

GUIDE

# Smart products. More value: How product managers succeed with IoT

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# Introduction

You're a product manager for an equipment manufacturer, and you have a BIG vision for the future of your product. You know a lot about the [Internet of Things](#) (IoT) and how it is revolutionizing business models and disrupting industries. Maybe you have already implemented IoT technology in some of your own machines. You're seeing competitors beginning to offer innovative new services and new pricing models. And you want to better understand how you can drive that same innovation and transformation.

The right IoT technology enables [smarter products](#) that empower a business to build new, relatively risk-free services, which can then be monetized. The most potentially rewarding of these new services is a disruptive model called [Equipment-as-a-Service](#) (EaaS). This type of business model can seem a long way off.

But there is good news: the path to transform from a traditional product manufacturer to a provider of EaaS is well mapped, and there is a clear business case to be made for each step along the way. Following this path will transform both your machines and your business. But you're no stranger to planning and execution, right?

This product manager guide has been put together with just that journey in mind.

1. We will start by showing you the [IoT maturity curve](#)—the path you need to follow for your business to become a manufacturer of [smart products](#), and for you to become an IoT product manager.
2. We will then highlight what should be on every product manager's radar at each stage of this journey, including value drivers, actionable insights and use cases. This will also give you an idea of what the next step on this path could look like for you, regardless of how far along that path you already are or the end state you want to achieve.
3. Finally, we want to show you what this journey might look like for a typical manufacturer. So each step of the way, we will follow the example of Zoa Martinez\*—Product Manager at Strong-Vac Solutions Inc. You'll see how she puts all the theory into practice, using IoT to change the way her company operates. You'll follow along as she find value on the journey toward offering EaaS, from start to finish. Let's get going.

## The journey to value

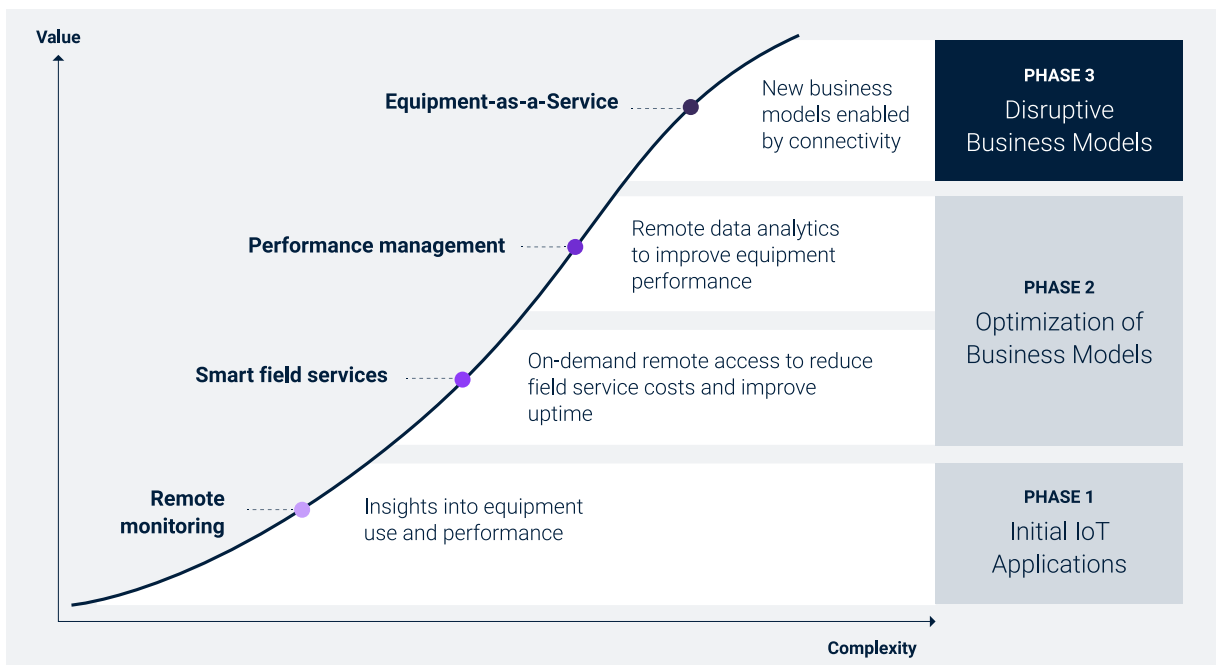


Figure 1: IoT Maturity Curve

\* Disclaimer: Both Zoa Martinez and Strong-Vac Solutions Inc are entirely fictional, used as an example to illustrate the potential development for a smart machine maker. Any resemblance to real or fictional people or companies is strictly coincidental.

