

Outsourcing vs. in-house team growth for your embedded device development

Leading Embedded Software Services Company Witekio deep dive into 20 years of industry insights and pain points.

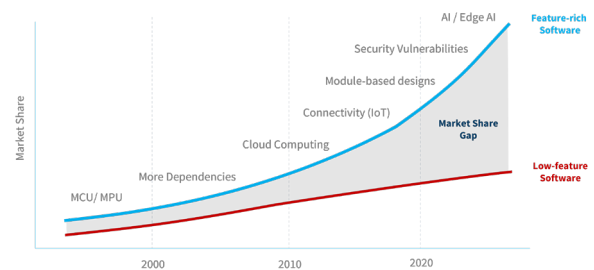
The State of the Industry

As embedded systems and IoT devices evolve, the race is now on to implement use cases. As a result, the necessary skills are not always easy to come by. OEMs across all industries, such as medical, industrial, and smart energy are facing the same challenges.

The main issue - software is a nightmare.

With every technological leap, embedded software becomes more intricate. From AI-powered features to secure connectivity, the complexity of software increases alongside its ability to add value to your end-users. Keeping ahead of this curve however requires constant input and foresight, as well as investment into new skill sets.

SOFTWARE IS GETTING COMPLEX



So is it better then to just outsource a team?

Your Guide to Successful IoT Projects

Regardless if you are looking to keep your embedded development in-house or outsource, the following criteria should help your project succeed.

Time to Market	Cost
<ul style="list-style-type: none"> Project Timeline: Have you set clear milestones and deadlines? Iterative Development: Are you using an Agile development framework? Testing: Are you prioritizing identifying and addressing issues early in the development cycle? Risk Assessment: Have you assessed potential risks ahead of time? 	<ul style="list-style-type: none"> Budget: Do you have a process to monitor and control project expenses? Vendor Relationships: Do you have a list of partners and tools you plan to utilize? Can you diversify them? Contingency Planning: Have you developed a contingency plan for unforeseen costs and expenses?
Success Rate	Longevity
<ul style="list-style-type: none"> Quality Assurance: Have you implemented robust testing procedures to ensure reliability and performance? User Feedback: Will you gather and incorporate user feedback at various stages to align the product with user requirements? KPI Monitoring: Have you defined key performance indicators and regularly monitoring them to help keep your project on track? Cross-Functional Collaboration: How will you foster collaboration between teams to ensure alignment with project objectives? 	<ul style="list-style-type: none"> Lifecycle Planning: Have you developed a comprehensive lifecycle management plan? Software Updates: Create a strategy to address security vulnerabilities and enhance functionality. Component Availability: Are you monitoring the availability of hardware components to address potential obsolescence issues? Regulatory Compliance: Are you staying informed about evolving regulatory and standards?

Not necessarily, or in our book at least, not completely. Here we deep-dive into the key elements we see arise repeatedly with OEM decision makers. We look at the pros and cons of **outsourcing** services and **in-house team building**, help you **calculate the ROI of making vs outsourcing an embedded system**, and finally, give you a **handy guide to running a successful IoT project** so you can avoid the key pitfalls.

We also provide an overview of who we are, so you can see our credentials and understand why we understand better than anyone the complexity of this subject.

Did you know...

65%

Of organizations are now implementing an IoT strategy**

20

Months Average break even time for IoT project (down from 24m 5 years ago)

41%

Of IoT projects cite cloud security as top concern

** Microsoft, "Digital Operations Signals"

Outsourcing **Embedded** and **IoT Development**

Outsourcing software development for embedded devices is often a strategic move by management, however, it can cause issues within an organisation if not handled correctly. Based on our 20 years of experience talking to OEM leaders about their software projects, below are the key pros and cons we hear time and time again when talking about outsourcing.

Pros:



Plug in-house skill gaps without the overhead costs of keeping a team full-time



Leverage partners' industry experience to ensure your project meets standards



Accelerate go-to-market of time sensitive projects by using a full team of experts



Ensure quality, secure output by setting work packages to your certification needs

Cons:



Code Ownership

Concern over IP control is valid. Make sure to check that there is a full handover of code ownership and documentation at the end of the project.



