



Case Study

Agile Unleashed at Scale:

How John Deere's Global IT group implemented a holistic transformation powered by Scrum@Scale, Scrum, DevOps, and a modernized technology stack



JOHN DEERE

scruminc.

TABLE OF CONTENTS

Executive Summary	3
Results at a Glance	6
01 Introduction: The Complex Challenge to Overcome	7
02 Background: The Transformation's Ambitious Goals	8
03 Agile Operating Model: Why John Deere Chose Scrum And Scrum@Scale	11
04 The Foundry: More Than A Training Facility	13
05 How To Achieve Efficient and Effective Training at Scale	17
06 Agile Product and Portfolio Management: Why It's Important And How To Do It	23
07 Agile Culture Unleashed	27
08 Metrics and Results	31
09 Agile in Action: Supply Chain Solutions Amid Disruptions	35
10 Future of Scrum, Scrum@Scale, and the Agile Operating Model at John Deere	44

In 2019 John Deere's Global IT group launched an Agile transformation with the simple but ambitious goal of improving speed to outcomes.

As with most Fortune 100 companies, Agile methodologies and practices were not new to John Deere's Global IT group, but senior leadership wasn't seeing the results they desired. "We had used other scaled frameworks in the past—which are perfectly strong Agile processes," explains Josh Edgin,



JOHN DEERE

Transformation Lead at John Deere, "But with PSI planning and two-month release cycles, I think you can get comfortable transforming into a mini-waterfall." Edgin adds, "We needed to evolve."

Senior leadership decided to launch a holistic transformation that would touch every aspect of the group's work – from application development to core infrastructure; from customer and dealer-facing products to operations-oriented design, manufacturing and supply chain, and internal/back-end finance and human resource products.

Picking the right Agile framework is one of the most important decisions an organization can make. This is especially true when effective scaling is a core component of the overall strategy. "Leadership found the Scrum@Scale methodology to be the right fit to scale across IT and the rest of the business," states Ganesh Jayaram, John Deere's Vice President of Global IT. Therefore, the Scrum and Scrum@Scale frameworks, entwined with DevOps and technical upskilling became the core components of the group's new Agile Operating Model (AOM).

Picking the right Agile consulting, training, and coaching support can be just as important as the choice of framework. Scrum Inc. is known for its expertise, deep experience, and long track record of success in both training and large and complex transformations. Additionally, Scrum Inc. offered industry-leading on-demand courses to accelerate the implementation, and a proven path to create self-sustaining Agile organizations able to successfully run their own Agile journey.

“I remember standing in front of our CEO and the Board of Directors to make this pitch,” says Jayaram, “because it was the single largest investment Global IT has made in terms of capital and expense.” But the payoff, he adds, would be significant. “We bet the farm so to speak. We promised we would do more, do it faster, and do it cheaper.”

John Deere’s CEO gave the transformation a green light.

Just two years into the effort it is a bet that has paid off.

Metrics and Results

Enterprise-level results include:

- **John Deere estimates its return on investment of the Global IT group’s transformation to be greater than 100 percent.**
- **Output:** Has increased by **165 percent**, exceeding the initial goal of 125 percent.
- **Time to Market:** Has been reduced by **63 percent** -- leadership initially sought a 40 percent reduction.
- **Engineering Ratio:** When looking at the complete organizational structure of Scrum Masters, Product Owners, Agile Coaches, Engineering Managers, UX Professionals, and team members, leadership set a target of 75% with “fingers on keyboards” delivering value through engineering. This ratio now stands at **77.7 percent**.
- **Cost Efficiency:** Leadership wanted to reduce the labor costs of the group by 20 percent. They have achieved this goal through insourcing and strategic hiring--even with the addition of Scrum and Agile roles.
- **Employee NPS (eNPS):** Employee Net Promoter Score, or eNPS, is a reflection of team health. The Global IT group began with a 42-point baseline. A score above 50 is considered excellent. **The group now has a score of 65, greater than the 20-point improvement targeted by leadership.**

John Deere's Global IT group has seen function/team level improvements that far exceed these results. Order Management, the pilot project for this implementation has seen team results which include:

- **The number of Functions/Features Delivered per Sprint** has increased by **more than 10X**
- **The number of Deploys** has improved by **more than 15X**

Training at Scale and Creating a Self-Sufficient Agile Organization

In addition to embedded coaches working with teams across the organization, John Deere implemented a wave/phase approach to training at scale. This ensures effective training and minimal interruption to daily operations. The first week of the immersion phase is the only time teams aren't dedicated to their usual duties.

The Wave/Phase approach has ensured both effective and efficient training across John Deere's Global IT group. As of December 2021, roughly 24-months after its inception:

- **295 teams have successfully completed a full wave of training**
- **Approximately 2,500 individuals have successfully completed their training**
- **50 teams were actively in wave training**
- **Approximately 150 teams were actively preparing to enter a wave**

John Deere's Global IT group is well on its way to becoming a self-sustaining Agile organization thanks to its work with Scrum Inc.

- **Internal training capacity increased by 64 percent over a two-year span**
- **The number of classes led by internal trainers doubled (from 25 to 50) between 2020 and 2021**

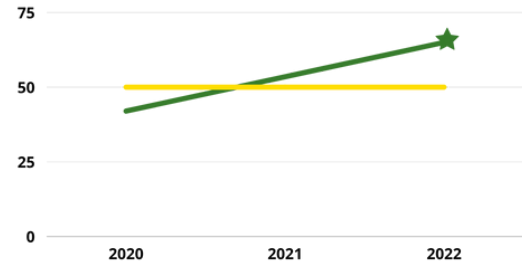
Results at a Glance

Estimated Return on Investment

100%

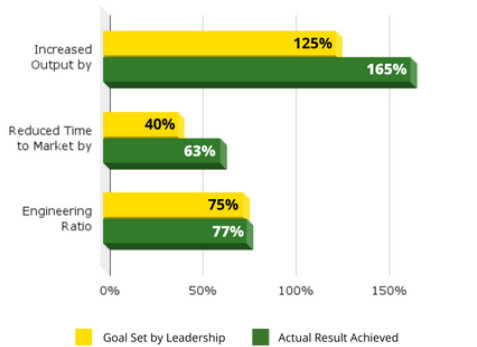
Return on Investment: John Deere estimates its ROI from the Global IT group's transformation to be greater than 100 percent.

Employee Net Promoter Score



Employee Net Promoter Score, or eNPS, is a reflection of team health. A score above 50 is considered excellent. The Global IT Group began with a 42-point baseline. They now have a score of 65, indicating a 20-point improvement.

Global IT Group, Overall Results



“
We’re a company that is walking the talk. We’re making investments both in terms of our team members and technology.
 – Ganesh Jayaram, John Deere’s Vice President of Global IT
 ”

“
Every quality measure has improved. We’re delivering things at speeds previously not thought possible. And we’re doing it with fewer people.
 – Josh Edgin, John Deere Global IT Transformation Lead
 ”

Cost Reduction

20%

Leadership wanted to reduce the labor costs of the group by 20 percent. They have achieved this goal through insourcing and strategic hiring—even with the addition of Scrum and Agile roles.

Introduction:

The Complex Challenge to Overcome

Every Agile transformation begins with a need.

This need can be unlocking innovation, overcoming a complex challenge, more efficient and effective prioritization, removing roadblocks, or the desire to delight customers through innovation and value delivery.

Ganesh Jayaram is John Deere's Vice President of Global IT. He summarizes the overarching need behind this Agile transformation down to a simple but powerful four-word vision; improve speed to outcomes.

Note this is not going fast just for the sake of going fast – that can be a recipe for unhappy customers and decreased quality. Very much the opposite of Agile.