The IoT maturity curve shows the increasing sophistication of [IoT solutions](#) available to equipment makers: first the initial IoT applications, then optimization of your current business models, and finally disruptive business models. Along this journey, there are four value drivers: [remote monitoring](#), [smart field services](#), [performance management](#), and [Equipment-as-a Service](#).

In this product manager guide, you will find more information about each of these phases and details about all four value drivers. The key point to understand is that each phase, and each value driver, is built on top of the previous one. It is not possible to skip a phase or attempt them in a different order. In other words: there are no shortcuts on the road to EaaS! However, there are ways to accelerate your progress, which will be highlighted at the end.

It's important to know that EaaS will not be the right solution for every market segment or manufacturer, which means that many IoT projects will not reach this final stage. That's OK—phases 1 and 2 offer substantial return on investment at relatively low risk. But in the right market conditions, EaaS can be a true disruptor, offering higher returns for the equipment maker in exchange for transferring some risk from their customers (end users).

In the EaaS model, there is no classical change of ownership of the equipment or machines involved. Instead, the end user rents the machines. Or, as the name Equipment-as-a-Service indicates, that end user buys the service of having production capabilities available. This service-driven approach disrupts the way business is done today. It also disrupts the companies brave enough to embrace this new market concept—as it requires restructuring their own business to offer all the services needed for this new model. For the smart equipment makers ready to move in this direction, partnering with the right IoT provider makes all the difference.

Read on to find out how this works!

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## The three phases in your IoT journey

### Phase 1: Initial IoT applications

#### What the phase involves

The first step in the journey to IoT maturity is to make your machines smart(er) by connecting and monitoring them. In the past, equipment makers had little information about how their products were being used in the field—they would sell the device to a customer and wait for a call when something went wrong. Manufacturers would rely on users to inform them of issues, and had inefficient, reactive manual processes to manage the equipment. The first stage of the journey empowers your devices to collect data on their own operations and send it to you. From this data you can gain insights into equipment use and performance—all driven by remote monitoring.

#### Value driver: Remote monitoring

This system allows your internal field service team and members of your product development team to incorporate live data into your service management and product evolution processes. In the disconnected world, gaining insights into how your customers use your products or responding to product failures has been expensive, slow and ad hoc. Remote monitoring uses IoT-connected equipment to gain live insights into use and performance. This data, in turn, can be leveraged to develop new product features faster, and focus on the information that matters most to your customers.

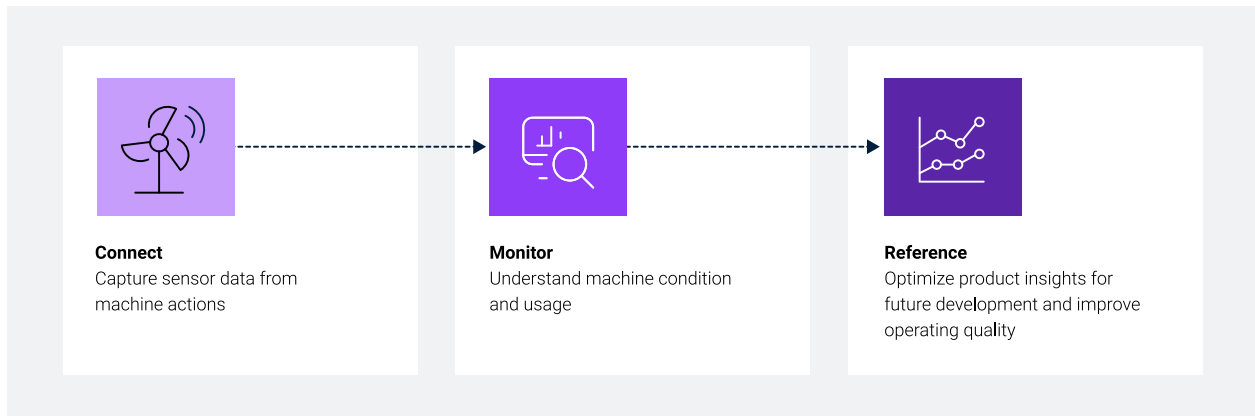


Figure 2: Remote monitoring

### Use cases include:

- Equipment usage monitoring
- Condition monitoring
- Long term analysis of equipment quality

### Benefits for you:

- Build customer loyalty: With insights into how your customers use your products, you can analyze uptake of new features and functions, and arm yourself with insights needed for data-driven product development that will delight customers.
- Next product generation: Your product development team is equipped with insights on your products like never before.
- Low risks: When starting your IoT project on a pay-per-use contract your initial risk is low, since your initial costs are low. Ultimately, risk for project failure is passed to the IoT provider.

### Benefits for your customer:

- Low risks: Due to fast setup, your customers can see the benefit of IoT quickly and decide to start larger rollouts.
- Fresh insights: In-depth performance data becomes actionable.

