SUPERCHARGE YOUR SOFTWARE ENGINEERING CAPABILITIES:

TEAMING WITH A SOFTWARE DEVELOPMENT FIRM

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If your software engineers are struggling to maintain existing systems while developing new software, you have a few options to consider when a business unit manager or marketing manager tells you they need a custom application built. You could secure overtime for your existing personnel, for example, hire additional people or arrange for contract staff.

But recruiting and staffing presents a real challenge for many companies, especially when there's a talent gap in the market. If your region is short on software development expertise, meeting your company's needs could be time consuming, costly or practically impossible.

You could also look at your schedule, estimate that the project is going to take a year with your current resources and tell the manager you'd be able to get started about two years from now. But that long timeframe probably isn't what the business manager has in mind. Chances are good that he or she is going to engage a third-party company to develop the custom software – known as "shadow IT" – and cut your department out of the loop.

With shadow IT on the rise, "the days of the CIO and the IT organization being able to control and deliver on all things IT are gone," according to a recent Gartner report. Whether shadow IT is a threat or an opportunity for your department depends on how you adapt to these changing realities.

According to the Gartner report, "Embracing and Creating Value From Shadow IT," an increasing number of IT organizations are developing parallel or "bimodal" IT capabilities, including agile software development and adaptive sourcing.

"This parallel capability is aimed at offering a more agile service in areas where there is greater uncertainty about the solution, a need for a more exploratory or innovation-led approach or where a more collaborative style is required," according to Gartner.

Developing working relationships with external software development firms is an important step in minimizing the risks of shadow IT and finding new ways to meet your organization's demand for custom software. But much depends on choosing the right strategy and the right partner organization.

Option No. 1: Contract Staffing Pros

Some feel that bringing in contract staff to meet demand allows them to retain control over project costs and intellectual property (IP). While these contractors are likely to be working from your offices, that doesn't necessarily ensure control, and there are other serious drawbacks to consider.

The main drawback with contracting individuals is that, when a contractor finishes working on your project, you're essentially losing a team member – along with everything they've learned.

Let's say you have a contract staffer work on the first stage of a project for three months. There's always a ramp-up period during which you have to teach this person about your business and the project. If you want to bring that contractor back for the next stage, they might already be assigned to another company, and you've lost whatever IP transfer has occurred. You have to repeat that onboarding process any time you bring in another contractor.

Option No. 2: Traditional Software Outsourcing

Overseas outsourcing may offer a solution to a talent gap in your local market, but typical software outsourcing is often a frustrating experience. Many organizations have been burned in the past by working with cut-rate overseas organizations, due to uncontrollable costs and cultural dissonance. In addition, this outsourcing approach may be threatening to your own staff, and makes it difficult to retain and protect internal IP.

3 Common Questions About Agile Software Development

If agile software development is a relatively new concept for your company, business stakeholders may have questions about aspects that differ from more typical development processes. Here are simple answers to three frequently asked questions:

How do you budget for an agile project?

In a typical custom software project, you would start by defining the requirements down to the minutest details. Based on those details, you'd estimate how long the project will take and how much it should cost – and that's your budget. But with agile software development, you're constantly refining and innovating, so how do you create a budget without the detailed requirements? Organizations handle agile budgeting in a variety of different ways. One option would be to start by creating a high-level list of what needs to be accomplished. From there, you'd come up with a budgetary number for each of those components and add it all together to create the budget. As the project progresses, you would assess the impact of proposed changes on that budget before implementing them.

How do you introduce change while controlling the budget?

If you decide to implement changes during the project that have a significant impact on the budget, your team should review the project's list of high-level needs and prioritize the components that have not yet been built. The team then decides which of those components to jettison in order to stay within the budget. Going through this process actually makes your project more successful. As your team makes these decisions along the way, you gradually weed out the project components that are less important, replacing them with what you truly need.

Who is involved in the agile process?

In a typical, non-agile project, IT and business agree on the requirements, then go their separate ways. After months or years, IT delivers a custom software product. The software may not be what the business users envisioned, and it probably doesn't reflect changes to the company, market, etc., that have taken place during the interim. In agile software development, there's no period where business and IT go their separate ways. Each stakeholder must stay involved from the start, because you're making decisions almost every day throughout the project. This ongoing feedback loop and decision-making process may sound painful, but when you have the whole team engaged, everyone has a better understanding of what's happening in the project and how you're working to achieve the

A typical overseas outsourcing scenario is almost robotic: Your team develops instructions, and the overseas workers follow those directions to the letter. Building applications to verbatim requirements may sound appealing on some level, but there are limitations that have a serious impact on the usefulness of the final software product.

People who simply follow instructions aren't drawing on their experience and giving you feedback, such as, "I've found a better way to do this," "Here's a problem you're going to encounter," or "Have you thought about this factor?"

