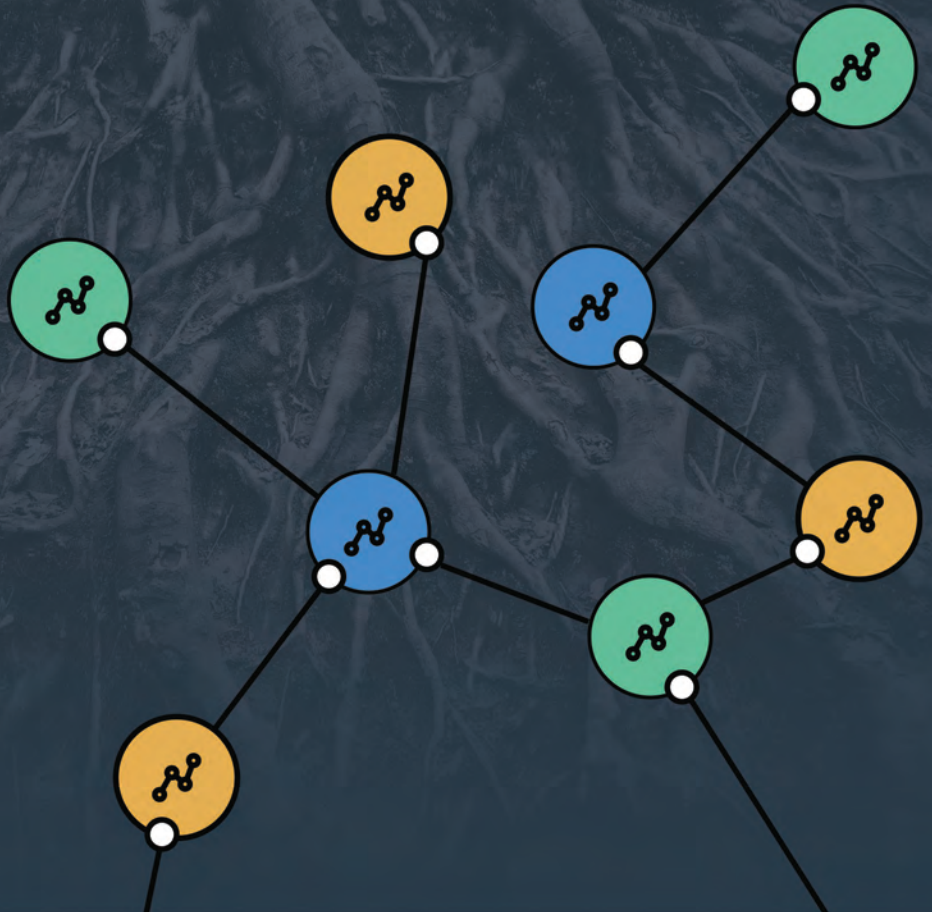**LEADING**AGILE

ARE LEGACY SOFTWARE DEPENDENCIES KEEPING YOU FROM BUSINESS AGILITY?

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DEPENDENCIES—THEY'RE THE BIGGEST AGILITY KILLER AND THEY EXIST IN EVERY AREA OF THE BUSINESS.

We can't talk about Transformation without talking about dependencies. If we want to become Agile, we have two choices of what to do with our dependencies, we can manage them or we can break them. If we disregard them altogether, they'll remain an obstacle in our way.

Technical and architectural dependencies can be particularly sticky—and tend to be the hardest and most expensive to deal with. They're difficult to break and often there's a lack of understanding of how they impact the organization's ability to become more predictable because they prevent the organization from establishing and stabilizing velocity against a known backlog.

Dependencies are easier to manage in small organizations. But when we're talking about large enterprises, we will have hundreds, maybe even thousands of teams. This translates to massive potential for incredible numbers of interconnections. Every interconnection between teams is a dependency.