### Use case 1: Proactive quality management at Strong-Vac Solutions Inc.

- Producers of packaging machinery, primarily for the food industry
- Turnover of approx. \$500m
- The machines are not used in highly automated environments
- Lots of fast-moving parts, frequent repairs necessary
- Machine value \$50,000–\$500,000
- Customers around the globe

Strong-Vac Solutions Inc. is one of the top ten manufacturers of packaging equipment for the food industry worldwide, by turnover. Zoa Martinez is Lead Product Manager at their head office. An engineer by training, Zoa is passionate about the quality of the machines her team develop. But once the machines reach the customers, it's next to impossible to

get any clear picture of how they are performing. As most customers use third-party maintenance providers, it can be difficult to understand the most common types of errors and how machine performance is impacted by reliability. That is exactly the type of information Zoa and her team would love to have when they start working on the next generation of a popular product.

Zoa takes meetings with a number of IoT providers until she finds the one that she feels is the right fit for her business, an enterprise-grade **IoT platform** with a mix of expert know-how and the flexibility to adapt as the project moves forward. Her IoT vendor gives her access to their vendor ecosystem, so she quickly finds a gateway vendor to supply the hardware to integrate in the new generation of machines. The implementation is quick, and within days of delivering the new machines to a delighted customer, Zoa is looking at real-time data from a packaging plant halfway across the country. She's also sleeping well at night because her IoT vendor has offered her a pay-per-use model. As she has only a few devices, her costs are therefore incredibly low—reducing risk dramatically, while also giving Zoa the flexibility to ramp up at her own pace.

Her IoT platform provider offers access to platform functionality via APIs, so she is able to tailor the solution to precisely fit her needs. The customer gets access to in-depth data about how their facility is operating, and Zoa is looking forward to including this data, and all the insights it will bring, in the design of the next generation of this product, later down the line.



## Phase 2: Optimization of business models

### What the phase involves

For many companies that manufacture complex industrial equipment and machines, aftermarket services form an important part of their business model. These services can include repairs, part replacement, regular maintenance, and consultation services.

**Smart field services** involves leveraging IoT data collected from machines in the field to better schedule, plan, and execute these field services. This can allow the maintenance, field service, customer service, and consultative services teams to provide more accurate, timely maintenance, and part replacement. At the same time, insights gained from the data enable performance management, helping operations teams identify inefficiencies and reduce the energy costs associated with operating each device.

## Value driver: Smart field services

Smart devices collect operating metrics and asset settings, providing you with crucial indicators of performance. But when this data is linked with the external potential of field services to improve customer experience, things start to get exciting. In this phase, IoT data makes it easier to meet customer's demands, be proactive, boost aftermarket service offerings and even boost revenue with simple IoT services, for example with optimized spare part management. These services leverage the data collected in the field. The customer will be delighted to use these smart services to reduce their operating expenses and streamline their own processes.

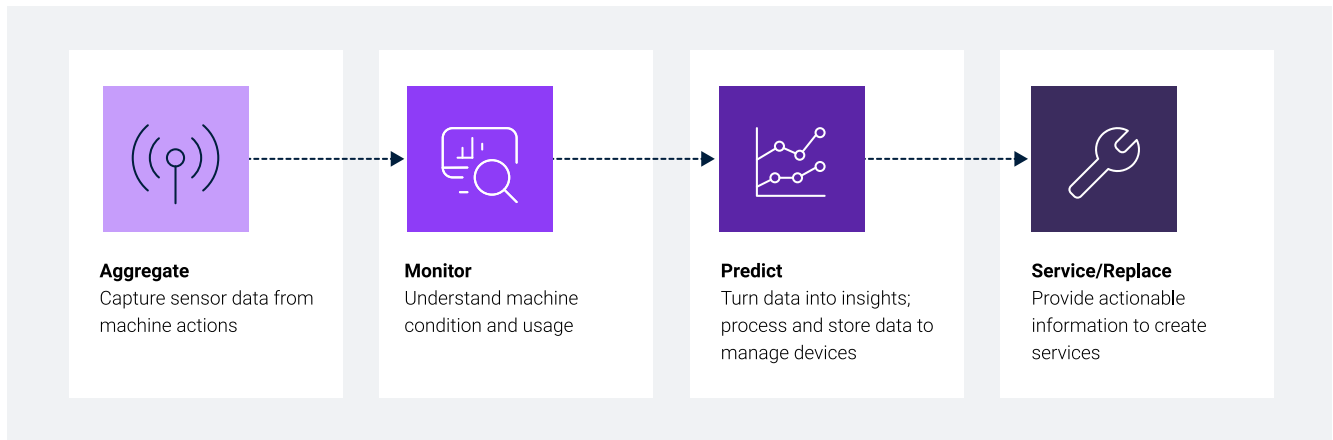


Figure 3: Smart field services

### Use cases include:

- Condition-based maintenance
- Optimized spare part management
- Predictive maintenance
- Lower costs for equipment install and start-up
- Fleet management