Without that feedback and collaboration, your project could backfire, resulting in more work for your already swamped development team. Missed timelines and budget overruns, in turn, could erode trust within your organization.

Option No. 3: Teaming With A Software Development Firm

A better solution is to build a dynamic relationship with a software development firm that specializes in providing fully staffed agile teams. This "teaming" approach extends your IT department's capacity in a manageable way, and avoids the drawbacks associated with contracting individuals and typical software outsourcing.

A fully functional agile team provides all necessary processes and capabilities for software development: from project management and business analysis to technical design, from programming to testing and deployment. Instead of transferring your IP to individual contractors, you transfer it to an entire team that you trust to manage and execute software development without your day-to-day oversight. This approach frees up your precious management time to focus on strategic activities, helping you accomplish more with fewer resources.

Teaming is "a dynamic activity, not a bounded, static entity," according to Amy Edmondson, author of Teaming: How Organizations Learn, Innovate, and Compete in the Knowledge Economy. At many organizations, rapidly changing work environments require "a level of staffing flexibility that makes stable team composition rare," according to Edmondson. Custom software development requires a teamwork model that supports coordinating and collaborating in a flexible, rapidly evolving environment.

Teaming also promotes collaboration between business and IT. Many shadow IT arrangements are initiated by business departments, but they still need your IT department to provide technology standards, access to backend systems and other important resources. When IT takes a teaming approach, however, this twist on the usual shadow IT model provides greater visibility and transparency across the organization.

For example, let's say your sales group has asked your IT team to develop an application, but your software engineers are too busy with other projects. Your external agile team could work directly with the sales group to understand their requirements and create the application, while keeping your IT department involved in the process. The result: a happy sales group that gets their software solution quickly, without compromising your technology standards and processes.

5 Benefits Of Teaming With An Agile Software Development Firm

Teaming offers an excellent environment for agile software development, because it supports the type of flexibility and teamwork needed for rapid innovation in an iterative process.

Building a team the old-fashioned way takes time, as the members gradually establish trust, learn how to coordinate and develop shared experiences and interdependence. But time is a luxury you don't have when you need to quickly develop custom software solutions.

Success Factors for Software Development

Your success in custom software development depends in part on choosing the right methodology and partner organizations – and the right projects to hand off to a software development firm. But a company culture that supports communication and collaboration plays a larger role in successful projects than you might think.

The factors and drivers that contribute to successful software were the focus of "Product Development Success," a 2014 study supported by the Center for Excellence in Service at the Robert H. Smith School of Business at the University of Maryland.

The survey identified six factors that influence your ability to successfully develop new software products:

- A culture that supports innovation
- Incorporating feedback into software development
- Regular communication with cross-functional teams
- The right mix of staff and skills
- Collaboration and teamwork across the organization
- Tracking time and budget metrics

The study also finds that success correlates to following an agile software development approach. While 86 percent of the companies surveyed exhibit at least one of seven defining characteristics of agile thinking, less than 10 percent exhibit at least five of the characteristics. For highly successful companies, however, 26 percent demonstrate at least five characteristics of agile methodology.

Finally, when you have an internal team working with a partner organization, it's also important for there to be give-and-take between the teams. The external team must feel free to make recommendations and push back on suggestions from the internal team. If one partner is afraid to speak their mind, you're missing the point – and the benefits – of partnering with experts.

In such a work environment, as Edmondson writes, "People need to develop and use new capabilities for sharing crucial knowledge quickly. They must learn to ask questions clearly and frequently. They must make the small adjustments through which different skills and knowledge are woven together into timely products and services."

Combining a teaming approach with agile methodology allows your internal and external teams to quickly develop a collaborative relationship and begin sharing essential knowledge.

Here are five ways that this agile teaming could benefit your company:

1. **Enhancing Your Ability To Create Great Software**
   Technology is driving your business, and your organization's ability to create new software products is critical to compete and thrive in the marketplace. But developing such software takes significant time and investment, and you probably don't have both. Teaming helps you get started immediately with a ready-made capability for building great software products. You get a team that covers all of the agile roles and offers a broad base of specialized skills with all the agile team roles covered. That team is well versed in mature agile processes and already works well together and is committed to team success. Most of all, you get passionate technologists who bring their creative, problem-solving culture to your organization.

2. **Driving Cross-Departmental Involvement**
   When your IT department is developing custom software in-house, it's often difficult to get other departments to participate and provide input in terms of the functionality they need. When you partner with an external team, however, people in other departments perceive the team as experts, and they assume the project has a higher priority. This makes it easier to keep them involved and engaged. As the team executes its mission, expertise is shared and your organization gains a better appreciation for the agile process and understanding their roles and responsibilities.

3. **Reducing Friction Across The Organization**
   In many organizations, there's constant friction between business and IT departments, due to a history of past failures and unrealistic expectations. Business often sees the IT department as slow and unable to deliver what they need. As a result, IT has a hard time getting business engaged in projects. Teaming, however, tends to help reduce friction between business and IT. The external team serves as a trusted expert, aligning processes and culture and helping the two groups communicate and collaborate effectively.

