

BUILT FROM BRICKS – HOW TO BUILD AN AS A SERVICE BUSINESS

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Abstract

From bricks and mortar to as-a-service, this white paper will discuss the benefits and challenges of adding an as-a-service product model to your existing capital sales-based business. Strategies for implementing a services model, as well as some of the technology required to support the launch and to optimize the business, will be presented as well.

Overview

For any company selling capital goods, whether industrial equipment, infrastructure, or other, waiting months or years for the customer's capital budget to be approved can be frustrating and problematic. Sales cycles for these types of offerings are often measured in years, not months or weeks, which can make revenue forecasting and achievement of growth a challenge; enter the as-a-service model.

As-a-service is a model that allows your customers to bypass the need for a capital budget and instead buy your offerings as-a-service out of their operating budget, typically paid for with cost savings along the way. To the customer, as-a-service offerings can often be budget-neutral (or beneficial), which for your organization can mean not having to wait for the new fiscal year/budget to make a sale. Additionally, an as-a-service offering can be a great way to begin building a recurring revenue base, thus increasing the valuation of your company.

While as-a-service businesses have been popular for years, especially in software and Internet-related companies, many longstanding, traditional businesses have largely excluded themselves from this go-to-market model. In general, these businesses haven't missed adopting the as-a-service model because of a lack of interest. Instead, they haven't moved forward with an as-a-service model because it's deemed to be too difficult to figure out, too capital-intensive, or too much change for their organization.

All these concerns are valid, but they can be mitigated with careful planning and great execution; this is what led to the title of this white paper: Built from Bricks, which takes the reader through the benefits, challenges, risks and implementation strategies of transitioning from a "brick and mortar" business to one that also offers an as-a-service option.

Benefits of Adding an as-a-Service Offering

Recurring revenue: First and foremost, as-a-service offerings can enable recurring revenue streams, because as opposed to a capital sale, in the case of as-a-service, your organization is agreeing to make your products and services available to customers for their use, but without the need to transfer ownership. With this comes a regular, as-a-service (subscription) fee, whether monthly, quarterly, or annually, often for long terms, such as ten years.

Imagine being able to walk into the new year knowing that some part of your revenue has already been sold and booked, as compared to having to start over again each year and sell every dollar of revenue before the fiscal year-end.

Recurring revenue streams are also well known for increasing your business's valuation, in some cases up to eight times that of a similar business with little or no recurring revenue. This is due to the fact that recurring revenue is a nearly guaranteed steady income stream, which investors and potential buyers often favor.

Ability to close customers without capital budgets: As mentioned in the overview, capital projects regularly involve long sales cycles and approval processes due to the high dollar value of such purchases. For customers

with these difficulties, the as-a-service pricing model is a brilliant solution. Instead of needing to invest the entire value of the purchase up-front, the customer can amortize the cost of their purchase over time (e.g., 10 years), essentially a pay-as-you-go approach. In this case, most customers will be able to allocate some part of their operational budget towards a subscription purchase, instead of their capital budget, likely shortening the sales cycle and number of approvals required in the process.

New revenue streams for premium features: An interesting benefit of an as-a-service pricing model is the ability to break out the pricing into a baseline set of functionalities, plus one or more premium features, which are often priced separately. In this way, the company can be price-competitive at the low end of the market with their baseline product, but also generate additional revenue for those customers that require premium features. Best practices for implementing à la carte menu pricing will be discussed in the technology section below.

Potential reduction of product and operational cost: By centralizing your product and operational systems to a shared private or public cloud infrastructure, you can share resources, provide easy and secure access to systems and amortize at least a part of your product cost across all of your customers, resulting in lower cost-of-goods-sold (COGS).

Likely increase in customer retention: Because your customer is now paying for the company to support and operate the equipment deployed for the lifetime of the as-a-service agreement, your organization should see an increase in customer engagement and as a result, improved customer retention. Keep in mind, you need to maintain a satisfied customer base, so that when the time comes to renew customers' as-a-service contracts, they will be more than happy to do so.