During a LeadingAgile Transformation journey, we first begin by breaking the organization down into vertical slices that include complete, cross-functional teams with everyone and everything they need encapsulated in the team. From this place, we can begin to manage dependencies and work toward eliminating them completely.
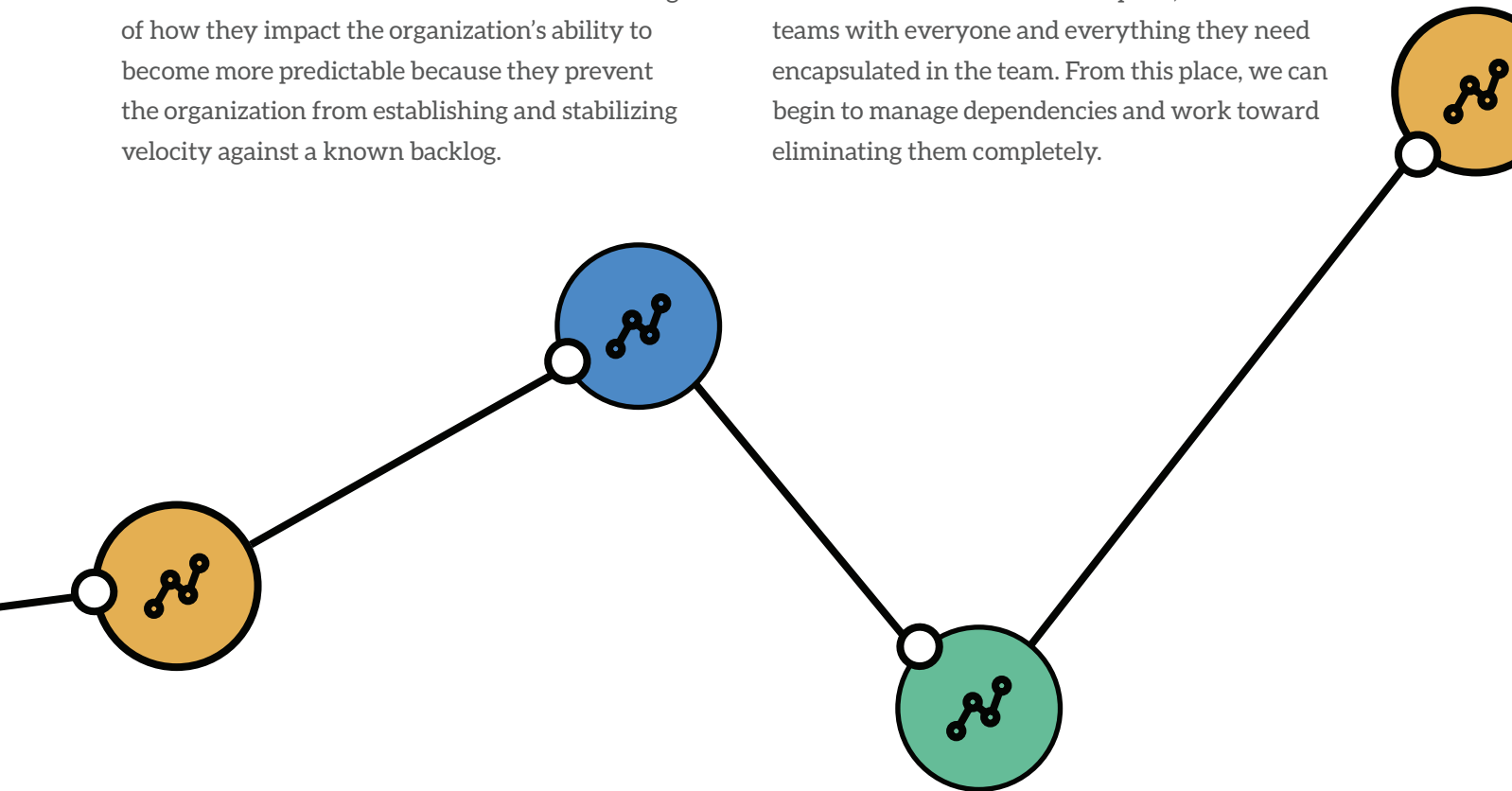
But even with the teams encapsulated, a single technology platform is often supporting multiple slices of the organization—our technology and code base isn't encapsulated within each slice created relative to the new organizational structure.

The problem isn't that the teams are slow, or that the actual amount of work involved is necessarily too much to handle. The real barrier is all the coordination and orchestration. When we're dealing with technical debt, defects, tight coupling, and low cohesion, the level of coordination goes through the roof.

For example, a team may have 25 other teams they need to coordinate with, with some of the work possibly either fully or partially outsourced to make things even more complex. That's 25 dependencies, at minimum, just to get one feature into production. If we want to be a real competitor in the market, we can't have our teams held back like this. Especially when we're up against our competitors.

Here's an example of how technical dependencies can hurt a company's competitive advantage. When the chip shortage occurred during the COVID-19 pandemic, some automakers were forced to slow down production because their automotive software was tightly coupled to a specific type of semiconductor. However, other automakers had created an interface layer between the vehicle software and the chip implementation, allowing them to shift to a different chip and continue producing vehicles at a fast rate.