Internal Buy In Issues

Collaboration is key. A partner who does not value your input and actively seeks to comprehend your objectives will likely deliver sup-par software and cause friction with your internal team.



Cost Concerns

Like any service, it comes at a cost. Custom code that is designed for your project needs, is secure, and will be reliable, isn't something you want to cut costs on.

Things to consider:

Outsourcing vs nearshoring

Organisations state cultural differences as an issue when outsourcing compared to nearshoring.

280 days

Average time to identify and contain a data breach according to IBM security report.

42%

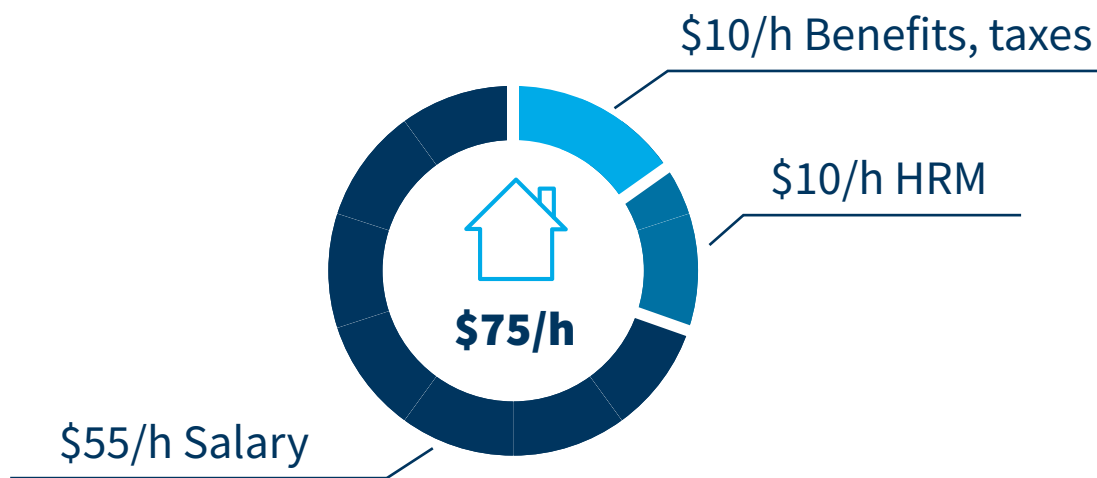
Nearly half of issues for in-house dev work included finding the talent and team capacity*

*Coding Sans report

Comparing the Costs: In-house Vs. Outsourcing

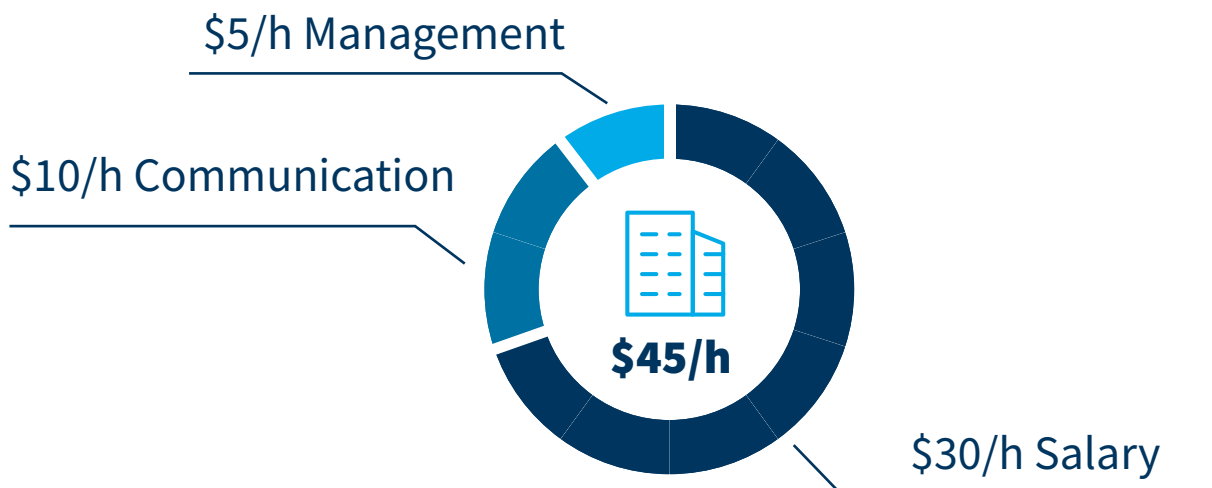
This cost analysis, based on a survey of over 300 companies from 23 countries, illustrates the stark contrast between in-house and outsourced software development for embedded and IoT devices.