Dissect Jayaram's vision, and you'll find elements at the heart of Agile itself; rapid iteration, innovation, value delivery, and most importantly, delighted customers. Had John Deere lost sight of these elements? Absolutely not.

As Jayaram explains, "we intended to significantly improve on delivering these outcomes." To do this, Jayaram and his leadership team decomposed their vision of 'improve speed to outcomes' into three enterprise-level goals:

- **Speed to Understanding:** How would they know they are truly sensitive to what their customers – both internal and external – care about, want, and need?
- **Speed to Decision Making:** Decrease decision latency to improve the ability to capitalize on opportunities, respond to market changes, or pivot based on rapid feedback.
- **Speed to Execution:** Decrease time to market while maintaining or improving quality and value delivery.

Deere's Global IT leadership knew achieving their vision and these goals would take more than



incremental adjustments. Beneficial change at this level requires a holistic transformation that spans the IT group as well as the business partners.

They needed the right Agile transformation support, the ability to efficiently and effectively scale both training and operations and to build the in-house expertise to make the group's Agile journey a self-sustaining one. As Josh Edgin, Global IT Transformation Lead at John Deere states, "We needed to evolve."

02

Background: The Transformation's Ambitious Goals

Section Summary:

Before this transformation, John Deere's Global IT function operated like that of many large organizations. However, legacy business practices can become liabilities in the modern business world. Senior Leadership decided to implement a holistic Agile transformation that would improve every aspect of their business and all of the group's 500 teams. They created group-wide metrics they would use to measure the success of the transformation. These included:

- **Output:** Increase by 125 percent
- **Time to Market:** Reduce by 40 percent
- **Engineering Ratio:** Improve to 75 percent with "fingers on keyboards"
- **Employee NPS (eNPS):** 20-point improvement
- **Cost Efficiency:** They would reduce labor costs by 20 percent

In-Depth:

Before this transformation, John Deere's Global IT function operated like that of many large organizations. In broad terms, this meant that:

- The department had isolated pockets of Agile teams that implemented several different Agile frameworks in an ad hoc way
- Teams were often assigned to projects which were funded for a fixed period of time
- The exact work to be done on projects was dictated by extensive business analysis and similar plans
- Outsourcing of projects or components to third-party suppliers was commonplace
- The manager role was largely comprised of primarily directing and prioritizing work for their teams

At John Deere, process maturity was very high. Practices such as these were created in the Second Industrial Revolution and they can deliver value, especially if you have a defined, repeatable process. However, if you have a product or service that needs to evolve to meet changing market demands, these legacy leadership practices can quickly become liabilities.

- Pockets of Agile can deliver better results. But isolated Agile teams will inherently be dependent on non-Agile teams to deliver value. This limits the effectiveness and productivity gains of Agile teams specifically and the organization as a whole. The ad hoc use of different Agile frameworks, as Vice President Jayaram explains, compounds this problem by “not being something we could replicate and scale across the organization.”
- Project-oriented teams are often incentivized to deliver only what the project plan calls for – this inhibits a customer-centric mindset and the incorporation of feedback.
- Expecting teams to always stick to a predetermined plan limits their ability to innovate, creatively problem solve, or pivot to respond to changing requirements or market conditions.
- Outsourcing can create flexibility for organizations, but an over-reliance on outsourcing can slow speed to market and value delivery.
- Too many handoffs deliver little if any value. These can also significantly slow progress on any project or product which increases time to market.
- IT managers that are primarily delegators can become a form of overhead since they’re not actively producing value for customers. Their other skills can atrophy leaving them ill-equipped to help develop their team members, and overall team member engagement and talent retention can suffer.

2.1

The Transformation Goal

Since its founding in 1837, John Deere has stood on four core values; Integrity, Quality, Commitment, and Innovation. John Deere’s Global IT leadership knew the group needed to evolve to help propel the company forward into its second century of existence. “At this point, we started benchmarking,” explains Global IT Transformation Lead Josh Edgin, “and it became clear we were not where we wanted to be. It was imperative we leap forward not only to drive innovation but to motivate and attract that top talent,” every organization needs.

Improving speed to outcomes required greater employee engagement, decreased time to market, higher productivity, better prioritization, and alignment, and increase the engineering ratio – the percentage of the organization with what Jayaram and Edgin call “fingers on keyboards” who create the products customers used.

Additionally, leadership wanted to increase the group’s in-house technical expertise, modernize its technology stack, unify around a single Agile framework that easily and efficiently scaled both across IT and the rest of the business, and reorganize its products and portfolios around Agile value streams. All while meeting or exceeding current quality standards.

Leadership wanted to go big. They wanted nothing less than a holistic Agile transformation that would improve every aspect of their business and all of the group’s 500 teams.

Next, senior leadership created the group-wide metrics they would use to measure success. These included:

- **Output:** Increase by 125 percent
- **Time to Market:** Reduce by 40 percent
- **Engineering Ratio:** Improve to 75 percent with “fingers on keyboards”
- **Employee NPS (eNPS):** 20-point improvement
- **Cost Efficiency:** They would reduce labor costs by 20 percent

At the time, these goals seemed ambitious to say the least. “I remember standing in front of our CEO and the Board of Directors to make this pitch,” says Jayaram, “because it was the single largest investment Global IT has made in terms of capital and expense.” But the payoff, he adds, would be significant. “We bet the farm so to speak. We promised we would do more, do it faster, and do it cheaper.”

John Deere’s CEO gave the transformation, called the Agile Operating Model (AOM), a green light.

Just two years into the effort it is a bet that has paid off.

Agile Operating Model:

Why John Deere Chose Scrum and Scrum@Scale

Section Summary:

The Scrum and Scrum@Scale frameworks, entwined with DevOps and technical upskilling, became integral Agile components of the group's new Agile Operating Model (AOM).

"Leadership found the Scrum@Scale methodology to be the best fit to scale across IT and the rest of the business," – Ganesh Jayaram, John Deere's Vice President of Global IT

"We had used other scaled frameworks in the past—which are perfectly strong Agile processes. But with PSI planning and two-month release cycles, I think you can get comfortable transforming into a mini-waterfall, so we aligned on Scrum being the best fit for our culture and what we wanted to accomplish." – Josh Edgin, John Deere Global IT Transformation Lead

In-Depth:

Picking the right Agile framework is one of the most important decisions an organization can make. This is especially true when effective scaling is a core component of the overall strategy.

As Edgin explains, Agile was not new to John Deere's Global IT group. "We had Agile practices. We had Agile teams. We were delivering value."

But says Edgin, they weren't satisfied with the results. So, a team began evaluating several different Agile methodologies. They examined what had been done at John Deere in the past and anticipated what the group's future needs would be.



“

It may take a little blind faith to start your Agile journey (but) the pieces will make sense. The teams will deliver more, you'll accomplish more, and everybody will love what they're doing.

– Karen Powers, Digital Product Manager for Supply Chain Management and Worldwide Logistics, John Deere.

”

In the past, Edgin states, “We had used other scaled frameworks—which are perfectly strong Agile processes. But with PSI planning and two-month release cycles, I think you can get comfortable transforming into a mini-waterfall,” he says, “So we aligned on Scrum being the best fit for our culture and what we wanted to accomplish.”

Early on, leadership decided to implement a tight partnership where the IT delivery team(s) are closely coupled with the product organization that is the voice of the customer. When connecting multiple products together, “leadership found the Scrum@Scale methodology to be the best fit to scale across IT and the rest of the business,” says Jayaram.

The Scrum and Scrum@Scale frameworks, entwined with DevOps and technical upskilling, became integral Agile components of the group’s new AOM.