THE PRODUCT EXTRACTION PROCESS

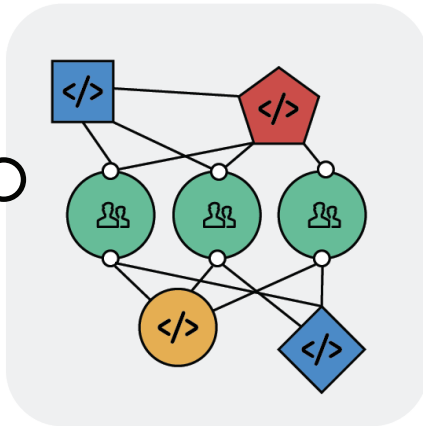During early transformation, teams are tightly coupled.
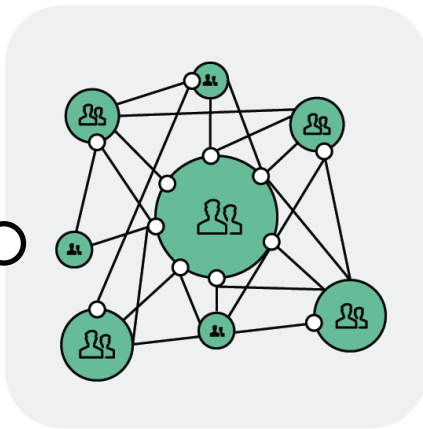
When we align teams with products, we encapsulate them so they can operate more independently.
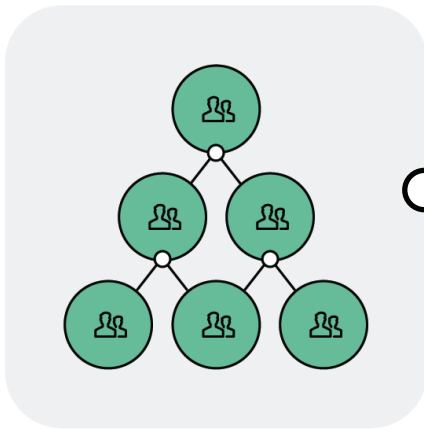
Often the product-aligned teams still work on code full of dependencies, so the code base keeps them from working independently.

Product Extraction aligns the code base with the product-aligned teams, decoupling the products and enabling Agility.
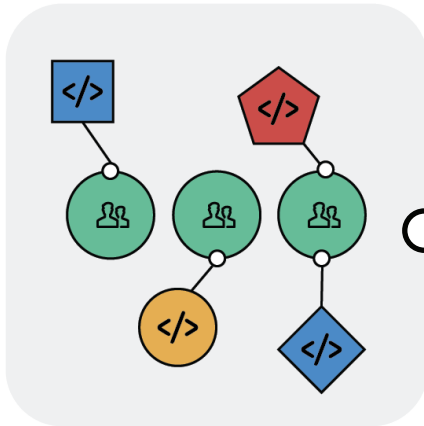
ADDRESSING MISALIGNMENTS

The problem is that in large enterprises, the solutions architecture often doesn't align with the product architecture in the first place.

Red flags for dependencies resulting from this kind of misalignment can include:

TEAMS THAT HAVE TO PUT CARDS ON OTHER TEAMS' CARD WALLS

TEAMS THAT MUST HAND OFF CODE TO ANOTHER TEAM BEFORE IT'S PUT INTO PRODUCTION.

TEAMS UNABLE TO PUT CODE INTO PRODUCTION UNTIL ANOTHER TEAM PUTS THEIR CODE INTO PRODUCTION FIRST.

TEAMS WHO BREAK OTHER TEAMS' FEATURES WHEN THEY GO LIVE WITH A RELEASE

The teams, applications, capabilities, and products weren't designed with one another in mind. But we can't do anything with our dependencies if these areas are out of alignment. Decoupling the teams from the technology they are working on is crucial to encapsulating teams and getting the benefits of Agile.

To break the orchestration chaos and eliminate the dependencies that are killing our potential for Agility, what we have to do is first align our organizations, products, and business capabilities with our business goals, as well as our legacy software with our production capabilities. This will reduce dependencies and increase velocity so the team can push software into production. Sounds easy to say, but not so easy to do. So how do we make it happen? A process we call Product Extraction.

In this paper, we'll explain what Product Extraction is, the problems it solves, and how it enables us to overcome our technical dependencies and add more value to the things we're doing so we can enable Agile to work for us and bring more value across the entire organization.