Total cost of in-house development



Fewer overheads and a more streamlined project management structure can help significantly reduce costs when outsourcing software development.

Total cost of outsourcing development



Growing your **In-House** Development Team

In-house development of embedded devices can be an appealing strategy for OEMs due to control of costs, time and scope. However, the grass isn't always as green on the in-house side.

Pros:



Control

You can coordinate project management as you see fit.



Culture fit

In-house employees are used to your way of working and standards.



Freedom of tooling

No vendor lock-in, you decide what you want to use and how.

Cons:



Higher costs associated with investing in employee training and development tools.



Small talent and experience pool to choose from, limited by geographical accessibility for on-site teams.



Possibility of unpredictable turnover rates, leading to higher cost investments in hiring and training.



In-house teams often working at capacity, making it harder to reallocate resources if the project needs to scale.

Things to consider:

75%

Of IoT projects fail to hit goals.*

34%

Of companies struggled to integrate IoT device with existing systems**

1.4M

The worldwide shortage of full-time software developers was 1.4 million in 2021 (IDC)

*Soracom, "Why Do IoT Projects Fail?"

** Microsoft, "Digital Operations Signals"

And the **winner** is...

In our opinion and experience, a **Hybrid Software Development Approach** is the best course of action if you're stuck between Outsourcing or Growing an In-House team.

Not the answer you were expecting, right?

A hybrid software development strategy grants your businesses more control over the development process while also capitalizing on the key benefits of outsourcing.

Through the implementation of a hybrid approach, you really get the best of both worlds:

Hiring a well-rounded in-house software engineer or manager

And leveraging an outsource partner that can fulfil all your future project's requirements.

By doing so, you gain the advantage of a skilled and versatile in-house leader capable of devising and overseeing the project's execution, while simultaneously accessing a broader talent pool for tasks demanding specialized expertise.

It will save you the headache of maintaining developers in-house while enabling you to still keep control over your development work.

Your in-house resource will also become more of a subject matter expert by checking your outsourcing partners' work, and will be able to learn and develop from the wide range of skills they will be speaking to across the embedded, connectivity, applications, security and consulting board.

S4 E01
How NOT to Fail in IoT
with Samir Bounab,
CEO at Witekio

Episode sponsored by
W **5V Tech.**

Tune in now
Spotify Apple Podcasts Google YouTube

Your Guide to Successful IoT Projects

Regardless if you are looking to keep your embedded development in-house or outsource, the following criteria should help your project succeed.

Time to Market

- Project Timeline:** Have you set clear milestones and deadlines?
- Iterative Development:** Are you using an Agile development framework?
- Testing:** Are you prioritizing identifying and addressing issues early in the dev process?
- Risk Assessment:** Have you assessed potential risks ahead of time?

Cost

- Budget:** Do you have a process to monitor and control project expenses?
- Vendor Relationships:** Do you have a list of partners and tools you plan to utilize? Can you save money here?
- Contingency Planning:** Have you developed a contingency plan for unforeseen overruns and expenses?

Success Rate

- Quality Assurance:** Have you implemented robust testing procedures to ensure reliability and performance?
- User Feedback:** Will you gather and incorporate user feedback at various stages to align the project with user expectations?
- KPI Monitoring:** Make sure to define key performance indicators and regularly monitor them to help keep your project on track.
- Cross-Functional Collaboration:** How will you foster collaboration between teams, to ensure alignment with project objectives?

