

Just What the Doctor Ordered: How to Grow Your Medical Device Revenue Through Software Licensing

A comprehensive guide for intelligent medical device vendors



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Introduction

The introduction of software into the hardware manufacturer's business presents many challenges and is forcing operational changes for which some device manufacturers are not prepared. On the other hand, some embedded device manufacturers have seized the opportunity and with forethought and careful planning, have developed effective embedded software monetization strategies – enabling them to expand and profit through the use of software licensing and entitlement management technology. The software embedded in medical devices provides a great opportunity for medical equipment vendors to innovate and differentiate their products in a competitive marketplace. But that same software not only contains the lion's share of intellectual property (IP) value for these vendors – it also presents significant risk in terms of IP compromise.

Medical equipment vendors also face other challenges, including fully monetizing their IP investments while also managing the cost & complexity of multiple product variants, and supporting the emerging business & pricing models that today's budget-constrained medical facilities demand. This paper presents ways for medical equipment vendors to overcome these challenges using a comprehensive embedded software protection and monetization strategy and the appropriate software monetization technology.



The Business Challenges

In a highly competitive device market, medical device vendors face numerous challenges as they strive to differentiate and succeed. Beyond the transition to software-embedded hardware solutions, developers are tackling problems of deliberate and unintentional misuse of their technology, as well as the tampering and theft of their intellectual property.

Additional challenges device manufacturers face include:

- High costs associated with tooling, hardware production, maintaining inventory, support, and shipping for a wide variety of hardware SKUs.
- Inflexible feature management techniques that severely limit their ability to penetrate new markets.
- Inability to respond to budget-constrained medical facility requests for more innovative pricing models. These facilities want to transfer one-time high-cost equipment expenditures from their capital expense budgets to their operating expense budgets by paying a set monthly subscription fee or per-procedure – on a pre-paid or post-paid basis.

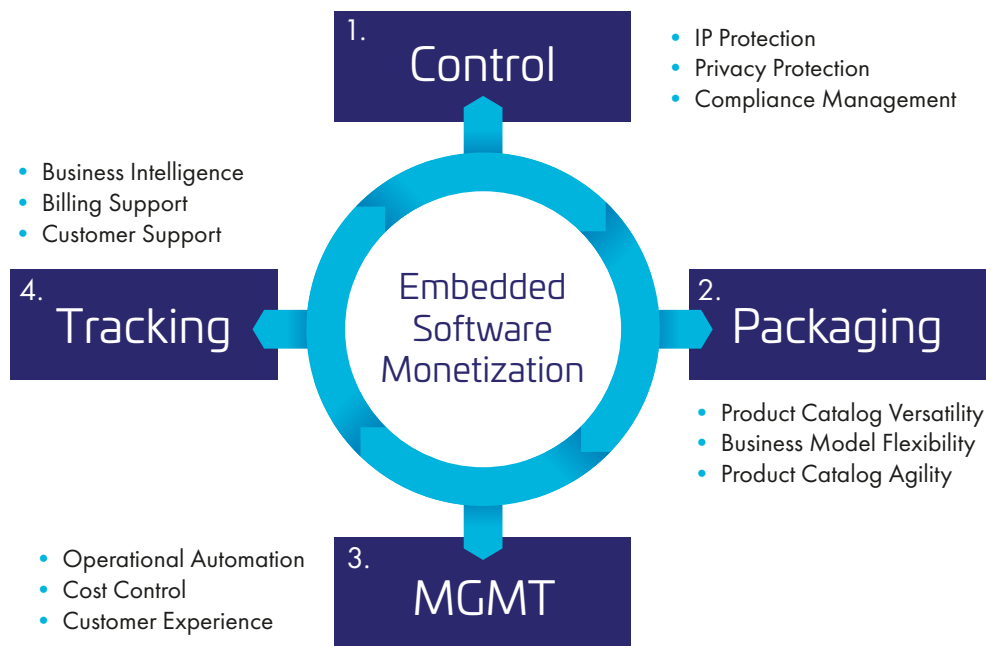
What many medical equipment vendors don't realize is these challenges can be overcome with a comprehensive embedded software protection and monetization strategy and the appropriate software monetization technology.