### Benefits for you:

- Improving installation/ramp-up: Reduce the time to install and commission equipment at the customer site.
- Potential to train machine operators using real IoT data: Access the newest and latest documentation for the machine.
- Condition-based (predictive) maintenance services: Create service programs based on the actual condition of the equipment, not on a fixed schedule or waiting for machine failure. Alerts directly manage the current production process, or schedule the optimal time to interrupt production and conduct maintenance.
- Optimized spare part management: Helps users gain through lower downtimes and improved ordering and stock management, while significantly improving your aftermarket revenue.
- Better aftermarket services: Form stronger relationships with your customers.
- Efficiency gains: Reduce free visits to customer sites (during a warranty period).
- Improved first-time-fix rate: Your technicians know the problem in advance and bring the right spare parts.
- Increasing ROI with smart field services: Some companies can see up to 66% increase in add-on support purchases and 50% increase in win rate in competitive situations. These value-added services also help to justify price increases.

## Benefits for your customer:

- Reduced machine downtime: Improving uptime is the most important benefit for your customer.
- Lower TCO through effective maintenance.
- Reduced training costs for machine operators: By designing training based on real data collected from their own machines, it can be more focused, shorter and more effective.
- Streamlined maintenance processes: Pass risk from equipment buyers to equipment providers.

### Use case 2: Spare part management at Strong-Vac Solutions Inc.

Zoa's colleague Mark has had a difficult year. He is in charge of aftermarket services, and his bosses have asked him to increase revenue by 10%. The problem is the way this segment is run: Third-party providers consistently undercut the original manufacturer in price. And when a food production facility is looking at the lost revenue of an extended machine downtime, they want to make savings wherever they can.

Mark has heard of the benefits that smart devices can bring in this industry sector, and as some of Strong-Vac's largest clients are already operating IoT-enabled machines, there would be no additional hardware costs for these business insights.

Mark and Zoa meet with Zoa's IoT platform provider, who shows them how the data collected by smart machines can allow Strong-Vac to offer their customers radically different aftermarket services, including predictive maintenance and automatic spare part ordering.

The machine operators access the data using a Strong-Vac-branded user interface (UI). To the machine operator, the digital services appear as an original Strong-Vac product, a perfect union of hardware and software under the Strong-Vac logo. The new IoT services look and feel like a natural extension of the existing hardware the machine operator already trusts.

The business case for the machines' operators is clear: the spare parts cost a bit more than before, but with reduced machine downtime and necessary replacement planned for scheduled machine breaks, the innovations more than pay for themselves. Within six months, aftermarket revenues have increased by 20% and Mark's year is looking up.



## Value driver: Performance management

With the data a product manager collects from devices in the field, you start to know more about what happens in a customer's facility. This information can form the foundation for new business ideas. One of them is performance management, which is the process of making machine insights available to your customers so they can improve their own operational efficiency.

Here are the most common areas where performance management can help your customers:

1. Reducing defect rate / improving product quality
2. Increasing production speed and identifying bottlenecks
3. Adjusting production scheduling to minimize changeovers
4. Reducing the time needed for changeovers
5. Reducing unplanned downtime and equipment failures
6. Scheduling preventative/proactive maintenance when assets are already planned to be off

## Use cases include:

- Full machine transparency with [digital twins](#)
- Overall equipment effectiveness ([OEE](#))
- Integration into customer's management system
- Energy monitoring and improvements of company's sustainability KPIs
- Proactive quality management

## Benefits for you:

- New/increased revenue streams: Extend product offerings with additional IoT-driven services on top.
- Business growth: By moving from equipment-only sales to offering best-in-class digital services, bundle products and services backed by competitive service-level agreements (SLAs).
- Customer success: Better OEE translates to a higher ROI for your customers, justifying a higher price for the assets.
- Customer loyalty: New services build trust with customers through personalization.
- Differentiation through innovation: Add features that are unmatched by your competitors to fill a strategic need for your customers.

## Benefits for your customers:

- Planning agility: A digital twin of a device or process enables better planning through simulation. By encoding the twin with sensor data as well as all kinds of static master data about the machines, it's possible to model different scenarios to produce actionable insights about future plans.
- Prevent unplanned downtime: Full transparency on metrics enables your customers to proactively identify and diagnose issues. They can increase machine availability and prevent unplanned downtime across all their sites.
- Life-time value: Performance management measures extend equipment life.