WHAT IS PRODUCT EXTRACTION?

Product Extraction is the process of taking existing software applications and restructuring them so that teams can push code into production independently. The goal is to enable teams to independently take an application, add features to it, and completely own the process end-to-end of getting it into production.

Here's an example. Let's say a large organization has a mobile application that has several features that encompass ordering a product, managing an account and viewing finances. Those three feature sets would come from different parts of the business. If there was one team responsible for the mobile app and three teams responsible for each of those feature sets (order, account, finance) then there will be dependencies. When the finance team wants to push their features onto the mobile app, they will depend on the mobile app team to do it. They will need to put cards onto the mobile team's cardwall and wait for them to be completed. This is exactly what causes delays, complexity, and frustration.

Instead, the teams can be organized a different way and the mobile app software can be modularized such that each team can do their work without excessive dependencies.

Some Agile processes would say that we simply create a big meeting where all the teams communicate the dependencies. But that doesn't solve the problem, it merely highlights the problem.

Isolating Dependencies

At its core, Product Extraction is about isolating the specific dependencies in the existing software and addressing the misalignment of those systems. We want to ensure they're well understood, well documented, and well tested. We need to break the dependencies or, at the very least, start to make them less impactful so we can build, test, and deploy independently as teams.

Speed to Production

Speed to production is a key differentiator that keeps us innovative and competitive—and reaching these business goals is ultimately the purpose of Agile. When the market is as continuously disrupted as it is now, we need to be innovating to make our place in it. To accomplish that, we need to move quickly so we don't have to wait for new features before we can create other features on the other pieces of software being built in the organization.

Continuous Delivery

The goal is to get to a state of continuous delivery where we can get features out faster. It's not necessary that Product Extraction occurs for every legacy application, but once we help identify the ones that need to move faster (most strategic, most likely to change, etc.), we can begin extracting those products out of the legacy application and have features stream out as fast as possible, putting us in a competitive position.

WHO NEEDS PRODUCT EXTRACTION?

Although Product Extraction can be used in many ways, and at many levels of intervention, here are some key use cases.

Awareness of Problems, But Not Sure What They Are

There are some cases where we also may not entirely understand what's in our way or what we need to do to get where we want to be. The LeadingAgile Studios team can use the Product Extraction process to assess and illuminate the real problems in the way, provide a roadmap for what needs to be done about them, and assist in the process.

Need to Respond Faster to the Market

Or, it's just that we have a particular capability that we need in order to respond more quickly to the market. For instance, a steel fabricating company might find that they need to build an app to enable them to become good at auctioning off scrap metal. This may be a capability they don't currently have, but they need to increase profits and reduce reliance on outside service providers or even competitors.

Want to Be More Competitive

Maybe it's just that we know we aren't as competitive as we could be. As with the example we talked about previously where Tesla changed the kind of chips they used instead of staying the same and thus held back by the chip shortage, Product Extraction could enable that kind of ability to swiftly pivot and respond to the market so we can truly compete with what else is out there.

Capacity Issues

Or, maybe it's capacity issues we're dealing with. We may have certain features that need to be delivered to the client quickly, yet we don't have the time to remove the dependencies that will get it to them in the time they need. When we can't make moves to satisfy our customers' needs, even though it's going to help the business, Product Extraction can help.

WHAT PRODUCT VALUE DOES PRODUCT EXTRACTION PROVIDE?

What executives really want from Transformation isn't Agility. They want business value—the results it brings and business goals it helps us reach. Here are some of the key ways Product Extraction enables more business value.

Cost Savings & Early Return on Investment

Most companies adopt Agile because of the belief that it's more efficient and will reduce costs—yet the cost savings can be difficult to achieve when our people are busy orchestrating dependencies.

But when we can take some of the mechanisms or people who are held back by orchestrating dependencies and turn them toward value-add tasks, we get more value from every piece of work we're doing. Then we begin to realize the cost savings and faster return on investment we couldn't get when we had our people spinning their wheels on unnecessary orchestration. Then we can begin putting product into market in smaller increments, charging for the product sooner, and ultimately realizing revenue faster.

Product Fit

We know that well-formed teams, operating in the right market and in the right organizational context can test product hypotheses, assess customer demand, and are free to explore what works best.

Product Extraction enables the alignment we need to deliver in smaller batches, get frequent customer feedback, and change direction when we learn new things about our customers and their requirements. Once we can achieve the goal of continuous delivery and quick turnaround times, we free up more time for feedback cycles and updates to ensure customers are getting what they want and need.