Picking the right Agile consulting, training, and coaching support can be just as important as the choice of framework. Scrum Inc. is known for its expertise, deep experience, and long track record of success in both training and large and complex transformations. Additionally, Scrum Inc. offered industry-leading on-demand courses to accelerate the implementation, and a proven path to create self-sustaining Agile organizations able to successfully run their own Agile journey.

The Foundry:

More Than a Training Facility

Section Summary:

From the beginning, John Deere's relationship with Scrum Inc. was built around creating a self-sustaining Agile organization. One where the Foundry's own internal trainers and coaches would build all the capabilities they needed to ensure the Global IT group's Agile transformation was a self-sustaining one.

- **Internal training capacity increased by 64 percent over a two-year span**
- **The number of classes led by internal trainers doubled (from 25 to 50) between 2020 and 2021**
- **John Deere trainers are now leading customized, context-specific courses including Scrum Master, Product Owner, Engineering Manager, Agile for Leaders, Scrum@Scale Practitioner, and Scrum@Scale Foundations**

In-Depth:

Speak with any number of John Deere team members about their company and you're likely to hear the phrase "hard iron." It's a nod to the construction, agricultural, forestry, landscaping, and other products the manufacturer is best known for.

When it came time to name the final and arguably most important component of the AOM, the Foundry was a clear choice. It recognizes the company's proud heritage while also symbolizing the change that would drive the Global IT group into the future.

Many organizations incorporate a "learning dojo model" when implementing an Agile transformation. These "dojos" and their teams are often home to Agile practices, conduct training sessions, and provide immersive coaching for newly launched Agile teams.

Training is, of course, a critical piece of any transformation. As is coaching. After all, switching from a traditional command and control approach to an Agile servant leader approach is a significant, sometimes disorienting change.

However, some corporate dojos work on what could be considered a "catch and release" strategy. They provide one or two weeks of baseline Agile training to individuals and teams,

then say “get to it”. Coaching is limited and provided primarily by outside consultants.

The first problem with “catch and release” dojos is the cookie-cutter-like approach. A mass “baseline only” training strategy focus on volume — not understanding and usability.

The second problem is the over-reliance on outside consultants for team and organizational coaching. The cost-prohibited nature of outside consultants can limit the levels of coaching each team receives. This approach also equates to an organization outsourcing its Agile knowledge base and thought leadership — a critical competency in modern business.

The John Deere Foundry and Deere’s approach to embedding Agile Coaches and Scrum Masters across the organization represents the evolution of the “dojo” model by addressing these problems head-on.

4.1

A Relationship Built on Creating a Self-Sustaining Agile Organization

From the beginning, John Deere’s relationship with Scrum Inc. was built around creating a self-sustaining Agile organization. One where the Foundry’s own internal trainers and coaches would build all the capabilities they needed to ensure the Global IT group’s Agile transformation was a self-sustaining one.

This included not just materials needed to train new Agile teams. This relationship included sharing all the knowledge, skills, expertise, content, and tactics critical to training the coaches and trainers themselves.

The Foundry was launched by a dedicated team comprised of both John Deere’s internal trainers and coaches and their Scrum Inc. counterparts. They worked from a single backlog which prioritized knowledge sharing along with the “hands-on” work of training John Deere’s Global IT teams in Scrum.

Scrum Inc.’s consultants took leading roles during the first wave of training, while their John Deere counterparts observed and learned the content and techniques. By the third wave, John Deere’s internal trainers and coaches were taking the lead, with Scrum Inc.’s consultants there to advise and refine the program.

As time passed, a significant number of trainers and coaches inside the Foundry and across the organization showed the level of mastery needed to successfully pass Scrum Inc.’s intensive

Registered Scrum Trainer and Registered Agile Coach courses. They could now credential their own students. More importantly, they demonstrated the ability to drive the Global IT group's Agile transformation forward on their own.

This approach removes any reliance on outside contractors for key competencies.

4.2

Unified, Context-Specific Training



Implementing an Agile transformation is a complex challenge. Research continues to show that ineffective or insufficient levels of training and coaching are leading causes of failed implementations. So too are misalignment, misunderstandings, or outright misuse of the concepts and terminology important to any Agile framework.

In short, everyone needs to share a unified understanding of the new way of working for it to have any chance of working at all.

The best way to overcome the problem of a cookie-cutter approach is to ensure all training content is as context-specific as possible.

Here too the connection between the Foundry and Scrum Inc. was important.

The joint team of John Deere and Scrum Inc. staff swarmed to create Agile courses packed with customized, context-specific material that would resonate with the company's Global IT group.

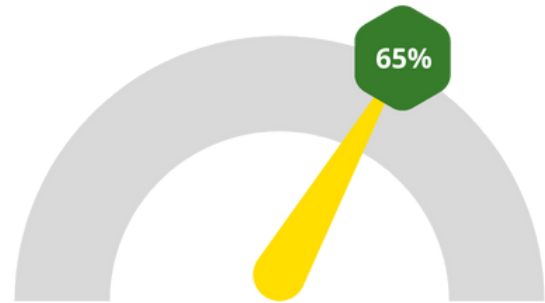
This content removed any feeling of a cookie-cutter approach and increased the usability of each lesson.

Results

John Deere’s Global IT group is well on its way to becoming a self-sustaining Agile organization.

- **Internal training capacity increased by 64 percent** over a two-year span
- **The number of classes led by internal trainers doubled (from 25 to 50) between 2020 and 2021**
- **John Deere trainers are now leading customized, context-specific courses including Scrum Master, Product Owner, Engineering Manager, Agile for Leaders, Scrum@Scale Practitioner, and Scrum@Scale Foundations**

Internal Training Capacity
Percentage Increase Over a Two-Year Span



Perhaps the best measure of success is the waiting list of teams wanting to go through Agile training and coaching. Initially, hesitancy over implementing the Agile Operating Model and undergoing training was high. Initially, there wasn’t a high demand for the training, however as early adopters experienced success, demand for the training grew. Soon teams were actively seeking admission to the next planned cohort. Now, even with greatly expanded capacity, there is a waiting list.

The Foundry model has been so successful that John Deere’s Global IT group has expanded its footprint to include coaching in Mexico, Germany, and Brazil and launched a full-scale Foundry program at the company’s facility in India. In addition to the Foundry, embedded Agile coaches continuing to drive transformation locally are a key component to the model’s success.

How to Achieve Efficient and Effective Training at Scale



Section Summary:

John Deere implemented a wave/phase approach to training at scale. This ensures effective training and minimal interruption to daily operations. The first week of the immersion phase is the only time teams aren't dedicated to their usual duties.

John Deere's internal coaches created their *Ten Immersion Principles (TIPS)* as a way of measuring team health once they leave the immersion phase. Foundry coaches and trainers can then focus their efforts to create a continuous learning backlog that the team owns.

The Wave/Phase approach has ensured both effective and efficient training across John Deere's Global IT group. As of December 2021, roughly 24-months after its inception:

- **295 teams have successfully completed a full wave of training**
- **Approximately 2,500 individuals have successfully completed their training**
- **50 teams were actively in wave training**
- **Approximately 150 teams were actively preparing to enter a wave**

In-Depth:

The goal of all large-scale training regimes is to maximize the level of learning while minimizing the impact on daily operations. This is not always easy to do.

Enter the Wave/Phase training approach implemented by the Foundry with Scrum Inc.

In this model, each team includes IT engineers along with their Scrum Masters and business-focused Product Owners. A training cohort, usually comprised of 40 to 50 teams, constitutes a wave.