Customer Benefits: Thus far, mostly the benefits to the manufacturer of the product have been described, but what about benefits to the customer? As it turns out, there are significant benefits to your customers as well, including:

- **Built-in tech refresh** – As a general rule, the company is responsible for supporting and maintaining the equipment over the lifetime of the as-a-service contract. When the contract is ready to be renewed, the company will need to replace any obsolete products or components and bring the equipment up to current standards to get ready for the next contract. As a result, the customer is the benefactor of a built-in, no-cost tech refresh of their equipment.
- **Little or no penalty for subscription-based pricing:** If the pricing model is done well, the customer should not see a significant price increase between as-a-service pricing and traditional capital pricing when looking at the total cost of ownership. If there is very little or no penalty (or even a discount), then your customers will likely ask themselves, “Why not pay-as-you-go and save that capital budget for something else?”
- **Ability to start the project sooner:** As mentioned above, capital-intensive projects typically take a long time for budgets to be allocated and the project to achieve final approvals. Since the as-a-service solution usually comes from an operational budget, often times, customers can start significantly sooner than the traditional capital purchase. When implementation of the solution enables cost savings or other efficiencies, there can be significant benefit associated with moving faster toward putting the solution into place.

Challenges of Selling Products as-a-Service

Great benefits are sometimes paired with new challenges, and this can be the case as the business transitions and adds an as-a-service offering too.

Lower up-front revenue and cash-flow: Compared to a traditional capital sale, the manufacturer of a product being sold as a subscription will typically recognize that revenue each month, regardless of when the customer pays their subscription fee, which is often in advance of each year. While this is good in the long run (e.g., recurring revenue), in the early stages of a transition from a capital model to as-a-service, even if only a partial transition, it can represent a significant loss of near-term revenue and a shortage of cash, unless the transition has been carefully planned ahead of time. This is particularly difficult for early-stage or small companies, which may not have the cash reserves to weather the transition. Note that potential funding options are discussed later in this white paper, as a potential mitigation for this risk.

Transitioning existing customers: The best laid plans for your as-a-service product offering and pricing strategy may look great for acquiring new customers, but the new model may prompt additional questions and scrutiny by your existing customers. If your existing customers bought your products under your original capital sale model and are used to the features and support they are currently getting from you, they may question the benefit of the new model and want to know if the total cost of ownership pencils out when comparing to the old model. This is a fair question and the answer is that it may or may not make sense, which is okay. As-a-service isn't for every customer and for most companies considering providing an as-a-service model, they're not moving to that model exclusively, so there shouldn't be an expectation that every customer will want to adopt the new model.

Technology: Lastly, development of the technology, software and systems necessary to support an as-a-service offering represent an investment and some risk if not implemented properly to best support the business. Note that enabling technology is discussed as a separate section within this paper.

Implementation Strategies

By now, the reasons to move forward with an as-a-service offering should be fairly clear. The real question is how to do it, how long it will take and who should be involved. It takes leadership, commitment and perseverance, but it's very doable with the right plan in place and the ability to execute it well, so the rest of this paper is focused on the mechanics of that journey.

To start, the offering often includes hardware, software and services (up-front and ongoing), but this will vary with each solution. The common thread is that the offering can be all-inclusive, which is the preferred choice of customers in many cases, or it can be piecemeal, because some customers may wish to play an active role in installation, configuration, ongoing maintenance, etc. In either case, pricing should be flexible enough to include only what the customer needs and wants, with the option of their organization augmenting the rest.

Up-Front Services:

Whether paid for separately or not, often, companies provide services when they sell capital goods. Common examples include installation, integration, configuration, training, ongoing support, upgrades, repairs, warranty services, etc. With this, many companies have a customer service organization, even if it exists without the use of service level agreements (SLAs) and/or formal process. Regardless, a customer services organization is needed for most as-a-service offerings, since keeping the solutions put into place up and running smoothly becomes critical when customers are paying an as-a-service fee as they go.

In some cases, companies have some, but not all of the ability to provide the services needed to complete the solution. In these situations, if the customer does not wish to cover these services with their internal staff, subcontractors can be used to fulfill the full set of requirements. Where subcontractors can be pulled in by the

company offering the as-a-service solution, it becomes seamless to the customer, which in many cases is ideal, since their relationship for the entire solution remains exclusively with the as-a-service provider.

Critical to any customer support organization offering the up-front services needed to get to first productive use, is project management. If this role is new to an as-a-service provider, they will need to hire a project manager or project managers once the as-a-service offering is available, because the project manager is the one who will ensure those responsible for the key milestones and timelines, as agreed to with the customer, are held accountable to delivering a successful project.