### Use case 3: OEE at Strong-Vac Solutions Inc.

Zoa feels good about her achievements with IoT so far. But after attending the Hannover Messe trade fair, she realizes that the competition is not sleeping. She knows her machines are as good as or better than the competition, but she has seen users make a purchase decision for inferior machines that are included in a product/service bundle. Her customers are looking for different things now, and the market is changing around her. So she starts thinking about new features that could be added to Strong-Vac products. With the climate crisis on everyone's mind, **energy efficiency** is no longer just a topic for environmental activists. Customers have started asking for it.

Zoa outlines her concerns to her IoT platform provider and asks what they can do about it. The answer is to build on their existing IoT services, both from a technical perspective and customer perspective. Customers are getting used to IoT services and are ready for more. Strong-Vac can now build their own applications perfectly tailored to their machines and the needs of their customers.

The key to this growth is containerized applications. Strong-Vac software engineers develop their own functionality to exactly match their needs, but then operations and support are handed over to the IoT provider, providing massive cost savings.

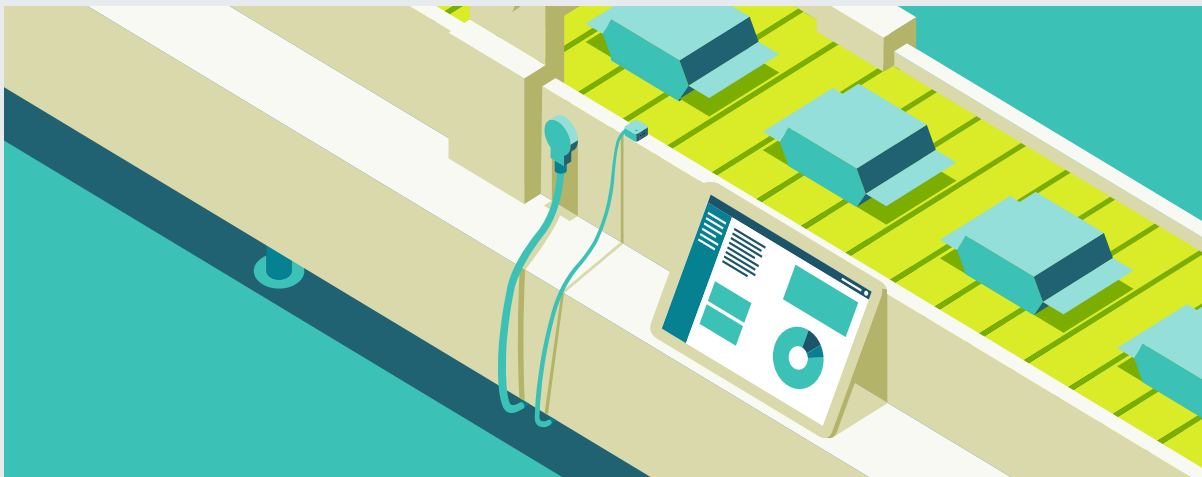
Strong-Vac's first offering is a service to monitor energy efficiency and OEE (overall equipment effectiveness). By investing resources to improve performance management, Zoa knows that her customers will be able to achieve their own OEE targets in a cost-effective way.

There is some concern at Strong-Vac that developing this new software is a significant investment with additional risk for their bottom line. Zoa's IoT provider has the perfect answer: by building on the reliability and security of the existing platform, they will not need to re-invent the wheel. And agile development will allow them to start small and scale up once the service is developing secure revenue.

Zoa decides to invest in OEE. She works with consultants from her IoT platform provider, and after a few days of number crunching (to select relevant data for the OEE app) her smart machines already in the field can be upgraded with OEE measuring services, which the user can access on an app.

It's not a difficult sales pitch, and the pilot project with a trusted customer provides a valuable proof-of-concept. With improved data availability, the user is able to establish meaningful performance baselines for all their equipment. Real-time data gives the user hard numbers on their big-6 losses, and root cause analysis enables them to reduce machine downtime dramatically. There is an immediate big win, when the smart machines are automatically switched on in the early morning, so they are warmed up and ready to use as soon as the operators arrive.

All in all, the pilot is promising enough to persuade Strong-Vac to scale up, and roll out their service offering to existing and new clients.



## Phase 3: Disrupting the marketplace

### What the phase involves

Once a business has drawn every possible innovation and novel revenue stream out of their existing marketplace by leveraging the power of smart data, there is only one other option: to follow the data and change the marketplace. This phase of IoT development is about building totally new business models.

End customers increasingly only want to pay for defined outcomes, rather than inputs. They want to realize both a lower equipment total cost of ownership (TCO) and keep their equipment costs flexible to accommodate changes in demand. In fact, they might want to move to a subscription model and have no capital expenses at all. One of the ways of unleashing this level of flexibility is through Equipment-as-a-Service. This needn't be an all-or-nothing proposition to customers. Instead, it's about tailoring new innovative services directly to the specific needs of each individual customer and project, and having more options to out-compete the industry.