The waves themselves are comprised of three distinct phases:

- **The Pre-Phase:** Where teams and locally embedded agile coaches prepare for an immersive wave coaching experience
- **The Preparation Phase:** Focuses on product organization and customer journeys
- **The Immersion Phase:** Team launch, coaching, and full immersion into the AOM

All three phases are designed to run concurrently, which keeps the pipeline full, flowing, and ensures efficient training at scale. The transformation doesn't end with the wave experience. Continuous improvement and ongoing transformation continue well beyond the Immersion Phase, led by embedded agile leaders in partnership with The Foundry.

The quality and context-specific nature of the training itself, along with the "left-seat-right-seat" nature of the coaching, ensures the learning is effective.

5.1

The Pre-Phase

Embedded Agile coaches are continuously transforming teams in their organizations even before they enter a wave. One goal of the Pre-Phase is to ensure readiness of teams looking to enter a wave. Acceptance criteria include:

- **Proper organization design review** to ensure teams are set up to succeed with the correct roles
- **A draft plan for their product structure** (explained in more detail in section 6 of this case study)
- **The Scrum Roles** of Product Owner and Scrum Master are filled. As is the role of Engineering Manager

Ryan Trotter is a principal Agile coach with more than 25 years of experience in various capacities at John Deere. Trotter says experience shows that not meeting one or more criteria "causes deeper conversations and could result in some mitigations or delaying until they're ready."

5.2

The Preparation Phase

The benefits of an Agile mindset and processes can be significantly limited by legacy structures.

Therefore, product organization is the primary focus of the preparation phase.

“We want to create a much stronger connection between the customer, and the Product Owner and team” explains Heidi Bernhardt who has been a senior leader of the Agile Operating Model since its inception. Bernhardt has been with John Deere for more than two decades now. She says individuals in the product and portfolio side of the house learn to “think in a different way.”

Participants in the preparation phase learn how to create customer journey maps and conduct real-world customer interviews to ensure their feedback loops are both informative and rapid — key drivers of success for any Scrum team and organization explains Bernhardt, “They’re talking with the customer every Sprint, asking what their needs are and what they anticipate in the future.”

They also learn how to manage and prioritize backlogs and how to do long-term planning in an Agile way.

Scrum Role training is a critical component of the preparation phase. Product Owners and Scrum Masters attend both Registered Scrum Master and Registered Product Owner courses.

Team members and others who interact regularly with the team take *Scrum Startup for Teams*, a digital, on-demand learning course offered by Scrum Inc. “Scrum Startup for Teams provides a really good base level of understanding,” says Ryan Trotter, “People can take it at their own pace and they can go back and review it whenever they want. It really hit a sweet spot for our software engineers.”

By the end of 2021 Scrum Startup for Teams had helped train roughly 2,500 people in the Global IT group and nearly the same number of individuals throughout the rest of John Deere — including those who aren’t on Scrum Teams but who work closely with them.

5.3

The Immersion Phase

The 10-week long immersion phase is where the Agile mindset and the AOM take flight. Where the Scrum and Scrum@Scale frameworks are fully implemented and the teams turn the concepts they’ve learned in the prior phases into their new way of working.

For John Deere’s Global IT group, immersion is not a theoretical exercise. It is not downtime. It is on-the-job training in a new way of working that meets each team at their current maturity level.

The first week of immersion is the only time teams aren’t dedicated to their usual duties.

During this time, says Trotter, coaches and trainers are reinforcing concepts, answering questions, and the teams are working through a team canvas. “This is where the team members identify their purpose, their product, and agree on how they’ll work together.”

Teams are fully focused on delivering value and their real-world product over the next nine weeks.

The Product Owner sets the team’s priorities, refines the backlog, and shares the customer feedback they’ve gathered. The Scrum Master helps the team continuously improve and remove or make impediments visible. Scrum Masters collaborates with an embedded Agile Coach that continues to champion transformation. Team members are delivering value. John Deere’s technical coach for the team is the Engineering Manager, a role that has transformed from the original team leader.

Those in the immersion phase receive intensive coaching, but they are also empowered to innovate or creatively problem solve on their own. The goal is for the coaches to help make agility and learning through experimentation a part of each team’s DNA.

The transition from students to practitioners becomes more apparent towards the end of immersion. Coaches take more of a back seat in the process explains Trotter. “We don’t want to create a false dependency. We want the teams to take ownership of their own Agile journey, to know the Foundry is here when needed but to be confident that they’ve got this and can run with it so they can continuously improve on their own.”

5.4

Measuring Wave Training Effectiveness

Measuring the effectiveness of any large-scale Agile training program requires more than just counting the number of completed courses or credentials received. The instructors and coaches must be able to see the Agile mindset has also taken hold and the implementation is making a positive impact on the organization. They also need the ability to see where problems are arising so they can provide additional coaching, training, and other resources where needed.

John Deere's internal coaches created their *Ten Immersion Principles* (TIPS) as a way of measuring team health once they leave the immersion phase. Foundry coaches and trainers can then focus their efforts to create a continuous learning backlog that the team owns.

The TIPS are:

- 1. Value Flows Through the System Super Fast:** The team can deliver new products or features to customers very quickly. Any impediments or dependencies hindering delivery are quickly identified and addressed
- 2. Amplify Feedback Loops:** Rapid feedback from customers is a reality
- 3. Continuous Learning Organization:** The team is taking ownership of their learning paths and Agile journey
- 4. Deliver Value in Small Increments:** The team delivers value to customers in small pieces in order to gather feedback, test hypotheses, and pivot if needed
- 5. Customer Centricity:** The team is focused on those actually using the product and not just the stakeholders interested in the value the product should deliver
- 6. Continuous Improvement:** The team is always looking for ways to improve product and process
- 7. Big and Visible:** The team make progress, impediments, and all needed information transparent and easy to find
- 8. Team is Predictable:** The team tracks productivity metrics and estimates backlog items so that the anticipated date of delivery for products or features can be known
- 9. Data-Driven Decisions:** Feedback and real data, not the loudest voice or squeaky wheel — is used to make decisions
- 10. Culture of Experimentation:** The team is willing to take calculated risks and are able to learn from failure

5.5

Results

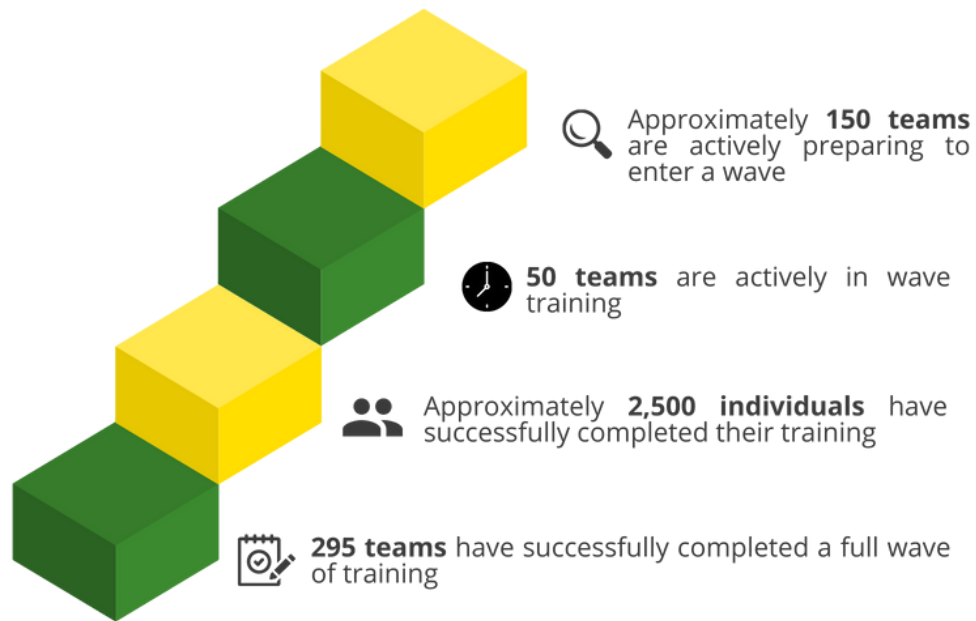
The Wave/Phase approach has ensured both effective and efficient training across John Deere’s Global IT group. As of December 2021, roughly 24-months after its inception:

- **295 teams** have successfully completed a full wave of training
- **Approximately 2,500 individuals** have successfully completed their training
- **50 teams** were actively in wave training
- **Approximately 150 teams** were actively preparing to enter a wave

The positive business impact this training has had is outlined in section 8. Metrics and Results of this case study.