4. **Accelerating Speed To Market**
   Compared to all other development options, teaming is the fastest way to complete your product. Teaming brings the entire set of skills necessary to deliver a software product, from product management, b usiness analysis and technical design to development, testing and deployment.

5. **Driving Innovation**
   Due to the constant communication and continuous improvement that takes place during an agile software development project, your team has additional opportunities to innovate by introducing new features that were not in the original requirements. Partnering with an external team also encourages innovative software solutions by combining outside perspectives with your internal team's expertise.

When To Partner On Custom Software Development

Teaming with an agile firm makes sense for many custom software projects, but certainly not all. To get the best results from working with an external development team, you need to understand what makes a given project suitable or unsuitable for this type of collaboration.

In general, here are a few types of custom software development you could successfully entrust to a partner:

- Building a new product
- Maintaining and supporting an existing system
- Co-developing a product (using internal and external software engineering teams)
- Strategic consulting

The type of work, however, is only part of the equation.

In addition to the size and type of project you assign to an external team, your organization's culture, processes and expectations play significant roles in the project's success or failure.

Here are five important questions to consider when deciding whether or not to shift a software project to an external team:

1. **Is Your Business Objective Well Defined?**
   A shared understanding of what you want to achieve is essential to agile software development. If your project lacks a well-defined business objective, your team won't be able to make sound decisions during the agile process. Without the foundation an objective provides, project decisions

tend to be vague and change on a daily basis.

If your company wants to create a mobile app, for example, you need to plan for how this app is going to help you reach an objective or solve a specific business problem. If your team starts building an app without this clear purpose, there's a greater risk of scope creep: You're likely to waste resources on building non-essential functionality that may not add any value.

When your high-level objective is clear at the outset, it helps your team deepen their understanding of the problem and what users really need. Keeping the objective in focus through an agile software development process helps you create innovative software solutions through continuous, frequent feedback.

2. **Does The Project Help You Establish A Strong Working Partnership?**
   If your project is small and won't take much time or effort, it probably isn't a good candidate to assign to an outside team, because you won't have sufficient ramp-up time to establish good communication and collaboration. By the time your internal and external teams figure out how to work together, a short project would be complete. A smaller project that requires extensive internal knowledge of your organization faces similar challenges. Your in-house team is probably faster and more cost-effective for such a project, when you consider the amount of time that would be necessary to impart this knowledge to an outside team.

3. **Are You Ready To Shift Ownership And Control Of The Project?**
   Shifting ownership of certain projects and deliverables to an external team helps you make better use of your internal team's time and resources. For this approach to work, however, you must be ready for the other team to drive the process. When companies try to micromanage a partner's work or insist on following their own processes, they often squander the benefits of working with an external team.

4. **Do You Stand To Learn And Benefit From A Partner's Expertise?**
   When you partner with a software development firm, you benefit the most by letting them take the lead. Instead of expecting the firm to simply fill your order for custom software, take advantage of the firm's mature processes, best practices and overall product development expertise. Sometimes, companies shift project ownership to an external team, and later feel the need to regain control. This back and forth tends to create friction on both sides, and defeats the purpose of working with a partner in the first place.

5. **Is The Project Or Initiative A High Priority For Your Business?**

    One might assume that low-priority projects are the best to hand off to a partner, but that's not necessarily true. When a project isn't a priority for your business, it's difficult to engage other departments in the process and get them to back up your decisions. Choosing a high-priority project instead ensures you have the attention of all stakeholders and encourages them to participate throughout the process.

Conclusion

Identifying appropriate projects, strategies and partner organizations are important steps in developing the parallel or bimodal IT capabilities your IT department needs to meet demand for custom software. As the Gartner report notes, creating these partnerships with external software development firms is a great way to turn the risks of shadow IT into opportunities.

Adopting agile methodology is also key to meeting your company's needs in a timely, costeffective manner (see sidebar, "Success Factors For Software Development"). Partnering with an agile software development firm greatly improves the development process and minimizes impact on your team's day-to-day tasks and management overhead. The agile approach helps ensure a strong understanding of your business objectives, provides a mature process that facilitates collaboration and reduces friction between

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About Small Footprint

Founded in 2003, Small Footprint is a software innovation company. We offer ideation, design, development and managed services to organizations that rely on custom software to differentiate themselves and improve their businesses. Each of our employees shares the goal of being a part of innovation that impacts people's lives and invigorates companies.

Small Footprint makes custom software easy to manage through client partnerships based on collaboration, transparency and business value generation. We build intuitive software products, integrated enterprise systems and compelling digital engagement solutions.

READY TO LEARN MORE ABOUT PARTNERING WITH AN AGILE TEAM TO CREATE INNOVATIVE SOFTWARE SOLUTIONS?

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