Longevity

- Lifecycle Planning:** Have you developed a comprehensive lifecycle management plan?
- Software Updates:** Have you created a strategy to address security vulnerabilities and enhance functionality?
- Component Availability:** Are you monitoring the availability of hardware components to address potential obsolescence issues?
- Regulatory Compliance:** Are you staying informed about evolving regulations and standards?

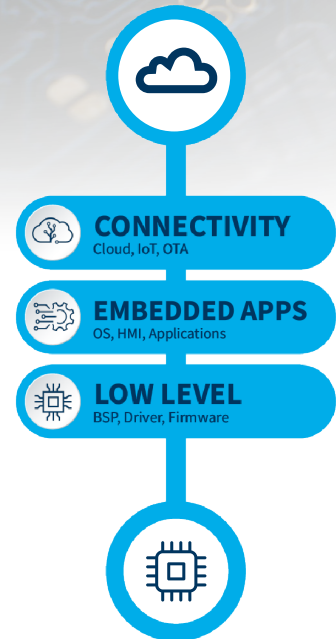
Calculating the Return on Investment (ROI) for **making vs. outsourcing** an embedded system

Although we encourage you to think of all the other pros and cons we have outlined above, we understand that in some cases, cost is the determining factor of a project. Below are steps you can take to estimate the ROI for both options:

<p>Define the Parameters</p>	<ul style="list-style-type: none"> Identify the specific embedded system you are considering (e.g., a custom software acceleration tool for a device). Define the key cost factors and benefits associated with both in-house development and outsourcing.
<p>Calculate Costs</p>	<p>For In-House Development:</p> <ul style="list-style-type: none"> Calculate direct costs such as salaries, benefits, and equipment for your in-house development team. Account for overhead costs, including office space and utilities. Estimate the time and resources required for development. Include costs for training and skill development if your team lacks specific expertise. Consider costs related to any necessary hardware or software tools. <p>For Outsourcing:</p> <ul style="list-style-type: none"> Calculate the costs associated with hiring an outsourcing partner. Include any consulting fees, licensing costs, and other contractual expenses.
<p>Calculate Benefits</p>	<p>For In-House Development:</p> <ul style="list-style-type: none"> Consider potential long-term benefits, such as the ability to iterate and adapt the solution as needed. Evaluate the impact on device performance, reliability, and competitiveness. <p>For Outsourcing:</p> <ul style="list-style-type: none"> Consider the benefits of faster time-to-market, which can lead to quicker revenue generation. Assess the expertise and specialized knowledge provided by the outsourcing partner. Weigh the potential cost savings, particularly in terms of immediate development costs.
<p>Calculate ROI</p> <p>Use the following formula to calculate ROI: Calculate the net benefit as the total benefits minus the total costs for each option (in-house development or outsourcing).</p> $ROI = \left(\frac{\text{Net Benefit} - \text{Cost}}{\text{Cost}} \right) \times 100$	

How Can **Witekio** Help?

In the dynamic world of embedded development, the debate between in-house development and outsourcing continues to perplex. You seek control over your intellectual property and product direction, but you also need to harness the power of specialized expertise to get the most out of that IP. Witekio offers the best of both worlds, with over two decades of experience in embedded software and IoT development. We ensure your IP control, providing source code and full documentation without any vendor lock-in.



Empowering Your Vision

Our collaborative approach, backed by agile methodologies, guarantees your active participation and real-time feedback, aligning your product seamlessly with your vision. With a team of over 200 software experts across four countries, including a dedicated project manager, you are always in the loop and contributing on your terms.

Witekio's deep expertise in emerging technologies, including app development, low-level programming, Linux firmware, board support packages, and cloud connectivity, helps you leverage innovation for a competitive edge. Our strategic partnership with Avnet extends our reach, tapping into a vast network of suppliers, partners, and experts to find the best solutions for you, no matter your location.

For a trusted partner in navigating the intricacies of the embedded ecosystem, choose Witekio.





Witekio

AN AVNET COMPANY



hello@witekio.com

www.witekio.com