Efficient and Effective Training at Scale

John Deere implemented a wave/phase approach to training at scale. As of December 2021, roughly 24-months after its inception:



Agile Product and Portfolio Management:

Why It's Important And How To Do It

Section Summary:

The weakness in traditional project management becomes apparent when you have a product or service that will evolve and emerge over time. There are just too many unknowns for the traditional approach to work effectively.

All products are now segmented into one of three categories based on actual value delivery and market feedback. These categories are:

- **Grow:** High-value products or opportunities worth a higher level of investment
- **Sustain:** Products worth continuing at current investment levels
- **Monitor:** Products that aren't delivering the ROI expected or aren't delivering the anticipated value. Investment levels may need to be adjusted

There are some products that may have problems that need to be addressed immediately, or the investment levels are decreasing in certain areas of the product due to rationalization efforts. Those products are flagged with Fix or Exit so the MetaScrum can have prioritization conversations more easily.

In-Depth:

Erin Wyffels keeps an old whiteboard in her office as a reminder of the moment she and her team solved a particularly complex problem.

Wyffels leads the product excellence area of the Foundry, supporting John Deere's product leaders in product ownership and the dynamic portfolio process. She has a long history with traditional project management, inside and outside of IT. Over the past two years, she has grown her expertise in Agile product and portfolio management.

John Deere's Global IT group manages a catalog of more than 400 digital products across 500 teams. These support every business capability in the broader company — from finance and marketing to manufacturing and infrastructure and operations.

Most large organizations are built on legacy systems. Left unchanged, these systems can limit the effectiveness of an Agile transformation. Wyffels says the prior structure of projects and portfolios within John Deere's Global IT group was just such a system. "Our old taxonomy would in no way work with Agile." So, she was picked to help change it for the better.

6.1

Why the Product and Portfolio Structure Needed to Change

Before implementing the AOM, portfolio management was an annual affair. One that Wyffels says, "left everyone unhappy."

Stakeholders and senior leadership would come with a list of desired projects. Financial analysts, IT department managers, and portfolio managers would then hash out funding for these projects. Teams would then be assigned to the resourced projects. All pretty standard stuff in the corporate world.

There are, however, several problems with this approach.

Take the focus on projects. Traditional project management is a very effective approach for defined processes. By definition, a project has a start date and an end date. A set amount of work is to be done at a predetermined cost.

The weakness in traditional project management becomes apparent when you have a product or service that will evolve and emerge over time. There are just too many unknowns for the traditional approach to work effectively.

Then there's the time it takes to make decisions based on customer feedback. As Wyffels points out, the annual nature of the pre-AOM process meant, "The best information and data you could get would be a quarter old." Agility requires far more rapid feedback loops.

Throw in a taxonomy built more around project type than the value delivered and employees who were moved to projects instead of allowed to own a product end-to-end, and John Deere's Global IT group had a system that was optimized based on constraints but didn't support where the company was headed next. They were ready for a system that promoted total product ownership including value, investment, and quality and move to the next level of product maturity.

Customer Perspective and Value Streams

The need to adopt Agile product and portfolio management processes became apparent early in the AOM's implementation.

Amy Willard is a Group Engineering Manager currently leading the AOM Foundry. She says this also becomes apparent for individual teams taking part in the immersion phase of wave training. "We see changes in their product structure evolving. They have that aha moment and realize the structure we had before wasn't quite right."

The new, Agile structure focuses on three critical components — customer perspective, value streams, and a product mindset.

- Customer Perspective:** Willard says the value delivered to customer personas is now used to more logically group products and product families. This Agile taxonomy helps to reduce time to market and boost innovation by fostering greater coordination and collaboration between teams.
- Value Streams:** Dependencies, handoffs, and removing bottlenecks are also considered when creating product groups and portfolios. Willard notes, "We've had a lot of success with developing value stream maps across products," also from a customer journey perspective.
- Product Mindset:** Projects are defined by their scope, cost, and duration. Products are different, they evolve based on market feedback to continually deliver value to customers. The difference may sound small, but Willard says it represents a "major shift" in mindset for the Global IT group.



The group has developed a curriculum for people in product roles in each transformation wave, with coaching support available to each person. The same content has been made available for all roles through a self-learning option, which is great for non-product roles or people that take a new position after their group’s wave is complete. Additionally, the communities being established for product roles and collaboration across people in the roles are the final building blocks to continued maturity after the transformation waves are done.

6.3

Highlighted Result: Better Value-Based Investments

The implementation of Agile product and portfolio management has yielded numerous positive results for John Deere’s Global IT group. These structural changes were critical drivers of the success noted in the Metrics and Results section of this case study.

This shift has also increased the ability of the group’s senior leadership to act like venture capitalists and invest resources into areas and products with the most potential value to both the organization and customers.

All products are now segmented into one of three categories based on actual value delivery and market feedback. These categories are:

- **Grow:** High-value products or opportunities worth a higher level of investment
- **Sustain:** Products we want to continue investing in, but not to differentiate
- **Monitor:** The capability is required to run a successful business, but the investment level may be reduced

There are some products that may have problems that need to be addressed immediately, or the investment levels are decreasing in certain areas of the product due to rationalization efforts. Those products are flagged with Fix or Exit so the MetaScrum can have prioritization conversations more easily.



The heightened levels of business intelligence and customer feedback the AOM has fostered allow leadership to make better decisions about investments faster. It also reduces the cost of pivoting when market conditions change.

Strong products, as well as prioritization and alignment at every level of the organization are what will make the portfolio process most effective at John Deere.

07

Agile Culture Unleashed

Section Summary:

At John Deere's Global IT group being Agile isn't defined by holding Scrum events, it's about implementing Scrum the way it was intended by Scrum co-creator Jeff Sutherland.

Log into John Deere's AOM transformation portal and you'll find a section with dedicated self-learning and career advancement paths. This includes everything from User Experience Practitioner to Scrum Master and Product Owner.

"We're a company that is walking the talk. We're making investments both in terms of our team members and technology."

– Ganesh Jayaram, John Deere's Vice President of Global IT

In-Depth:

John Deere has a long history of finding innovative solutions to common problems. Today, they're still focused on driving customer efficiency, productivity, and value in sustainable ways.

As the company states, "We run so life can leap forward."

That alone is enough to make the company iconic. For John Deere, that's just the start.

People matter at John Deere. So too do concepts like purpose, autonomy, and mastery made famous by author Daniel Pink in his book Drive. "It's no secret that there is a war for talent right now," acknowledges Global IT Transformation Lead Josh Edgin, "and the market is only getting more competitive." John Deere's Global IT group is not immune to that competition. However, it has an advantage over other organizations — a thriving Agile culture.

Psychological safety, empowerment, risk-taking, are the foundations of the AOM. At John Deere’s Global IT group, being Agile isn’t defined by holding Scrum events, it’s about implementing Scrum the way it was intended by Scrum co-creator Jeff Sutherland.