“Manufacturers are increasingly looking to leverage the software assets embedded within their devices in various ways, including monetization as well as using software to protect and control the feature set delivered to customers.”

– Amy Konary, IDC Research

Four Essential Components of a Monetization Strategy for Embedded Medical Devices

To fully monetize their IP by increasing revenue and reducing costs, medical device vendors need a software monetization strategy that hinges on four distinct considerations. Embedded software publishers must be able to easily and effectively control, package, track, and manage usage of their software-driven hardware devices.



Control

Controlling Access to Intellectual Property: The software embedded within an intelligent device is typically a medical equipment vendor's most valuable asset. It not only holds all the development secrets hackers or competitors would love to gain access to, it also determines how the product functions. Stolen code can end up in the hands of competitors or be used to produce knock-offs.

While theft of trade secrets is one threat, for many medical equipment vendors, tampering can also be a threat. Both scenarios have great potential to damage overall market share and therefore decrease revenue potential.

Tampering with the software embedded within a device can change how the device functions. This can provide users with access to features they have not paid for, or even worse, could result in regulatory compliance problems. Without proper protection, medical device vendors are unknowingly leaving their code vulnerable to tampering.

By effectively controlling access to the source code of its software, the medical device vendor is able to protect revenue; preventing product tampering, reverse engineering, and IP theft. Medical equipment vendors that control access to their source code proactively safeguard their products and the integrity of their brand.

Controlling Use of the Product: Usage control is the next piece of the monetization puzzle. Vendors must be able to control the use of their devices at the product and feature level to prevent overuse of their offerings – and achieve greater flexibility in their product packaging.

This can be accomplished through feature-based licensing, which enables device vendors to minimize the number of hardware SKUs they manage and to reduce tooling, manufacturing, and operational costs.

Feature-level control over embedded software is also the key to flexible pricing and packaging strategies – which can attract a wider variety of customers without increasing manufacturing costs.

Packaging

A monetization strategy that includes software licensing technology, opens the door to a world of flexible packaging and pricing opportunities.

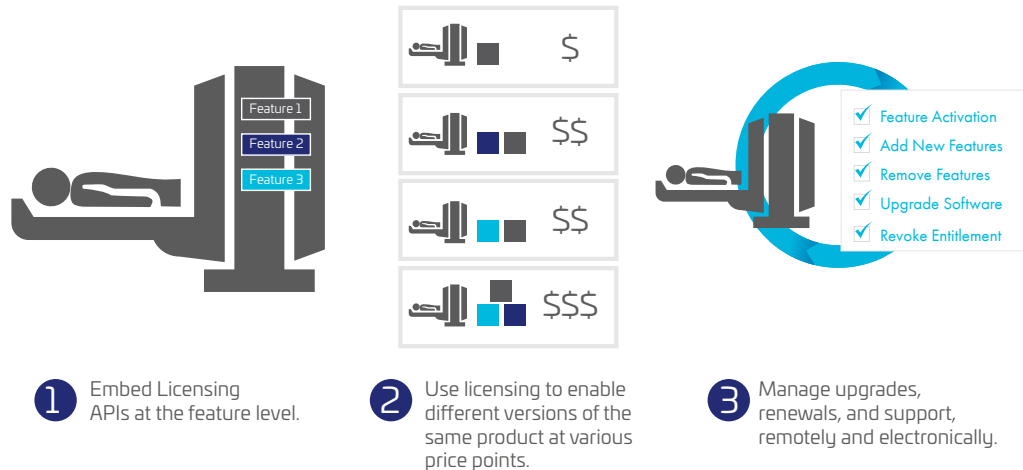
In the past, if a vendor wanted a premium and a standard version of a piece of equipment, they would build two applications for installation on two different hardware platforms. If a standard customer wanted to upgrade to a premium device they would have to return their old device and wait for the vendor to ship them a new one.

