Product-as-a-Service:
How Manufacturers Can Make it a Profitable Business Model

Authors
Ali Shaan Haider, Venkat Agarwal & Nishant Srivastava, LTIMindtree

Introduction: Product-as-a-Service, or Servitization

Did you know you can buy tyres on the promise of number of miles they can run? Or that Airlines companies pay for engines based on utilization in air? Or that elevators you use are provisioned to buildings based on number of trips (up and down) they do? These are some examples of providing Product as a Service, where companies manufacturing these assets have switched the Capital Expenditure (CAPEX) model to an Operational Expenditure (OPEX) model.

Michelin Tyres, **Rolls Royce** and **Otis Elevator** are the companies mentioned above.

Product-as-a-Service (PaaS) is a concept where the value or outcomes the product provides are monetized instead of the product itself. In this scenario the product is owned by the manufacturer and the output of the product is purchased by the client through a differentiated commercial construct. For example, when Otis Elevator sells "Vertical Transportation as a Service", the maintenance and repair activities for the elevator is fully owned by the manufacturer. This has a great implication for the manufacturer and the customer of the manufacturer. On one hand the liability of performance shifts from the customer to the manufacturer and on the other hand the manufacturer can protect

maintenance service revenue which would have otherwise gone to independent maintenance companies that the customer could have directly engaged.

PaaS model however is not new. Michelin Tyres delivered PaaS through its Fleet Solutions offering in 2001. What has made this model more relevant today, is the declining commercial costs of technology that delivers this model. In the era of digitalization, PaaS has emerged as a powerful concept for manufacturers to differentiate their offerings.

Why the need to shift?

When the model came into being, the following benefits were observed for the stakeholders:

🏭 For manufacturers

1) In product selling model, the revenue is irregular based on the amount of sales which can vary on season, amount of sales etc., whereas PaaS model ensures a regularized revenue stream.

2) The product usage is monitored regularly in PaaS by manufacturers and they are better equipped than customers to use the products more effectively.

3) The aftersales market or the service market is rather unexplored by most firms and there is a huge potential to delve into services to realize more value from a product.

4) The touchpoints for customer in the earlier model is limited till the sale of product, whereas the customer touchpoints are higher in PaaS model. This gives an opportunity for the firm to perceive pain points for customer and innovate their products faster.

5) By knowing what works and what does not and what the customers value, the manufacturers create a feedback loop in their design process direct from their observations.

For customers

1) They do not have to deal with maintenance cost and management of their assets thereby they can focus on other business processes delivering consumer satisfaction.

2) It helps them make supplier their trusted partners which shifts the responsibility of smoother running of operations towards suppliers. In this manner supplier can have their own responsibility in delivering value to consumers at their end in a B2B2C model.

3) The capital expenses for the customers is not all upfront rather they have a steadier cash outflow for a period, thereby they can manage their finances better.

4) Customers if unsure about the manufacturer's product can employ the services for a shorter duration and then can extend the contract or search for other options depending on whether the service is satisfactory to their requirement or not.

Key focus areas that can be targeted in PaaS

There is a lot of literature that has been written about different aspects that enable PaaS. Most of these revolve around technology bucketed under the Industry 4.0 concepts; elements like IoT and sensors to collect data from the assets, ability to transform this data into valuable insights as well as about the need to change behaviour internally and externally. However, in our experiences with our clients and through our research, there are still gaps that need to be plugged. If you look closely at the opportunity here, it is a monetization problem that companies try to solve for their customers. All companies have the same technology access, yet some succeed, and some do not. We believe that the core of the success lies in the ability of a company to bring different elements (technologies and processes) together and the ability to experiment.

The core capabilities needed to deliver PaaS model:

1. Connected Products

Because PaaS model is a commercial construct, it can be enabled for any kind of product, however we have observed that companies that produce products that have sensor capabilities (either retrofit or pre-fit) have a distinct advantage and will give manufacturer the ability to provide Connected Products.

With connected products, the sole ownership moves to the manufacturer and it becomes imperative for them to have the pooled data of their assets for smarter decision making, efficient utilization and maximizing the value while leasing their products. Using sensors to access real time data should be one of the key factors for a firm that is planning to shift to a PaaS model. Predictive data analytics on IOT platform and automation of scheduling &

dispatch systems will be key to ensure smoother operations. This capability also ties the other elements that enable the PaaS journey. However, because a lot has been written on this subject already, we chose to focus on other aspects. To gain more insights on this subject please follow the link to Powering the Servitization of Manufacturing with Industry 4.0 from references below.