Pricing:

Pricing may be the trickiest part of building an as-a-service offering, because it needs to take into consideration many factors, including:

- Needed hardware, including peripherals, whether company-provided or third-party
- Software (if applicable)
- Installation, integration, configuration and training
- Repairs, replacements and upgrades
- Helpdesk and field support
- Subcontractor costs
- Cost of capital, inflation, gross margin/profitability by project

Once the costs and other considerations are known, the work to begin building a pricing structure can start. Be aware, however, that pricing should not be determined based solely on a cost-plus calculus. While that would be nice and simple, competitive offerings, customers' expectations and internal needs should all be taken into account. Worth noting, with as-a-service, the customer's finance department is very likely going to want to compare a capital purchase to an as-a-service purchase, based on a defined timeline for expected life. This analysis will include up-front and ongoing costs, so that an "apples to apples" comparison can occur.

To truly get to the right price, it is highly recommended that price sensitivity be tested with market research. This can be done in a number of ways, including one-on-one conversations, as part of a focus group discussion, or via survey. Context is important however, so being able to provide background information will be valuable regardless of research methodology.

Conjoint analysis is a preferred market research tool for pricing analysis. The basic concept with a conjoint study is to break apart and determine the customer's view of value of the individual components of the solution. Ideally, the market research conducted will provide the as-a-service provider with the insight necessary to launch at a price that makes sense to all parties.

There are several models available to customers in terms of the timing of payments. Some will want a constant payment for the entire term (e.g., \$100,000 per year for 10 years), while others may be okay with an inflationary factor, where the price increases by a consumer price index (CPI) calculation each year. Some may even want to look at the impact of a larger payment up-front and what that would mean to the remaining payments. There are benefits and risks to each model, for all parties concerned, which necessitates a pricing tool that can be built with the ability to take in multiple assumptions and then output several different scenarios.

Pricing Tools:

Pricing tools tend to be somewhat complex, but completely logical. Flexibility is key, since in many cases, each solution may look a little different. While driving consistency in solutions and processes is important, customers appreciate being able to buy just what they need and nothing more, so the pricing tool needs to reflect that. In the end, everything being talked about can be achieved with formulas and logic.

To provide some context as to what the tool will usually include, consider the following:

- Inputs (e.g., items, quantities)
- Costs (internal and external)
- Inflationary assumptions
- Cost of capital factors
- Pro-forma profit (at the project level)
- Proposal:
 - Line items
 - Price per year
 - Contract term
 - Customer-specific notes
 - Capital purchase versus as-a-service comparison
 - Services definitions

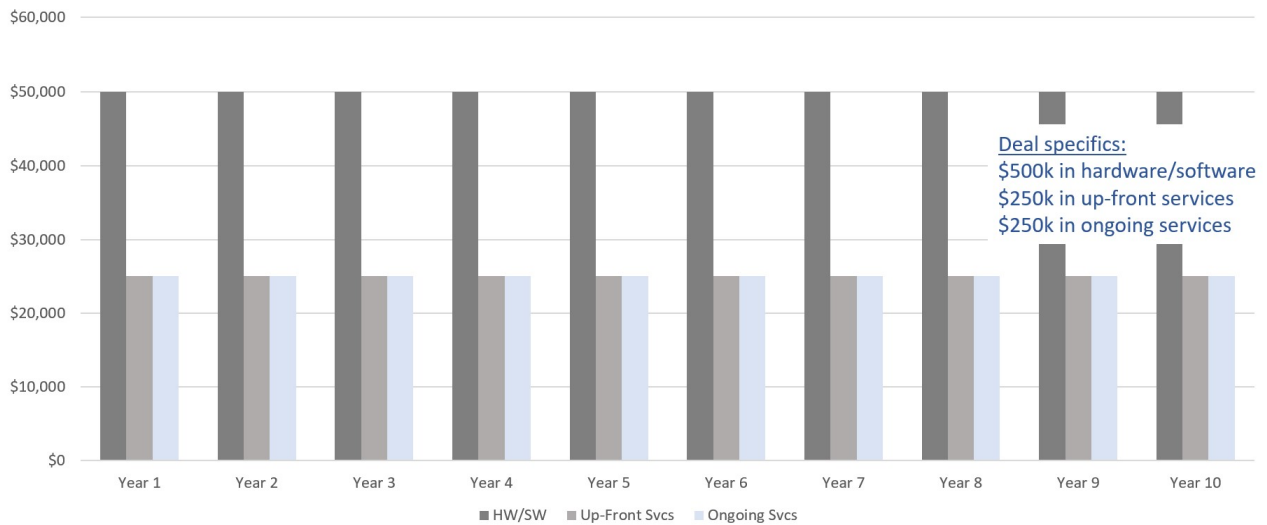
Most as-a-service pricing tools are first built with an Excel spreadsheet and then migrated to an integrated pricing tool (e.g., CPQ - Configure, Price, Quote) over time. In either case, the idea is to be able to price and propose solutions that can be complex and variable.

