional players handle installations for residential and small to medium commercial needs. Fragmentation in the market can make PaaS adoption more challenging as these circular models rely on a whole ecosystem approach.

WHAT OUR EXPERTS TOLD US:

Yann Toutant is Co-Founder and CEO of Black Winch, a company specialising in Product-as-a-Service solutions.

"The real value in solar lies in combining photovoltaic (PV) systems with batteries and heat pumps, creating an Energy as a Service model, which is already present in the B2B sector. The challenge in PaaS is managing the flexibility it offers—balancing risk with the need for dynamic solutions is key."

PAAS IN ACTION

SOLNET: Solar-as-a-service via Power Purchase Agreements

The business

Solnet Group is a leading European project planner of commercial and industrial solar installations. In 2016 it received the WWF's Climate Solver Award[i], highlighting its commitment to sustainability and innovative solutions in the renewable energy sector.

Solnet offers a comprehensive end-to-end solar-power solution, including:

- **Analysis:** Assessment of potential subsidies, permits, and grid connections.
- **System design:** Designing the layout of solar panels and forecasting lifetime production.
- **Installation:** Executing the project plan, including configuration, testing, and necessary adjustments to ensure optimal performance.
- **Maintenance:** Ongoing maintenance, regular inspections, and remote monitoring.

PaaS features

The typical Solar-as-a-Service contract offered by Solnet utilizes Power Purchase Agreements (PPA), which are long-term service agreements between an electricity producer and a customer, typically over a 10-year period. Solnet retains ownership of the system while customers pay for the electricity they use. With no upfront costs, Solnet handles the installation, ownership, and operation of the solar system.

Benefits for customers

According to Solnet, customers can save up to 20-30% in electricity costs, coupled with the assurance of predictable electricity prices throughout the duration of the service agreement.[ii]

Circular impact

Solnet's revenue model is linked to the productivity of each solar system over its lifespan. The company has a vested interest in maintaining optimal condition, maximizing productivity, and prolonging each system's lifetime.

CONCLUSION

BNP Paribas Leasing Solutions has identified the circular economy as a key business priority, and an essential part of its alignment with the European Union's Green Deal. The transition to a circular economy has a clear role in addressing the causes of climate change and resource scarcity. But crucially, we believe that it also has the potential to build resilience in our business, in our customer's businesses, and in the global economy.

Our goal is to find new financial products and services that meet our clients' needs and drive business value, while respecting the planet's limits. That's why as circular solutions emerge and mature, we see a key role for our business in supporting our partners and clients to unlock the opportunities this transition presents.

As this report explains, leasing can bring to life a crucial principle of circularity. A lease contract can act as a thread that weaves through a product's lifecycle, linking the people and organizations who manufacture, finance, distribute, sell, and use it. By connecting this circular ecosystem, products can be used more efficiently and reused by more people, increasing lifetime utilisation, retaining value, and preventing unnecessary waste.

Through our research, we have explored the financial, operational, and environmental benefits of PaaS models as practical tools that organizations can use to embed circularity into their operations. However, we believe it's equally important to highlight the challenges that exist today, in what is still a nascent and emerging sector.

The linear economy remains deeply embedded in every industry and achieving a circular economy will require a complete transformation of the way we produce, sell, buy, use, and dispose of goods, as well as systems our society has in place to enable these economic exchanges to happen.

This is the important job ahead of us all, as we work towards the EU's deadline of achieving a fully circular economy by 2050. Only through new partnerships and greater levels of collaboration will this seismic change be possible. That's why we are inviting our network to transition with us as we unlock new ideas, solutions, and partnerships that help to build a circular economy.

All research references can be found in the main report.

You can access the full report and more insights into Product-as-a-Service models here.

READ THE FULL REPORT

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