Related Reading

Powering the Servitization of Manufacturing with Industry 4.0

Laying the Course for an Inclusive Industry 4.0 Transformation Journey

Internet of Things and Customer Relationship Management

2) Lifecycle costing expertise

Many industrial manufacturing companies who had a deeper look in PaaS as a new business model have realized that it is not easy to provide this new model to each of their customers in a profitable way for all their product lines. The model switch has an impact on most lines of businesses of the company and requires changes along the entire value chain, mainly across marketing, sales, service, R&D and design. Further, the model switch will also have an impact on cash flows and how companies invest in future growth.

This necessitates a need to do comprehensive scenario planning. In our experience, most companies do this in some manner or form, however it is the maturity of the process and the ability to work with data in a comprehensive manner that will ensure success.

One of our teams has been working with such a tool that a large industrial manufacturing client built inhouse that enables commercial offer calculation for the services business. The tool was basically a set of Excel Macros written in a software form. While this could be a good start, the 'make to order' business has highly complex BOMs and even more complex maintenance contracts. To move to PaaS model the solution needs to accumulate vast amount of data from various aspects of the value chain, like R&D, design, operations, logistics, resources, financials, regulatory requirements etc to calculate a projected costs over long service period. Now add the complexity of IoT data that Connected Products will be providing and the fluctuating costs of raw materials and tracking competitor movements – both locally and internationally – while aligning pricing strategies for different life cycle stages, and the scenario simulations needed become unmanageable for such a homegrown solution. Product-as-a-Service complicates revenue and profit growth tied to traditional processes and sales approaches such as cost-plus pricing.

If you are evaluating this deep into costs then it is our assumption you have already done the Willingness to Pay (WTP) talk with your customers. By combining the WTP and Lifecycle cost data you are in a better position to arrive at what products can be offered in PaaS model, at what price and where the costs need to be optimized to arrive at the right price. Big Data analytics on performance of products, their usage and other attributes will ensure improved total cost of ownership for both customers and manufacturers.

To be able to do this well, technology teams can do a few things:
1. Invest in a proper CPQ and Revenue Management Solution.
2. Unbundle the traditional application landscape by relooking at your integration landscape.
3. Invest in power of Data on Cloud and build applications on top of your data.

4. Bring focus on creating a joint task force from across business functions.

3) Improved field and service care center

For PaaS to be successful, manufacturers must pay special attention on the channels that enhance customer engagements. This means an increased reliance on field services and customer care. To enable this technology must be relied upon:

1. Digital Field Service Management Packages can be employed for Intelligent Process Automation.

2. AI on the Edge so that when data indicates a possible failure, an auto adjustment of operational parameters can be triggered while the integration with company's backend systems and automation can help create the maintenance work orders necessary.

3. Since manufacturing company is aiming to provide a 'Service', there will most likely be a need to invest in customer experience management, now usually a part of most good CRM applications.

4. Finally, we have not seen a manufacturing organization yet that has maintenance centers in all the geographies they sell their products in. They rely heavily on local partnerships and alliances with specific maintenance companies to service their customers. This element is a very crucial piece of the puzzle. Having a 3-sided platform that allows collaboration between the customer, the service partner and the company is extremely critical. Think how you can enable an "Airbnb", "Google Home" or "Apple IOS" platform for your business when thinking of a closed 3-sided platform.

To enable the above four, the CIO, CTO and Commercial Teams will need to collaborate.

4) Efficient contract management

Those experimenting with PaaS for the first time, must understand the implications of the contract they sign with their customers. Service Contracts are very different from traditional product contracts. You cannot sell and walk away. You have to pay special attention to "what if" scenarios. As mentioned above PaaS gets you out of a vendor mode & into a partner mode. Further, if some elements have not been done correctly you are directly impacting the running of operations of your customer and this will impact your future with them. Further, you have to protect yourself and the financial interests of your company. Because you may be experimenting for the first time with this model, you need to have possibilities for eventual risk management. This makes it necessary to

onboard a modern contract management solution. The Digital Contract Management system comes into play in this case. The two major benefits of Digital Contract Management are:

• Managing and delivery of multi-year partnerships – efficiently organizes and archives contract sharing within an organization to provide a more holistic view in carrying out the budgeting. Digital contracts also make the company more agile as it automates redundant activities to significantly speeds up business processes.

• Managing and controlling long term risks and exposure – brings

about transparency in the contractual system of an organization allowing them to keep all the bottlenecks in check as well as the milestone dates. The archived information from older contracts can also be used in drawing up terms of new contract.