Funding Options:

As mentioned, there's a financial impact to the service provider with an as-a-service offering, since especially in cases where the customer wishes to make equal payments over the term of the agreement, an up-front investment on the part of the provider will need to be made, without the ability to quickly recoup it. This can have a profound impact on cash-flow if funded internally. While many companies will have the capital needed to make these investments, some will not. However, for the latter, all hope is not lost. In fact, there are funding partners out there that will design a very specific program for your organization and the specific as-a-service offerings your organization wishes to make available. There is of course a cost to the money these organizations make available, but for most companies, the cost of capital is a normal factor in financial analysis, so this should be considered an expected component of both cost and pricing.

By way of an example, consider a solution with a value of \$1 million, divided between hardware (\$500k), up-front services (\$250k) and ongoing services (\$250k). For simplicity, inflation and cost of money have not been included, however they would be in a real-world situation. A 50% gross margin for hardware, software and services will be used to compare for this example.

As mentioned, this type of solution can be funded with or without a funding partner. Starting with an internally funded solution, the up-front/year 1 cost to the as-a-service provider would be $(\$500k + 250k + 25k) \times .5 = \$387.5k$, meaning it would take nearly four years for the provider to be whole from a cash-flow perspective, assuming a price to the customer of \$100k per year.



Alternatively, with a funding partner involved, the as-a-service provider would typically be paid for all hardware, software and up-front services at first productive use, with the ongoing services being paid over the term, in this case ten years. One significant note to make is that with a funding partner involved, the provider is transferring ownership of the hardware and software (license) to the funding partner, at which point it is being made available to the customer.

Having a funding partner involved has accounting implications, the most significant of which is that the revenue for the transferred assets and the up-front services is typically taken in year one, as if it were a capital sale, which technically (between the provider and the funding partner) it was. Further, the amount of revenue taken is not based on cost or cash flow, but rather on the contracted price, in this case \$500k + \$250k = \$750k. The revenue for the ongoing services would typically occur one month at a time, for the entire term of the agreement. Said another way, with a funding partner involved, the provider would take nearly 80% of the value of the project in year 1, with the rest spread out over the remaining nine years.



Without a funding partner involved, it's up to the provider to make the capital investment. In this case, the provider remains the owner of the assets being deployed, but makes those assets (hardware and software) available to the customer. With this model of funding, the provider recognizes the revenue equally over time, in this case \$100k per year, or more specifically, \$8,333 per month.

A common question with the internally funded model is how up-front costs are treated, from a profit and loss perspective. In most cases, the up-front costs are amortized over the full term of the as-a-service agreement, assuming the useful life of the assets being deployed is the same, so that the profit and loss statement reflects an alignment of revenue and costs. In other words, even with internally funded projects, profitability can occur in year 1.

Agreement Templates:

Given the complexity of an as-a-service project, it's critically important that there's a master service agreement (MSA) to govern what the parties have agreed to. While any company considering an as-a-service offering will want to consult with their attorney to build and execute the right style of agreement, the expectation should be that at a minimum, the agreement includes the following, in addition to the normally present sections of a professional legal agreement:

- Scope of the project
- Pricing schedule
- Payment terms
- Term of agreement
- Termination scenarios
- Service response times

A similar agreement called a "subcontractor agreement" will be needed for each subcontractor brought into projects.

Go-to-Market:

With the offering defined, the ability to price it in place and the related agreement templates built, it's time to start thinking about the ability to bring it to market from a sales and marketing perspective. As it turns out however, it's often more than just the sales and marketing teams that are involved. The organization as a whole needs to know how to talk about the offering. For example, the service and technical teams will likely be asked about it once it launches and because they're often viewed by customers and prospective customers as especially credible and not trying to sell them anything, what they say is critically important.

Messaging can be more important and nuanced with an as-a-service offering than with other offerings, because as-a-service can be more complex and because there will likely be preconceived notions about what it is, for example, "leasing," "financing," etc. It's not either of those things, but that will need to be addressed proactively in many cases.