### Value driver: Equipment-as-a-Service

The EaaS business model offers machine users the chance to rent the machines they will use, instead of buying them. It's not just the purchase price they save—the EaaS model means that they are no longer responsible for repairs and maintenance of the machines they use. Instead, they simply pay a fixed cost per month, based on use. If the customers don't end up needing the machines, they can be removed and returned to the manufacturer.

This model enables end customers to convert CAPEX into OPEX and transfer all maintenance responsibility to the equipment supplier. To successfully offer this business model, it is not enough for equipment makers to transform the machines they make—they need to transform their organization. To do so, the product manager has to become an IoT product manager, with a focus on generating maximum value from connected equipment.

EaaS will not replace the sales model that the equipment and machine market is based on—most machine users will continue to purchase the machines they use. But for specific projects, EaaS will offer customers an attractive alternative to high CAPEX investment in a new, uncertain production. In essence, the customer pays a premium to transfer some of the risk of a new project to the equipment manufacturer, by only paying for the production capacity they need.

### Use cases include:

- New product lines or locations
- Expansion or diversification of product lines

### Benefits for you:

- Continuous revenue flow: Especially when selling expensive machines, numbers fluctuate heavily. Investors and stock markets love constant and predictable revenue flows.
- Improved customer retention: By offering your customers the option of EaaS alongside the traditional sales model, you strengthen your position as a flexible, future-oriented provider of smart machines.

## For your customers:

- Flexible payment: Customers only pay for the usage of the machine for an agreed period of time. Like renting a car, there might be a certain number of miles and fuel included in this package—or data in this case. This reduces the investment risks.
- Outsourcing maintenance and repairs: The machine maker is responsible for keeping the machines running, and parts will be replaced as and when necessary at no extra cost.
- Reduced CAPEX: By moving the cost of machinery from CAPEX to OPEX, users can significantly restructure their balance sheet.
- Constant and predictable production costs for new product lines: By passing the risk of new production to the equipment manufacturer.
- Increased flexibility: Customers can scale their operations up or down as their needs change.
- Agility: Customers can change their focus, from asset to outcome, from cost to value.

### Use case 4: Machine vacuum packaging subscription model at Strong-Vac Solutions Inc.

At a senior management meeting, Zoa's CEO reveals that overall numbers are stagnant. The head of sales says that customers are hesitant to make big investments in new machines for untested product lines. They are worried about buying expensive equipment they will not end up using, and this fear is causing them to be hesitant when placing orders. Rather than ordering the 30 machines they think they will need, they hedge their risk by only ordering 20.

There needs to be a radical change of doing business, the CEO says, pointing to success stories of disruptive business models in other sectors. Since Zoa did such a good job digitizing her product line, the CEO approaches her and asks for ideas and requirements for offering her product line as EaaS, as a pilot program.

The idea is not to replace the sales model that Strong-Vac relies on completely, but to offer EaaS as an alternative for customers' new, high-risk projects. If customers know they can just return the machines if they are not needed, then maybe they will not hesitate to order those 30 machines they think they will need.