Work-life balance is important. The environment is one of collaboration and respect. The group also has a common sense based remote work policy and a number of hubs for when collocation is imperative.

All this doesn’t mean everything is perfect at John Deere’s Global IT group. Leadership is the first to tell you they can and will do even better. This itself is a powerful statement — this is a place where continuous improvement is everyone’s goal, not something management demands of delivery teams.

“We’re a company that is walking the talk,” says Global IT Vice President Ganesh Jayaram, “We’re making investments both in terms of our team members and technology.” Here are just three of the important ways John Deere’s Global IT group is indeed “walking the talk.”

7.1

Transformation Portal

We’re a company that is walking the talk. We’re making investments both in terms of our team members and technology.

– Ganesh Jayaram, John Deere’s Vice President of Global IT

Big and visible. That is the goal of the group’s transformation portal. Everything relating to the AOM implementation can be found here.

Resources, wave schedules, thought leadership, and shared learnings are all available in this in-depth dashboard. Far more than you often see in other organizations. So too are metrics for individual teams and the group as a whole.

“People want purpose,” says Edgin, “they want to solve hard problems. They want to know the work they do matters.” This portal allows individuals to better understand their roles and they work together.

I am energized by the fact that we are creating a strategic advantage for John Deere through world-class supply chain technology, which will enable our smart industrial business.

– Jay Strief, Goup Engineering Manager, John Deere Supply Chain Solutions

7.2

Agile Career Paths

Log into John Deere’s AOM transformation portal and you’ll find a section with dedicated self-learning and career advancement paths. As Amy Willard explains, “We have a path for every persona and community led CoPs, supported by the Foundry.” This includes everything from User Experience Practitioner to Scrum Master and Product Owner.

Having clearly defined career paths and self-learning opportunities is an important step. It not only empowers continuous improvement, but it also shows professional agilists that they’re valued, their skills are important, and they have a bright future at the organization which does not dictate they must choose between agility and career advancement.

7.3

Prioritizing Team and Organizational eNPS Scores

Through the AOM John Deere was focused on creating a great place to work. Leadership believed that healthy teams would drive creativity, productivity, and sustainability.

John Deere’s Global IT group regularly measures this through both team and organizational Employee Net Promoter Scores, or eNPS. By asking employees if they would recommend their team to others, leaders can gain a better understanding of the health and engagement of the team.

Edgin explains the importance of these metrics this way, “When you create a culture where you have awesome employees with the right mindset and great technical skills you want them to stay here because this is where they want to be.”

The Global IT group began with a 42-point baseline. A score above 50 is considered excellent. The group now has a score of 65, greater than the 20-point improvement targeted by leadership.

Individual teams show similar results across the board.



“

The awesome story here is the change in the culture; innovation, risk-taking, and many clear examples of teams stepping out of their comfort zone to deliver new value. All of this was made possible through our digital transformation.

– Jay Strief, Goup Engineering Manager, John Deere Supply Chain Solutions

”

Metrics and Results

Section Summary:

Across the board, Deere's Global IT Agile transformation has met or exceeded every initial goal set by senior leadership.

- **Output:** Has **increased by 165 percent**, exceeding the initial goal of 125 percent
- **Time to Market:** Has been **reduced by 63 percent** — leadership initially sought a 40 percent reduction
- **Engineering Ratio:** When looking at the complete organizational structure of Scrum Masters, Product Owners, Agile Coaches, Engineering Managers, UX Professionals, and team members, leadership set a target of 75% with “fingers on keyboards” delivering value through engineering. **This ratio now stands at 77.7 percent**
- **Cost Efficiency:** Leadership wanted to **reduce the labor costs of the group by 20 percent**. They have achieved this goal through insourcing and strategic hiring—even with the addition of Scrum and Agile roles
- **Employee NPS (eNPS):** Employee Net Promoter Score, or eNPS, is a reflection of team health. The Global IT group began with a 42-point baseline. A score above 50 is considered excellent. **The group now has a score of 65**, greater than the 20-point improvement targeted by leadership.

The results for some teams are exponentially greater than for the group overall.

John Deere's **return on investment** on the Global IT group's transformation is **estimated to be greater than 100 percent**.

In-Depth:

Truly successful Agile transformations don't have a finish line. That's why they call it a journey of continuous improvement.

Still, just two years into this implementation, John Deere's Global IT group is clearly well down that path. The results are as indisputable as they are impressive.

“When you look at a product area and you see a 1,000 percent improvement can’t help but think they got the baseline wrong,” says Global IT Vice President Ganesh Jayaram.

But, digging deeper, the improvement is real.



Take the productivity gains seen from the teams with Order Management. Jayaram says these teams were chosen for the AOM’s pilot project because it was “the most complicated, had the most dependencies, and had tentacles throughout the organization.” He believed that if Scrum, Scrum@Scale, and the AOM worked for Order Management, other teams couldn’t question if it would work for them.

Metrics show just how successful the pilot was:

- The number of **Functions/Features Delivered per Sprint** has **increased by more than 10X**
- The **number of Deploys** has **improved by more than 15X**

Both results are exponentially greater than the 125 percent increase target set for the transformation.

While the Order Management results are leading the way, results from other business capability areas inside the Global IT group are closely following.

Take the ERP-heavy environment of Manufacturing Operations. Here, Edgin notes, thanks to the Agile transformation and the modernization of the technology stack, “this year we’ve delivered an order of magnitude more value and bottom-line impact to John Deere in the ERP space than in any previous year.”

He adds that “Every quality measure has improved. We’re delivering things at speeds previously not thought possible. And we’re doing it with fewer people.” Other Manufacturing Operations results include:

- **Time to Market:** Reduced by 87 percent
- **Deploys:** Increased by 400 percent
- **Features/Functions Delivered per Sprint:** Has nearly tripled

“
We’ve delivered an order of magnitude more value and bottom-line impact to John Deere in the ERP space than in any previous year.
– Josh Edgin, John Deere Global IT Transformation Lead
 ”

8.1

Global IT Group Overall Results

Across the board, Deere’s Global IT Agile transformation has met or exceeded every initial goal set by senior leadership. Even when you combine results from both more mature teams and those that have just left the Foundry.

The targets that leadership set were to be reached within six months after completing immersion, but John Deere is seeing continued progress led by the business capability areas to achieve even higher results with the ongoing guidance of embedded change leaders such as Scrum Masters and business capability Agile coaches.

- **Output:** Has **increased by 165 percent**, exceeding the initial goal of 125 percent
- **Time to Market:** Has been **reduced by 63 percent** — leadership initially sought a 40 percent reduction
- **Engineering Ratio:** When looking at the complete organizational structure of Scrum Masters, Product Owners, Agile Coaches, Engineering Managers, UX Professionals, and team members, leadership set a target of 75% with “fingers on keyboards” delivering value through engineering. **This ratio now stands at 77.7 percent**

- **Cost Efficiency:** Leadership wanted to reduce the labor costs of the group by **20 percent**. They have achieved this goal through insourcing and strategic hiring—even with the addition of Scrum and Agile roles
- **Employee NPS (eNPS):** Employee Net Promoter Score, or eNPS, is a reflection of team health. The Global IT group began with a 42-point baseline. A score above 50 is considered excellent. **The group now has a score of 65, greater than the 20-point improvement targeted by leadership.**

8.2

Return on Investment and Impact on the Bottom Line



Agile transformations are an investment, in people, culture, productivity, innovation, and value delivery. Like any investment, transformations must deliver a positive return to be judged a success.

Deere’s ROI on the Global IT group’s transformation is estimated to be greater than 100 percent.