Once the internal team is well-versed in presenting the offering, answering the questions and positioning things just right in doing so, the focus should shift to the materials the marketing team will provide to the sales team to enable the best sales process possible. Beyond website content, sales brochures and PowerPoint presentations, as-a-service offerings often require tools that can compare capital purchases to as-a-service purchases, cost savings calculators, case studies, frequently asked questions (FAQs) and answers and references. Finally, once all the selling tools are available, the sales and marketing teams should practice delivering the presentation,

answering questions, etc., so that each member of the team gets to the point of comfort; but also so that each person can see how the others present the material, thus providing new ideas and enabling a determination of the best approach. Finally, once the team is out talking about the new offering, there should be an expectation that the feedback received will be seriously considered and changes to materials will occur as needed.

The Role of Technology

Technology is a significant factor in the evolution from brick and mortar to an as-a-service offering. Technology should be viewed as an enabler for both what the as-a-service customer sees and what happens behind the scenes to provide the best customer experience possible. In the long term, having properly designed technology will allow the business to scale more rapidly and with less cost-per-customer than may have been needed with a capital-sale based model. Less cost per customer is realized because you will be sharing at least part of the infrastructure cost across many or all of your customers. You will ultimately create a set of shared software applications, customer support tools, billing capabilities and other product features that will be utilized both by your internal teams and your customers. Essentially, many of the product capabilities and supporting processes and tools will be centralized, resulting in better efficiencies.

That said, developing the enabling technology is an investment, in some cases a significant one. The actual size of investment will depend on how close your company currently is to having the required technologies. The types of tech required to support an as-a-service model and associated investment should be carefully considered before embarking on the journey. In most cases, the typical return on investment (ROI) for developing a service model should be positive, but it can take 1-3 years to materialize; and funds will be required to develop the capabilities up-front. The following paragraphs describe some of the common technologies and capabilities needed to effectively support an as-a-service sales model.

Multi-tenant cloud infrastructure: Whether it be public (e.g., Amazon, Microsoft Azure, Google Cloud) or private, the goal is to move as much product functionality, as well as internal facing supporting systems and processes, to a shared cloud infrastructure. This transition allows the business to amortize IT costs across all of its internal and external users and provides easy access for all stakeholders.

If there are any legacy and/or standalone applications, they should be refactored to be web-based (or mobile apps) and hosted on your shared cloud. During migration, strong design consideration should be given to ensure alignment with best practices in role-based access control, as well as data security and data privacy requirements. If you're in a regulated business, such as healthcare, these requirements are often even more strict. By way of an example, a customer using your product implemented in a multi-tenant cloud should only have access to their own data and they should not have any rights or visibility to your other customers' information, unless those rights were explicitly granted.

The process of transitioning from standalone applications and/or on-premise systems to a shared infrastructure is generally referred to as "digital transformation." If your company is not already familiar with the process and skills required to execute a digital transformation project, it is strongly recommended that you engage with experienced technology experts and leaders to fully develop a target architecture and project roadmap with an associated schedule and budget, so that the investment and ROI can be fully understood.

Product feature flags: A key part of your as-a-service pricing consideration will be the ability to charge additional subscription fees for various product features, which are considered optional, or above and beyond your baseline offering. In other words, you can achieve additional revenue streams by charging separately for these optional and/or advanced features. This approach allows the business to be competitive on the low-end of the

market and at the same time provide upside opportunity to capture additional revenue for a subset of customers. As a result, as mentioned earlier, your price list will be a bit like an à la carte menu, which requires support from a technology perspective to be able to cost-effectively enable and disable product features on a customer-by-customer basis. The technology used to support this capability is referred to as “product feature flags.”

A feature flag is essentially a switch in your customer-facing software, resulting in turning a given feature on or off for a specific customer or user. Implementing feature flags results in a significant benefit to your development team, because your organization only needs to support a single version of your product at any time. Individual features are then switched on and off for specific customers by your sales or support teams. This approach ultimately reduces costs by not having to support multiple versions of your product or having to deploy special versions for different customers. All customers simply use the same shared cloud infrastructure to access their product and their actual experience will vary from customer to customer, depending on which features they have subscribed to.

Feature flags can be implemented in two ways: 1) by implementing directly into your software using simple conditional statements; or 2) by integrating your software with one of a dozen commercially available feature flag management frameworks. For anything other than a very simple application, the latter is recommended, since commercially available frameworks have been around for years and there is very little rationale for reinventing the wheel. Popular feature flag tools include Launchdarkly, CloudBees, Flagsmith, Optimizely and many others.