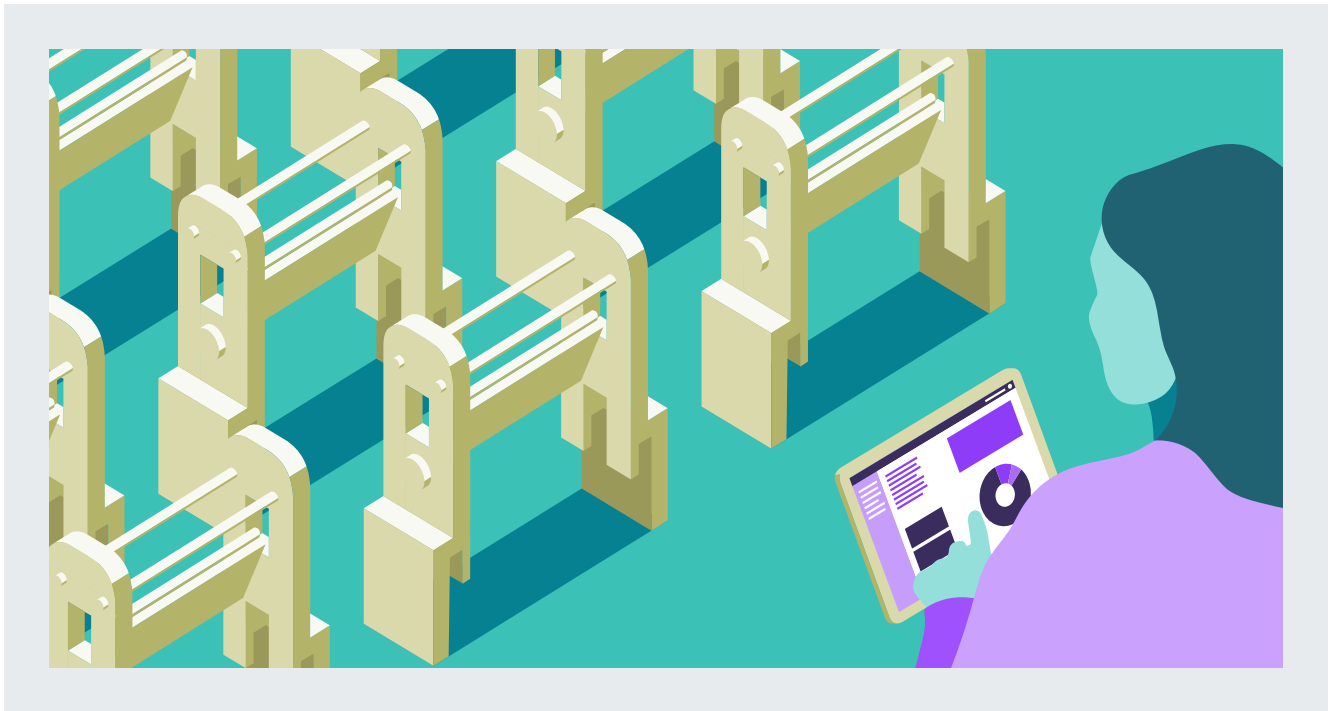
Zoa sees the potential in offering something new that their customers will love, but she is wary of the risks, in spite of her positive IoT journey so far. She wants to take her time and make sure the new business model is right for Strong-Vac and their customers before adopting any radical changes.

A project team is formed to put together a pilot proposal: in-house, Zoa is joined by Céline, from change management, and they work closely with Zoa's IoT platform provider. To enable this change of business model, a new, parallel business unit will have to be established at Strong-Vac, with different team structures and internal processes, and it is vital that everyone involved buys in to the potential of their bold new idea. This is the disruption that EaaS brings to corporate structure, but with proper management and planning, Zoa and Céline are able to lay the foundations for success.

Céline works with the CEO to arrange and staff a new business unit, while Zoa spends time with consultants from her IoT platform provider to develop a use case based on the needs of both Strong-Vac and their chosen pilot customer.

The customer is delighted. They were having internal pushback at the capital investment needed to implement large-volume vacuum packaging for a potential new market, and EaaS allows them to avoid this hurdle, and only pay for the equipment they need, when they need it. If the numbers continue to be this positive, they will consider EaaS for other upcoming new projects.

And it's time to pop the champagne at Strong-Vac. The pilot project has delivered steady monthly revenues, which are projected to exceed the revenues from a traditional sales-model project of a comparable size. Instead of selling 20 devices, they are renting 35—a big win for production on a single project. In terms of environmental efficiency, it's a win as well: with only the machines they need, the customer has no expensive devices gathering dust. Usage is maximized. And now Strong-Vac and Zoa have a successful proof of concept and can begin offering EaaS to other customers.



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## The right IoT solution for you

Are you interested in replicating Zoa's playbook? Let's take a look at all the benefits that Zoa derived from working with a powerful IoT platform and partnering with the right vendor. After all, you can't skip any of the phases to IoT maturity, but you can certainly accelerate them!

### The IoT platform

The [IoT platform](#) Zoa chose came with many key differentiators. These include:

- **Fast time to value:** Zoa chose a platform that comes ready to go with [device connectivity and management](#), [application enablement](#) and [integration tools](#), as well as the leading streaming analytics engine. Pre-packaged, configurable applications helped her team build 90% of the solution without coding, such as the [OEE App](#), [Device Management](#), and [Digital Twin Manager](#). Rather than reinventing the wheel, Zoa's team was able to deliver demonstrable business value internally and to customers quickly.
- **Self-service capabilities:** The platform's self-service tooling is directed towards the line of business which allowed them to build, manage and evolve their IoT solutions without the need to involve a developer for every change. Subject matter experts and customers are able to perform tasks that would otherwise require costly and time-consuming consultancy projects.
- **Open, multivendor approach:** A platform with zero lock-in means you are free to choose, rather than being bound to an IaaS provider. If your market moves to other regions in the world, your IoT solution can move as well. It can be deployed on any of the large IaaS providers or even in your own data center.
- **Enterprise grade:** Zoa chose a platform that delivers the ultimate in [reliability, scalability and performance](#). As IoT is playing a critical role in business processes, and the products her customers use, she needed to ensure that the IoT solution is enterprise grade. The platform allowed her to easily evolve and expand the IoT solution using a building block approach as needs and business opportunities changed over time.