Simon-Kucher & Partners, the world’s leading consultancy and thought leader on software pricing, makes these three recommendations when it comes to pricing and packaging:

1. Optimize packaging and pricing to turn a large portfolio of modules into a handful of clear customer solutions that simplify the sales process and increase deal size
2. Build a scalable process to evaluate and harmonize pricing metrics across dozens of products
3. Test viability of alternative revenue models (e.g., usage-based pricing, revenue sharing agreements) with customers and partners

Using feature-based licensing and entitlement management, medical equipment vendors can ship the same physical hardware device with varying features/functionality to different customers at varying price points. It also may enable them to upgrade or downgrade customers remotely – resulting in lower support and fulfillment costs, and the ability to deliver a better customer experience – a true win-win proposition.

Flexible Pricing & Packaging Minimizes Hardware SKUs & Expands the Addressable Market



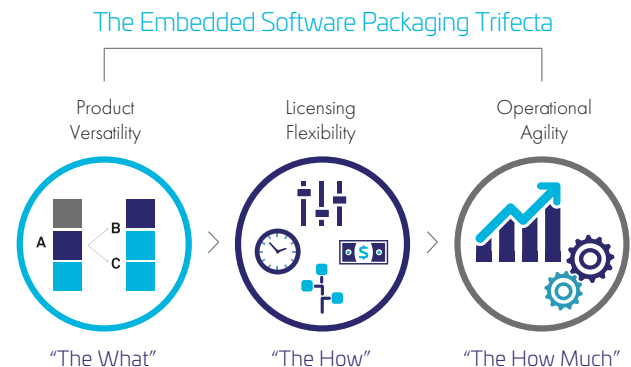
Contrary to popular belief, intelligent device packaging is not a one-time event and despite the hopes of product managers around the world, ‘one size’ is never going to ‘fit all.’

Device vendors will also need the ability to change pricing and packaging schemes on the fly in order to satisfy constantly evolving market demands.

The ability to tie together components of the offering into different packages without engineering effort or writing one line of code, enables medical equipment vendors to quickly and cost-effectively deliver the right offering for every customer every time.

Packaging of embedded devices really focuses on addressing three things: the what, the how, and the how much.

1. **WHAT** aspects of the device does the customer want or need access to?
2. **HOW** does this customer need or prefer to pay for the device?
3. **HOW MUCH** does this customer perceive the value added by the device to be?



But asking these questions is only half the battle. Once the questions are answered, medical equipment vendors need to have the tools in place which enable them to act. If a medical facility only wants a portion of the feature set, vendors need to be able to offer a basic bundle at a lower price point. For example, if a hospital or clinic can't afford a one-time lump-sum payment to purchase medical equipment outright, vendors need to be able to offer a subscription or pay-per-procedure licensing model. The ability to take action requires product versatility, access to flexible licensing models, and business agility.

- **Product Versatility**

Product Versatility will help medical equipment vendors achieve the right product offering for every customer every time, therefore addressing the "WHAT" aspect of the packaging trifecta. For true product versatility, medical equipment vendors need to establish a value for each feature within their catalog and then have the ability to bundle those individual features into multiple product packages with a variety of pricing options.

One thing is clear, medical device vendors that don't have the ability to monetize the individual features of their hardware solution, end up significantly limiting their market applicability or the price they can charge for their products – which equals lost revenue opportunities.

Feature-level authorization and therefore packaging capabilities built into the hardware product catalog can really improve the overall accessibility of a single hardware device across a multitude of diverse markets. Deactivating or removing premium features from a 'basic' version of a device means it can be offered at a lower cost to capture low-end markets. Or equipment vendors can charge a premium for access to cutting-edge features that provide additional value to high-end customers or niche markets. One thing is clear, medical device vendors that don't have the ability to monetize the individual features of their hardware solution, end up significantly limiting their market applicability or the price they can charge for their products – which equals lost revenue opportunities.