Successful Agile transformations also make a material impact on their company’s bottom line. Financially, 2021 was a banner year for John Deere. The company generated nearly \$6 billion in annual net income — far more than its previous record. So, it takes a lot to materially impact the company’s bottom line.

Both Global IT Transformation Lead Josh Edgin and Global IT Vice President Ganesh Jayaram believe the AOM has indeed helped move the financial needle at Deere.

“The metrics we track show very clearly the answer is yes,” says Jayaram.

Edgin states, “We’re helping the company achieve our smart industrial aspirations by improving how we serve our customers and boosting productivity.” He adds that the AOM allows the group to “innovate and deliver high quality, secure solutions at a much faster pace to meet and exceed our customer needs.”

09

Agile in Action: Supply Chain Solutions Amid Disruptions

Section Summary:

John Deere used Scrum and Scrum@Scale to help successfully navigate the challenges caused by a global pandemic and major supply chain disruptions. Additional results for the Supply Chain Solutions teams include:

- **Cycle Time: Improved by 79 percent**
- **Time to Market: Reduced by 66 percent**
- **Functions/Features Delivered per Sprint: Improved by 448 percent**
- **Deploys: Increased by 567 percent**
- **Overall Costs: Reduced by 20 percent**
- **Team eNPS Score: Improved to 60** (anything over 50 is considered excellent)

In-Depth:

A global leader with more than 25 brands, John Deere relies on a complex supply chain and efficient logistics to ensure production and delivery go as planned.

More than 10,000 parts are needed to assemble just one of John Deere’s award-winning X9 combines — twice the number of components needed to build a new car.

Modern combines, just like modern farming, also require far more technology than you likely think.

Sensors, antennas, and motherboards are now just as critical as tires, treads, and tines. Of course, John Deere makes far more than combines. Its iconic logo appears on everything from tillers and tractors to marine engines, motor graders, and the John Deere Gator utility vehicle. In all, the company manufactures more than 100 distinct lines of equipment.

Each product relies on efficient and effective supply chain management — from procurement and sourcing to cost control, shipping, customs, and final delivery.

Overall, John Deere depends on a complex network of thousands of suppliers from around the globe to build industry-leading John Deere products.

Coordinating and collaborating with that network through digital solutions largely falls to the company's Supply Chain Solutions teams and Karen Powers, the Digital Product Manager for Supply Chain Management and Worldwide Logistics at John Deere.



“We have responsibility for every shipment around the world,” she explains, “from any supplier to any factory, to any component operation in between, and for the end shipment of the completed good to the dealer.” To accomplish all of this, Powers’ team also works with aspects of the company's global trade including imports, exports, customs, documentation, and duties.

It’s a mammoth undertaking even in the best of times. And 2020 and 2021 were hardly the best of times.

“Looking back at the challenges we had to overcome in the last 18 months, I can’t fathom trying to do that without being this Agile.”

– Karen Powers, Digital Product Manager for Supply Chain Management and Worldwide Logistics, John Deere.

But John Deere’s Supply Chain Solutions teams were more than up to the task. They successfully used Scrum as a team framework to increase throughput and Scrum@Scale as an organizational framework to optimize alignment and value delivery. Together they helped Supply Chain Solutions navigate the challenges caused by a global pandemic and major supply chain disruptions.

John Deere didn’t just survive these complex times, the company thrived. At the end of November 2021, the company announced record profits.

Jay Strief, the Group Engineering Manager of Supply Chain Solutions, connects this success in part to managing through supply chain issues and puts it in personal terms. “The awesome story here is the change in the culture; innovation, risk-taking, and many clear examples of teams stepping out of their comfort zone to deliver new value.” All of this, he adds, “was made possible through our digital transformation.”

9.1

Why Supply Chain Solutions Went Agile

Powers has been a leader in the information technology space at John Deere for most of her two-decade career.

She helmed the company’s Business Process Integration organization and an ERP implementation for the company’s Construction & Forestry Division. Powers has also led John Deere’s global analytics organization and a variety of technical teams within finance and manufacturing. She is a master of the “classic” ways of working.

When asked if there’s anything Powers misses about those pre-Agile days she quickly answers “no,” before adding, “looking back at the challenges we had to overcome in the last 18 months, I can’t fathom trying to do that without being this Agile.”

Traditional supply chain management tactics had long served John Deere well. After all, it’s impossible to grow into a Fortune 100 company with a large global footprint without efficiently coordinating your network of suppliers and deliveries.

But, as a company, John Deere understands that good enough today may not work tomorrow. Powers and her teams believed the traditional approach wouldn’t be fast enough or flexible enough to keep up with the rate of innovation and business demands for digital solutions from the global supply chain organization.

Powers says procurement of digital solutions could take months to materialize – or longer. The needs of the business line making the request often changed during that time. What was delivered was what they originally asked for but not always what they now knew they needed. It was clear that John Deere needed to adapt to continue to support customers with growing technology needs and increasing expectations for efficiency.

Supply Chain Solutions needed to move faster and more efficiently to help John Deere continue to be an industry leader. So, they started to wonder, “How do we eliminate as many handoffs as possible? How do we streamline this process? How do we better interact with the customer or internal partners?” And Powers asked herself, “How do we ensure we have the right skills and the right talent to be able to respond faster?”

Innovation is one of John Deere’s core values and the company prides itself on creative problem solving. This is part of the DNA of the company and its culture. When Powers and her team learned about the Agile Operating Model (AOM) — a transformation strategy that had been introduced to modernize the John Deere Global IT group — and the collaboration with Scrum Inc. they pushed to be included in the second wave of the transformation.

In early 2020, while still in the immersion phase of their training, Supply Chain Solutions was called on to support the Global Supply Management organization dealing with the volatility, uncertainty, complexity, and ambiguity (V.U.C.A.) that has now become the norm for supply chains worldwide.

9.2

Overcoming V.U.C.A.: COVID-19 and Supply Chain Disruptions

Designated as an essential business — John Deere has continued operating and building products that help build and maintain critical infrastructure and feed the planet — throughout the pandemic.

The challenge of keeping all of John Deere’s assembly lines running would be immense. But as Powers notes, “John Deere always rises to the challenge.”

At this point, John Deere’s Supply Chain Solution teams had effectively implemented both Scrum and Scrum@Scale. Powers says both frameworks helped Supply Chain Solutions live up to its name.

No longer slowed by the overly burdensome and bureaucratic approach, the teams quickly pivoted from a primarily strategic focus to one that balanced both the tactical and strategic needs required during the pandemic.

Working in two-week Sprints allowed the teams to replan and reprioritize faster. They pivoted to overcome new pain points or the constantly changing conditions on the ground. John Deere’s Supply Chain Solutions teams have always had strong and reliable analytics and could see potential bottlenecks in their network. When paired with Scrum and Scrum@Scale, these teams now had the flexibility to act to counter the bottlenecks before they choked off critical parts.

“With global supply chain risks impacting us and our global supply base, the timing of the AOM transformation could not have been better as we have built advanced software engineering skills on supply chain teams which have been instrumental in delivering projects that are critical to the bottom line.”

– Jay Strief, Goup Engineering Manager, John Deere Supply Chain Solutions

Perhaps the most important change, however, came from the stronger alignment and team empowerment that both Scrum and Scrum@Scale helped build.

In the old ways of working, Supply Chain Solutions teams would often be told to undertake a predetermined solution by buyers and supply base managers, limiting the opportunity for Supply Chain Solution team members to share their expertise.

The Agile mindset Scrum and Scrum@Scale bring means those who do the work, and know it best, are free to figure out the most effective way to get it done. “To me, that was the big game-changer,” explains Powers, “because you have that collective brainpower, the folks who know the data and know the ins and outs that can provide things the business didn’t even dream of.”