# The vendor

Zoa didn't just choose a provider—she chose a partnership with an **IoT leader** that provides, among other things:

- **Professional services** support who are 100% committed to your success and can help with strategizing, planning, building, implementing and even managing your solution.
- A library of solutions and experience from **past IoT customer projects**, to speed development and time-to-value.
- Trusted industry and IoT advisors to help you to unlock the potential in your own data that you might never find on your own.
- An ecosystem of **IoT partners**. IoT success is a team sport. Zoa and her company gained access to a network of company experts for everything the IoT project might need, including hardware, software and expert consultants.

# Take the next step

Software AG offers IoT solutions for manufacturers of industrial machines and equipment who want to differentiate their products and create new revenue streams, decrease costs for maintenance services and unexpected downtime, and reduce waste and energy use for more sustainable operations. Our customers benefit from the support of an organization at the forefront of digital transformation.

**Cumulocity IoT** is the right choice for a company looking to deploy quickly and deploy anywhere. Taking a "Buy & Build" approach to IoT enables customers to leverage our core out-of-the-box capabilities with the freedom to develop and integrate their own proprietary tools, and to build their own differentiating applications and digital services.

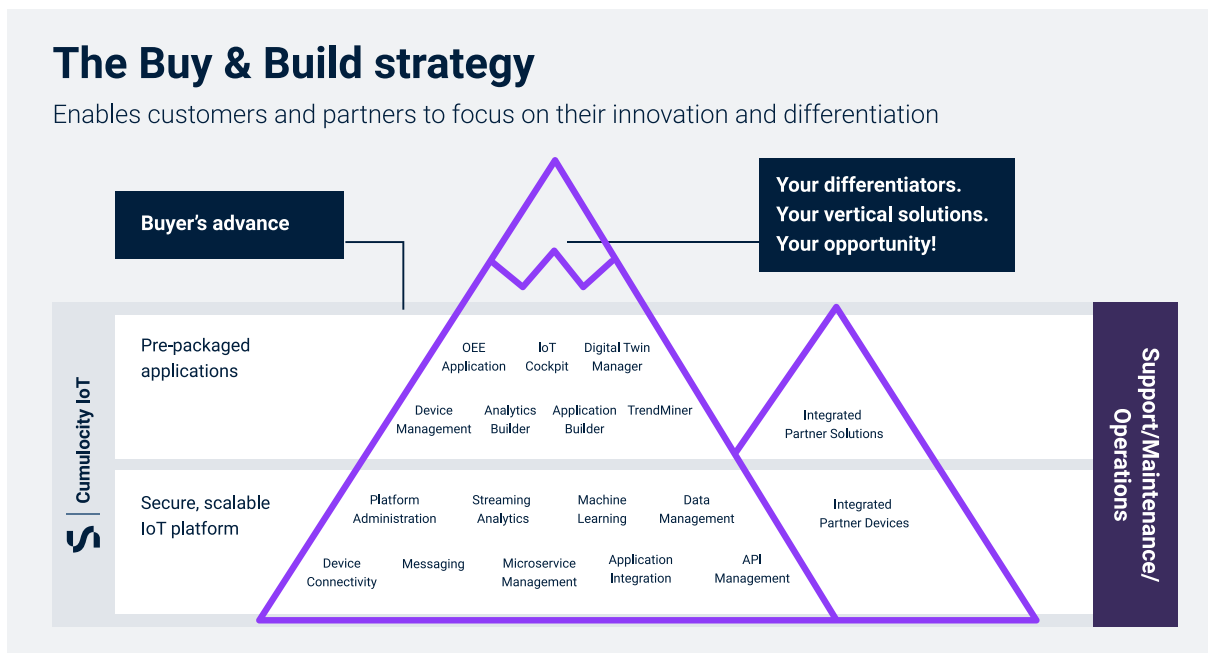


Figure 4: Buy & Build strategy

As equipment manufacturers pursue the transformation enabled by IoT, they find [success with Cumulocity IoT](#), a proven platform that is ranked a leader by [industry analysts](#). [Contact us](#) to see how you can benefit from smart connected products or learn more about [Cumulocity IoT here](#).

## You may also like:

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Create more value with smarter equipment. Learn how to Climb the IoT maturity curve to transform your business—and lead your industry.

[Learn more](#) >

### SOLUTION

#### Cumulocity IoT

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### DEMO

#### Request a demo

Schedule a one-to-one consultation with an expert to learn what's possible on Cumulocity IoT, the #1 low-code, self-service IoT platform.

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[Learn more](#)

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