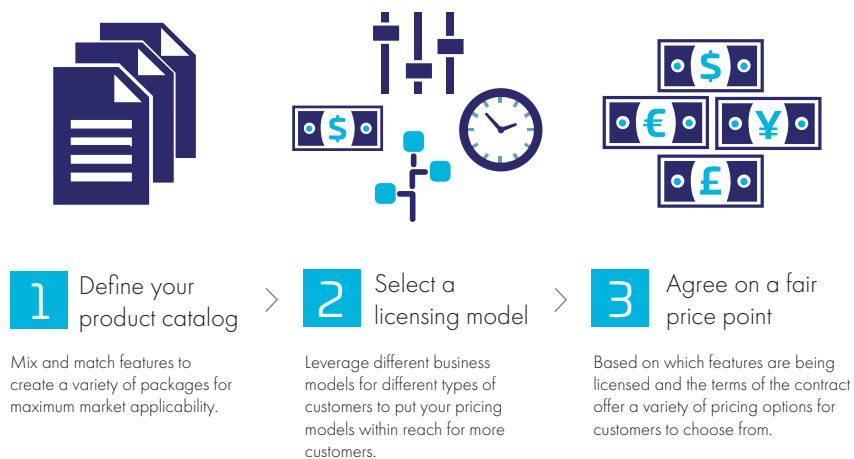
- **Licensing Flexibility**

The next thing it takes to be successful with software packaging has to do with how customers use the intelligent hardware device. It takes license model flexibility to address the "HOW" aspect of the packaging trifecta.

On one hand, medical professionals need the very latest and greatest technology in order to remain competitive and to provide the best patient diagnosis, care, and outcomes. On the other hand, medical facilities are under tremendous budgetary constraints. Where it may be very difficult to get approval for a large one-time capital equipment expenditure, it is very likely that these medical facilities will approve ongoing operational expenditures. Medical equipment vendors that can offer innovative business models such as subscription or pay-per-procedure and other pre- or post-paid billing options based on consumption, will enable medical facilities to transfer these expenses from capital to operating budgets.

Medical facilities have a definite preference when it comes to how they purchase goods and services. The device could be exactly what they are looking for, but if it's not packaged and priced in a way that aligns with how they do business, they may choose a less attractive competitor out of necessity.

Adapt Offerings in Real Time to Meet Customer & Market Demand



“With CAPEX budgets shrinking, we knew we needed more flexibility in licensing our high-value devices; for example, instead of purchasing the device upfront, allowing hospitals to pay only when they used the device - it was time for a change.”

– Saeed Elfadil Saeed, Stryker Corporation

- There are many factors that influence consumption preferences – from market segment, to the size of the organization, budget, and even how critical the device is to the customer’s business. Small hospitals and clinics with tighter budgets may need to make small recurring payments based on their actual use of the device, with no long term commitment. Large hospitals and medical centers may prefer to purchase the device outright or contract for long-term, quarterly or annual unlimited-usage plans.

Success in feature bundling and business model/pricing flexibility will set you up to address the third and final aspect of the packaging trifecta, “HOW MUCH.”

- **Operational Agility**

The final and most commonly overlooked requirement for achieving true packaging nirvana is business agility. It is great to build one great package, for one single customer, one time, but if vendors are not able to move quickly to provide that kind of flexibility for all of their customers then they are still missing out.

Product versatility and flexible licensing models are only the first parts of an ongoing commitment to customer satisfaction. What is right for customers today will need to evolve for tomorrow. Customers will want to stop paying for features they don’t use and will want the ability to add features that they either overlooked in their initial purchase or have been added to device offerings as products have evolved.

Device vendors without the ability to quickly change their product catalogs to easily add features to existing devices will have a much more difficult time monetizing new R&D work through existing customers and will add a lot of additional engineering work to their go-to-market process.

It is critical then, when designing offerings, that medical equipment vendors establish a clear separation between software engineering and packaging/delivery. Being able to adapt software-driven hardware offerings in real time, without additional coding, not only closes the door for competitive evaluation but it also significantly reduces engineering costs and time to market.

Case in Point

Medical Device Manufacturer Chose Sentinel to Enable Packaging Life Cycle for its Embedded Device & Software Portfolio

Customer: Leading manufacturer of medical devices and software for treating cancer.

Challenges: This manufacturer needed to manage the licensing and packaging life-cycle for its medical devices and embedded software used for treating cancer. The company’s product portfolio consisted of over 20 hardware devices and software with an aggregate of over 200 features to choose from when packaging into salable product bundles.

The company’s marketing and product management teams needed the flexibility to offer many different variations based on industry, geographic location, and unique customer needs. These teams required the ability to move hardware and software features around when packaging its products, and with so many combinations possible, they needed a way to manage and keep track of it all.