Smart contracts can also be employed to ramp up speed and security of a contracts management system to make it more efficient. One of our clients has moved to Blockchain based smart contracts and has onboarded their customer, service partners and financial institutes on this journey.

The foundation elements of PaaS model?

While the above are 4 key "Whats" that need to be considered, there are multiple foundational technology elements that will ensure the "Whats" get delivered. The below picture gives a diagrammatic view of the PaaS model elements you may need to have. You may have invested in some of the tracks already and in that case it will be important to bring all the elements together to deliver a comprehensive PaaS offering to your customers. One key element that you need to pay special attention is Integration. Integration is a IT foundation that if ignored will ensure failure.
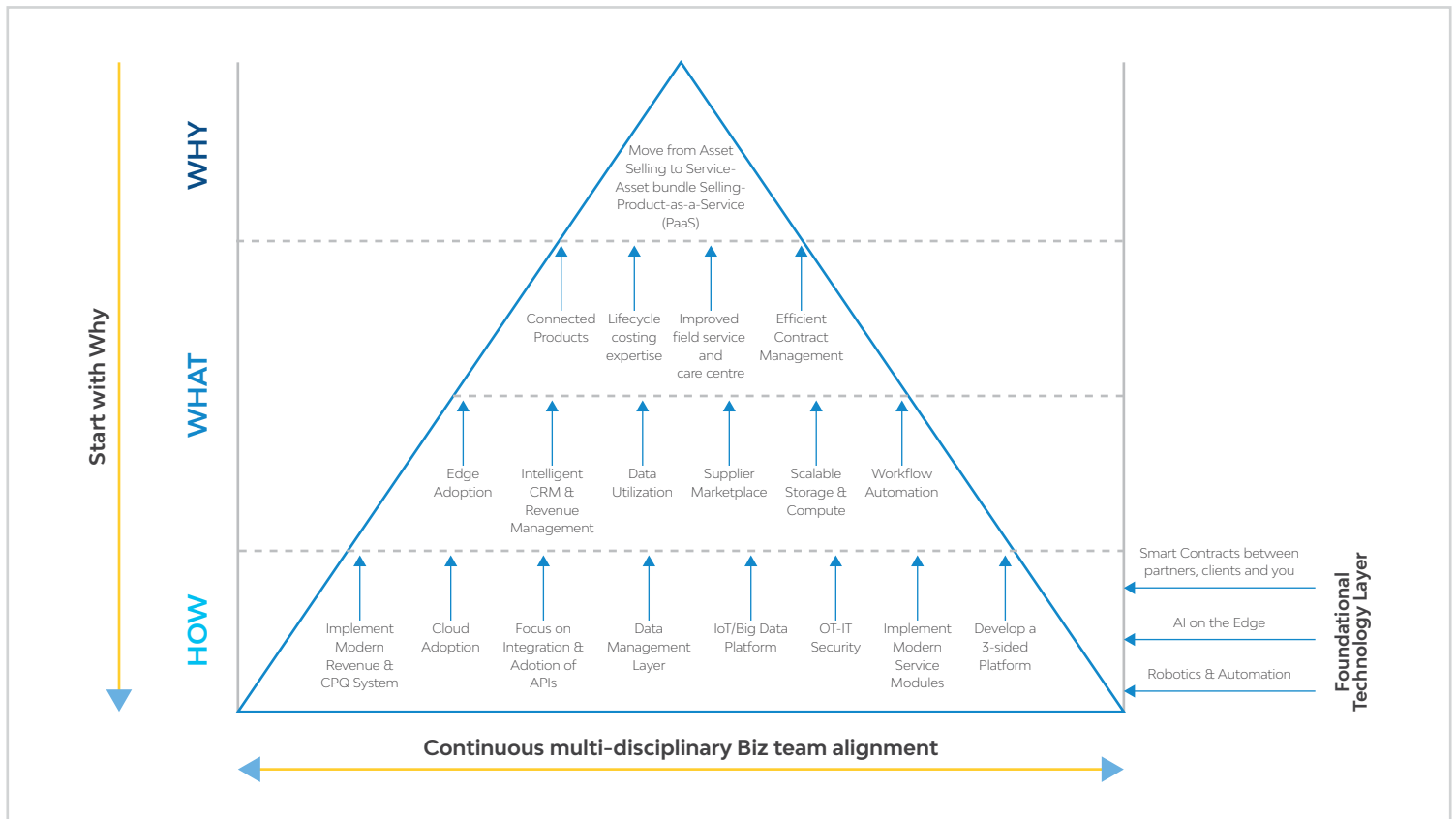
How to shift from Product-selling to PaaS model?