Innovation

If we're bogged down with dependencies, we can't possibly make time to innovate. Product Extraction frees up our teams to make changes that enable us to become more competitive and free to explore what works, what could work, and look to the future of what we want to accomplish.

Predictability

We often think of Agility as more about adaptability than predictability, but predictability is a common goal of most organizations during Agile Transformation. Product Extraction enables us to begin consistently making and meeting commitments to our customers through making smaller bets and working in smaller batches.

HOW PRODUCT EXTRACTION WORKS

Using our proven, customized LeadingAgile practices, the LeadingAgile Studios team takes you step by step through a process that will enable you to gain more predictability and ability to make smaller bets. The ultimate goal of Product Extraction is for your technology to be aligned with and enable your product aligned organization.

Our approach to Product Extraction is pragmatic. Our Studios software engineers, designers and product managers will partner with you to explore the dependencies in your way, determine what they are, and then help you determine the right compensating controls to put in place to begin managing your dependencies—and where to place those compensating controls.

Once you begin to manage your dependencies with compensating controls in place, your teams will begin to become more predictable and able to make smaller bets. This is the point where your teams can become more independent and begin eliminating the compensating controls, break the dependencies, and finally begin to achieve the incremental outcomes you intended to get from Agile Transformation.

Our Studios teams can work alongside you to do the Extraction while you're delivering features to ensure you aren't slowed down by the process. Our goal in partnering with you in this way is to go from doing it for you to doing it with you—and then equip your team with the speed and capacity to do future Product Extractions for yourself.

We want to help you build competency into your organization so you can identify and act on future opportunities without help of the LeadingAgile Studios team.

Product Extraction work may also simply be a skill set your teams don't need now or need to have in the future—yet you still need to get the outcomes Product Extraction can enable. In this case, our Studios team is available to do the specialized work so that your teams can continue to focus on delivering features. We can come in to work on a specific need you have, then coach your teams on taking that work back in and maintaining it without you having to build up the skill set in your organization.
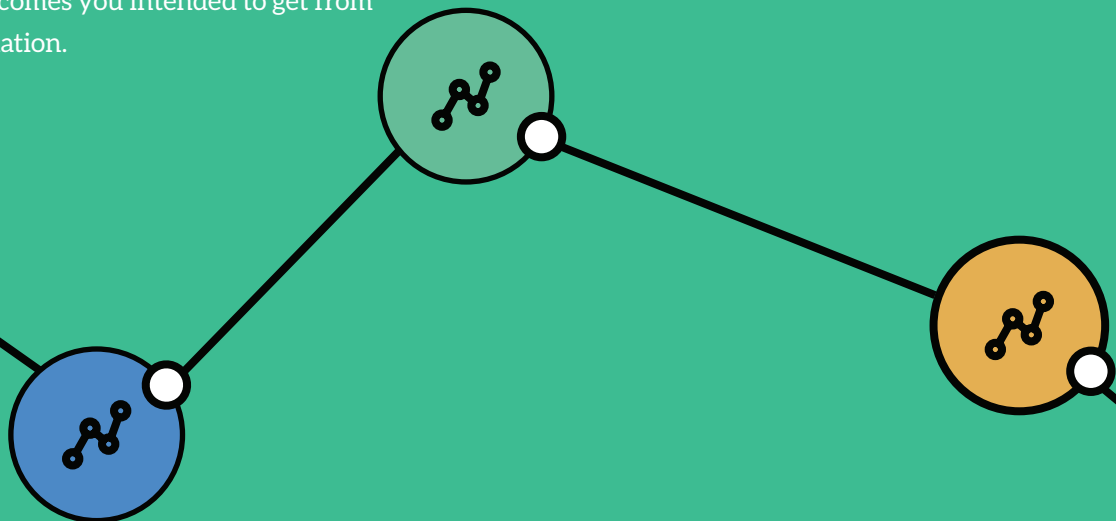
MOVING AT THE SPEED OF YOUR MARKET

Ultimately, we consider Product Extraction done when you're able to release as often as needed with minimal orchestration between other teams. The goal isn't perfect code. It's for you to move at the speed of your market.

As with all LeadingAgile services, we will partner with you to customize based on your needs and desired outcomes. To learn more and get in touch with us to discuss how our Studios team can facilitate a customized Product Extraction for you, contact us.

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THE GOAL ISN'T PERFECT CODE. IT'S FOR YOU TO MOVE AT THE SPEED OF YOUR MARKET.