On an ongoing basis, these teams also wanted the ability to review the company’s offerings and analyze usage data so that adjustments to the product portfolio could be made as required.

What’s more, the company needed to support the ongoing needs of its global installed customer base of 2,000 medical, scientific, and industrial organizations that routinely required new products and upgrades.

Solution: This medical equipment vendor chose Thales Sentinel to flexibly and comprehensively manage its hardware and embedded software licensing and packaging life cycle.

Results: Thales Sentinel enabled this medical device vendor to manage the entire licensing and packaging life cycle for its hardware and embedded software products – including planning, development, deployment, product activations, and feature upgrades and downgrades.

Sentinel further enables its product management and marketing teams to gather and analyze customer usage data, which provides guidance on where to focus development resources for future product release cycles.

As a result of choosing Sentinel to manage the licensing and packaging life cycle of its products, this medical equipment vendor not only streamlined its product life cycle processes, it also reduced operational costs and improved the customer experience.

Management

As any CFO would corroborate, profitability is as much about reducing and controlling costs as it is about increasing revenue. Therefore, it's critical that all the systems put in place to help effectively price, package, bill for, and manage your devices not only integrate easily with each other, but are simple and easy to use for both internal and external stakeholders. Effective medical equipment monetization management focuses on three things: centralization, automation, and end-user enablement.

- **Centralization**

Embedded software licensing touches many aspects of the organization – from sales, and product management, to IT, operations, tech support, and customer service. And each one of these functions needs access to the data in the licensing and entitlement management system. Many of these functions have systems in which they work on a day to day basis – sales in a CRM; marketing in a marketing automation system; finance in an ERP. Conversely, some of these functions don't have their own systems and will need limited-privilege direct access to the licensing and entitlement management system. Centralization of licensing data through integration of these disparate systems is a good idea.

- **Automation**

Automation takes advantage of centralization and goes the extra mile. Once there's a centralized place to store and access license and entitlement data it's beneficial to start building out automated processes to simplify time consuming manual tasks such as audit reporting, renewal reporting, device activation, and more. Many proactive marketing and sales efforts such as new feature promotion, automated renewal messages, expiration notices, and so forth can also be automated.

- **End-User Enablement**

Customer enablement is all about empowering end-users to do many of the tasks that currently bog down sales, customer service, and tech support and field service teams. These tasks include, but are not limited to, license compliance reporting, device activation, renewals, upgrades, cancellations, and so on.

By enabling customers to perform these tasks on their own, embedded medical device vendors improve the end-user experience while dramatically decreasing the number of basic requests coming into their various sales support functions.

With the right entitlement management tools in place, every step of the license, entitlement, and embedded software delivery process can be easily automated in an internally transparent and end-user-friendly way. Adoption of a system agnostic, flexible entitlement management solution will enable automation of time-consuming, manual tasks, it will eliminate human error, and provide the ability to track the status of end-user entitlements and usage trends for life.

End-User Enablement



“Companies don't want to spend time, money, and resources manually tracking licenses. What they need is a simple way to automate the process of tracking licensing details, entitlement activations, and product usage.”

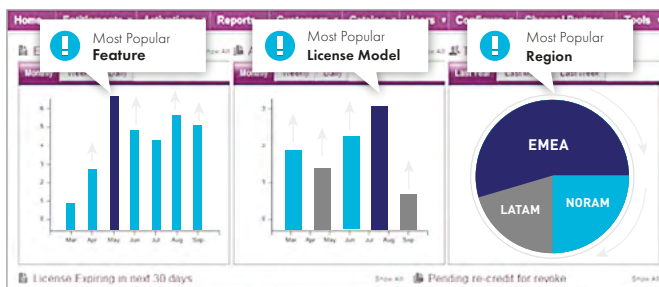
Tracking

The elements of a medical equipment monetization strategy do not stop with control or packaging considerations. Automated product usage tracking and reporting are also important. Companies don't want to spend time, money, and resources manually tracking licenses. What they need is a simple way to automate the process of tracking licensing details, entitlement activations, and product usage.

Implementing of a sophisticated licensing and entitlement management system provides a means to start tracking device activation and usage right down to the feature level.