Shifting from a product-selling to a PaaS model is not an easy task for a firm. To make the necessary transformation, following understanding and changes may be required at a firm's end:

1. Understand customer needs

It is essential for a firm to understand what their customer desires in terms of output from the product. For example: 'Packsize' provided packing solutions to its customers. However, they noticed that their customer often came up with the complaint that the standard sized boxes provided by them used excess corrugated material consumption than the size of the items, thereby leaving a large amount of wasteful space while shipping. Thus, Packsize came up with an interesting idea of offering packaging machine to customer free of cost and charging only for z-fold corrugated material used in packaging. This entire exercise claimed has saved around 35% of the cost of packaging and shipping to their customer.
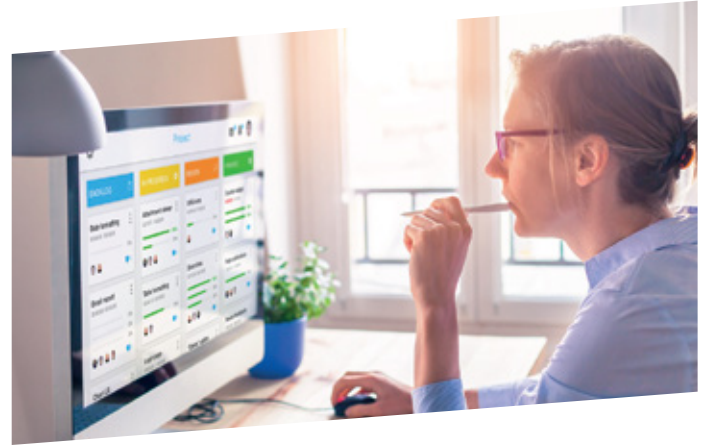
2) Support from business

It is essential for a business to employ a business lead that is going to transform the way they do their business. The organization structure would be affected while making this change while new modules in ERP will be required to reinforce the change. Staffs need to be retrained and marketing strategies need to be revised when the switch finally happens.

3) Technological support

Huge technological support is required for firms in transforming their business model. Sensorization of assets to host them on IOT platform. Extensive use of data analytics to be employed to generate customer insights and differentiate products, service offerings and pricing. Cloud adoption and comprehensive service technology (modern service modules) need to be adopted to supplement the changes.

Conclusion

Based on a study by Business Innovation Observatory, the European market for maintenance, repair and operations is estimated to grow by 33 billion EUR in the next 5 years and the margins on services is expected to be 10.7 percent higher than margin of the products, which makes it appealing for manufacturing firms. A survey by Oxford Economics predicted that service contracts strategy will be having a growth rate of 60 percent in the next 3 years. The potential for PaaS model is huge in the near future which is why some of the manufacturing firm has already started experimenting with it already. Besides the above mentioned examples, Rolls Royce, Caterpillar, Alstom and Xerox are few other firms that have already experimented with this model in recent past.

Studies show that around 75% of industrial engineering firms are targeting to deliver services as their primary business model in the coming years as they look to generate new revenue streams. At its core it is a commercial model powered by technology that has become highly affordable. To make this model successful, it is important to focus on more than just IOT. As explained through the paper our clients who have seen success have looked at this opportunity more holistically and have tied different technology enablers aggressively. That said, the need to experiment still exists and scaling where it is commercially viable is critical.

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Service and predictive maintenance contracts: Servitisation Business Innovation Observatory

Ali Shaan Haider

Consultant, Digital Consulting & Advisory, LTIMindtree

Ali is responsible for assisting clients in transforming their processes and operations through digital interventions. He has rich experience that spans Project Management, Planning & Strategy Formulation, Execution, Business Excellence & Operational Excellence.

Venkat Agarwal

Account Director, LTIMindtree Nordics

Venkat has 14 years of experience in business partnering, technology advisory & IT. He has worked with clients across Manufacturing, Energy, Retail and Wholesale industries and has a foundation in customer success, analytics and digital strategies. He is an engineering graduate with a Post Graduate Diploma in Digital Business.

Nishant Srivastava

Consultant, Digital Consulting & Advisory, LTIMindtree

Nishant has around 8 years of experience across Manufacturing and Information Technology, and has been assisting clients in various programs towards Business Transformation, Data strategy, Process excellence & Supply chain. He has worked with variety of organization from small industrial manufacturer to a large scale conglomerate. He holds master degree in business from IIM Calcutta.