Remote customer support: Another strategy for reducing operational expense when transitioning to an as-a-service model, is to build or acquire tools allowing your team to perform a majority of support functions remotely, using your shared cloud infrastructure. More traditional capital sales-based models typically require a field service technician to come on-site to troubleshoot and repair a product. This is especially true for example, in the medical sector, where certain equipment requires a “truck roll” to send out a technician to repair a problem. However, in the age of as-a-service-based solutions, even medical equipment is evolving to a centralized support model, where technicians are virtually connected to their equipment and using their shared cloud infrastructure to enable a majority of non-hardware problems to be resolved remotely, resulting in vastly reduced costs of operation. Remote support also enables more rapid growth for the company, at much less expense. For many companies today, a significant amount of the R&D budget is targeted at developing remote support capabilities.

Subscription-based billing: A key part of enabling as-a-service technology is the ability to set up subscription-based billing, as opposed to simply sending an invoice upon shipping. This is actually a bit easier than it sounds and selecting an off-the-shelf solution is highly recommended. There are several popular payment platforms that have built-in subscription features and are extremely easy to integrate and configure. You will want to integrate your selected payment platform with your as-a-service offering’s user interface on the front end and your bank and/or ERP system on the back end. This will result in smooth operations and a great customer experience for those looking to purchase the add-on features described above or upgrade their subscriptions in an automated fashion.

One of the most popular payment platforms supporting recurring subscriptions is stripe.com. Stripe supports web and mobile user experiences and an easy to integrate application programming interface (API). They even provide a feature that will build your subscription user experience for you once the details of each subscription level are decided. An example subscription page using Stripe is shown below:

Pricing

Startup	Business	Enterprise
<p>\$28/month</p> <p>The essentials for when you're just getting started.</p> <ul style="list-style-type: none"> ✓ 2 projects ✓ Up to 1,000 apps ✓ Basic analytics ✓ E-mail support <p>Monthly billing</p>	<p>RECOMMENDED</p> <p>\$32/month</p> <p>For businesses looking to achieve maximum efficiency and time savings.</p> <ul style="list-style-type: none"> ✓ 10 projects ✓ Up to 10,000 apps ✓ Advanced analytics ✓ 24-hour chat support ✓ Channel management <p>Monthly billing</p>	<p>\$48/month</p> <p>For businesses looking for the maximum competitive edge and expanding their reach.</p> <ul style="list-style-type: none"> ✓ Unlimited projects ✓ Unlimited apps ✓ Advanced analytics ✓ 1-hour, dedicated support response time ✓ Channel management ✓ Competitor analysis <p>Monthly billing</p>

Data Analytics and Metrics: Last but certainly not least, when you have your products connected to a shared cloud, along with having your payments and financial systems integrated to it, you now have the ability for full transparency and visibility to key performance indicators (KPIs), which are needed to efficiently manage your business. With full transparency comes the world of business intelligence, data analytics, data science and AI. By collecting key statistics about your as-a-service product's performance, your customers' and prospective customers' behaviors, financial information such as sales price, cost of goods sold, marketing costs, infrastructure cost, etc., you can now design analytics to monitor and continuously optimize the performance of your business.

Before building analytics, it's often considered best practice to stage all the above-mentioned data in an easy to use and access repository called a data lake, or data warehouse. The difference between a data lake and a data warehouse is that a data lake contains exact copies of the original data, whereas a data warehouse typically involves computing various transformations on the data first, before making it available to your analytics team. Building either a data lake or data warehouse would be the responsibility of an experienced data engineer and is outside the scope of this paper.

Assuming all the important business data is available and accessible as mentioned above, there are many business intelligence platforms from which to choose to create your data analytics and KPI dashboards. The exact technology selected for your data lake and business intelligence tools will depend on what cloud environments you support, as well as the skill sets and experience of your team. Popular tools include Tableau (by Salesforce), Power BI (by Microsoft), QuickSight (by Amazon), Snowflake and Databricks. Using one or a combination of business intelligence tools, you will be able to grow and optimize your as-a-service offering, powered with all the business insights to make the right decisions.

The Future of Business

Most things worth doing require effort, dedication and a dose of faith in the strategy; and launching an as-a-service initiative is no different. It's somewhat complicated and there's a lot to do to get ready, but that shouldn't prevent you from taking the steps needed to bring it to life. From defining the offering, to determining how the solution will be implemented and supported, to aligning subcontractors, to pricing the offering, to getting ready to launch, there's a lot to think about, but the payoff is big.

In the end, adding an as-a-service offering can result in growth of top-line sales by capturing customers with and without capital budgets, adding recurring revenue streams, decreasing product costs and increasing the company's valuation.

If you wish to explore this topic further, please contact the authors:

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