Medical equipment vendors can use this information to drive decision-making around product packaging, roadmap investment, training, billing, sales, and marketing strategies.

Optimizing the Product Roadmap Investment



Product usage tracking and reporting helps product management and engineering teams analyze critical insights into how customers interact with the device. They can derive information that will help them make important product decisions, discontinue feature combinations that are unpopular, or invest in training programs around seldom-used features to help customers get the most out of their devices.

Marketing and sales teams can create customized reports to better determine what, when, and how products are being used and leverage the invaluable data to plan, launch, and execute more effective sales and marketing activities. End-user registration data can also help vendors that sell via multiple channels to identify and gain direct access to every individual who uses one of their devices.

In the end, every embedded medical device monetization strategy is unique. In order to maximize the value derived from their product offering, medical device vendors would be well served to consider each of these four components when developing their embedded device monetization strategy – control, packaging, management, and tracking.

In Summary

Beyond economic challenges, budgetary constraints, and fierce competition, medical equipment vendors face problems with deliberate and unintentional misuse of their software, competitive IP theft, and tampering.

Device vendors must also understand how to use advanced licensing systems to reduce operating costs, provide feature and business model flexibility to meet customer needs, and fully monetize their equipment design and development efforts.

With the right strategy, a little bit of process, and powerful software licensing and entitlement management technology, medical equipment vendors will increase their chances of success and spend more time on innovation than business and operations administration.

Key Takeaways

- Directly invest in the four aspects of a well thought out embedded device monetization strategy that both protects and extends the value of the software embedded in your medical devices.
- Employ the expertise and technological tools to flexibly control, package, manage, and track usage of your embedded medical equipment.

Sentinel Embedded Software Monetization Solutions

Thales is the market-leading provider of software licensing and entitlement management solutions for on-premises, embedded and cloud-based software vendors. Thales Sentinel is the most trusted brand in the software industry for secure, flexible, and future-proof software monetization solutions.

Sentinel Embedded Software Monetization Solutions feature:

- Award-winning license enforcement and IP protection technology for ensuring device and brand integrity, mitigating reverse engineering, and safeguarding revenue.
- The industry's widest variety of flexible licensing models and enforcement mechanisms for enabling device and equipment manufacturers to meet the packaging demands of every customer every time.
- A reduced footprint paired with efficient use of memory allowing our solutions to conform to the strictest of embedded environment constraints without compromising device performance.
- Support for a broad variety of platforms and operating systems and a design that supports quick and easy custom porting.
- A web-based entitlement management solution that enables software publishers to centralize and automate product activation, usage tracking, and ongoing end-user entitlement management.

“With CAPEX budgets shrinking, we knew we needed more flexibility in licensing our high-value devices; for example, instead of purchasing the device upfront, allowing hospitals to pay only when they used the device - it was time for a change. We also quickly realized that we are not licensing experts - our expertise is in helping surgeons. So we turned to Sentinel.”ⁱⁱⁱ

– Saeed Elfadil Saeed, senior manager, Stryker Corporation

“A successful shift to software-centric business models is heavily reliant on mature software licensing and policy management components to ensure a seamless user experience and scalable business operations. Vendors of proven, secure, and scalable software licensing and entitlement management solutions, such as Sentinel, are key enablers of this new generation of software-powered intelligent devices.”^{iv}

-Avni Rambhia, digital media industry manager, Frost & Sullivan

Take Sentinel Embedded Software Monetization Solutions for a Test Drive

Request a FREE Trial

ⁱ Simon-Kucher & Partners: <http://www.simon-kucher.com/en-us/content/software>

ⁱⁱ Transforming from a Medical Device Manufacturer to a SaaS Provider, Saeed Elfadil Saeed, Stryker Corporation, <http://licensinglive.com/blog/2016/01/transforming-from-a-medical-device-manufacturer-to-a-saas-provider>

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About Thales

The people you rely on to protect your privacy rely on Thales to protect their data. When it comes to data security, organizations are faced with an increasing number of decisive moments. Whether the moment is building an encryption strategy, moving to the cloud, or meeting compliance mandates, you can rely on Thales to secure your digital transformation.

Decisive technology for decisive moments.

THALES

Contact us

For office locations and contact information, please visit
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