Take the example of the shortage of materials brought on by the pandemic. Within their ferrous components commodity group, the supply chain analytics and sourcing teams took a new approach to manage cost and risk. John Deere leveraged its bill of materials to generate greater visibility into everything it purchased throughout its supply chain. John Deere used a tier taxonomy to indicate the difference between a completed component (Tier 1) and the pieces needed to make it (Tier 2). Heightened visibility into these different tiers allowed the company to creatively overcome bottlenecks before problems arose. Thus, better managing cost and risk.

“While the initial scope started as a single commodity, additional opportunities quickly came into view as the analytics group developed comprehensive views of our total spend by category,” says Powers. “The evolution of the tiered spend project was a great illustration of Agile in action. The iterative development and ongoing connection between category managers and analytics team members ensured that the end result was useful for a broad group of internal teams.”

The team’s solution to 2021’s worldwide microchip shortage was even more creative.

As Powers explains, Supply Chain Solutions knew the shortage could detrimentally affect their businesses because “if the suppliers can’t get the chips, they can’t make the boards and we can’t put them into machines.”

So, Supply Chain Solutions asked their network how they could help suppliers secure the microchips directly. They assigned a few team members to create automation scripts that scoured the internet for microchips that would meet their specific needs and when they would be available. This new system helped supplement their suppliers.

All this, Powers explains, came with just one caveat for their suppliers, “all the chips John Deere helped secure would be sold back to us on a completed board.”

Again, John Deere’s lines kept running. That’s something other major manufacturers could not say. “Obviously we’re facing the same challenges other companies are,” explains Powers, “the difference is our ability to step out and do things we normally don’t do to help our suppliers. This, in turn, helps us secure what we need.”

Same team, new operating model and a new mindset, and the “ability to successfully operate in any situation.” That is what the Agile Operating Model, Scrum, and Scrum@Scale delivered for John Deere’s Global IT organization.

Strief puts it this way: “The digitalization of our supply chain business is not just about new technology, it is transformational in terms of new business value we are delivering. Along the way, we have delivered higher job satisfaction for our software engineers and continue to invest in developing cutting-edge skills in our people.”

Structured to Deliver Strategic and Tactical Goals



As we know, 2020 and 2021 were some of the most challenging years supply chain professionals had faced in the modern era. Just delivering tactical goals could be a major accomplishment given the level of V.U.C.A. the function faced.

The ingenuity and dedication of John Deere’s Supply Chain Solutions team members, and their use of Scrum and Scrum@Scale, meant they could deliver both the tactical and strategic.

Along with their Scrum training, Supply Chain Solutions Agile journey began with two significant structural changes which helped the teams deliver beneficial outcomes.

As Powers explains, the first such change evolved how the unit was led. “We took what use to be a single management position and broke it out into two roles with different, more focused accountabilities.”

One role, the business digital product lead, focuses on the business problems the unit was helping to solve as well as examine ways technology can help drive those desired outcomes. This is Powers’ role.

The second role, held by Strief, focuses on ensuring teams have the right capabilities with digital skills, technical acumen, and depth of experience to innovate and deliver successfully and rapidly.

This new leadership structure ensures both Powers and Strief are laser-focused on their specific areas of expertise. They have clear accountabilities, know what each is responsible for, and allow for cleaner lines of communication and minimal bureaucratic hurdles. Powers believes that this split structure, “is what really makes this model work.”

The second significant structural change involved the teams themselves.

“In the past, teams were structured around an application or specific technology,” says Powers, “so a shift from a strategic project to a tactical need could slow that strategic project down significantly.”

Powers says, “We started really looking at our applications and processes,” in new ways. They identified what was obsolete as well as what could be streamlined or grouped together. Supply Chain Solutions then completely revamped their product taxonomy around these newly identified value streams and restructured their teams accordingly.

Besides being more efficient, Powers notes this new product structure also created, “a stronger sense of empowerment and ownership,” throughout the team — from the product owner to the team members. “That’s their baby and their pride and joy.”

So, they get to really take that to the next level and know they had a real hand in making a positive impact,” versus just checking off a list of requirements and requests.

The teams also changed how they worked.

In Scrum, teams break large work into smaller increments. This, says Powers, along with a well-prioritized backlog meant “the teams were able to move from the tactical to the strategic without losing momentum.”

The net result of these changes in structure and process, combined with John Deere’s strong analytics, is clear; John Deere’s lines kept running — through the pandemic, supply bottlenecks, and shortages.

At the same time, the Supply Chain Solutions teams were able to deliver multiple award-winning strategic initiatives that helped the company control or recoup costs and boost efficiency. These included:

- Modernizing the ‘Cost Central’ internal application that is a hub for material cost management throughout the company. The upgrades included increased its ease of use, visibility of data like expected cost, and an overall improvement in user experience and engagement.
- A strategic initiative that leveraged analytics and the increased visibility spurred by John Deere’s Agile transformation for digital products that **allowed the company to recoup some\$20 million in duty drawbacks.**

- A strategic initiative that combined machine learning and analytics to increase leverage buying power and cost control by creating visibility into parts with similar dimensions, components, performance, and material characteristics but different part numbers.

9.4

Additional Results and Metrics

John Deere’s leadership began their Agile transformation by setting ambitious goals. Each represents a level of targeted improvement any company would love to achieve.

Throw in the unprecedented level of complexity and V.U.C.A. that have been the hallmark of supply chains throughout 2020 and 2021 and you might expect that John Deere’s Supply Chain Solutions teams would, at best, come close to achieving them.

Instead, just six months after the end of the immersion phase of their training, Supply Chain Solutions has smashed through those ambitious goals and has achieved far more than anticipated. The data collected by John Deere on five specific areas tell the story best:

- **Cycle Time:** Before John Deere’s Agile transformation, the time it took for Supply Chain Solutions to go from idea to delivery was 54 days. Now it takes just 11 days. **This represents a 79 percent improvement**, far more than the 40 percent targeted by leadership.
- **Time to Market:** Leadership wanted to decrease this by 40 percent. Supply Chain Solutions has **decreased it by 66 percent**, from a baseline of 89 days to 30.
- **Functions/Features Delivered per Sprint:** Supply Chain Solutions was delivering nine functions per sprint before their Agile transformation. Leadership wanted that number to increase by 125 percent. Six months after their immersion phase ended, Supply Chain Solutions is now delivering 49 functions per sprint, **an improvement of 448 percent**.
- **Deploys:** Here leadership targeted a 125 percent increase over the baseline of 10. Instead, Supply Chain Solutions has increased that to 67, **a 567 percent improvement**.
- **Cost Efficiency:** Hiring the right people, with the right skills for the right roles allowed Supply Chain Solutions to eliminate ‘middlemen’ and costly handoffs. This allowed the teams to deliver the above results while **reducing overall costs by 20 percent**.
- **Team eNPS:** Employee Net Promoter Score, or eNPS, is an effective way to measure team happiness and engagement. A score above 50 is considered excellent so leadership set a target score of 50+ for this metric. **Supply Chain Solutions’ current eNPS score is 60.**

To Powers, that last data point personifies their Agile transformation. “Having fun at work and getting things done are not mutually exclusive,” she says, “we went through this journey and people started having fun, and we’re seeing the difference in the results.”

9.5

Conclusion

At the start of their Agile journey, many questioned if it would work in the structured and intertwined environment. “Lots of people doubted that Agile would work here. That you could do an Agile transformation in Supply Chain Solutions.”

Powers freely admits that she was one of those doubters.

Then, she had her “a-ha” moment.

“Suddenly I saw how it absolutely applies to everything you do,” no matter how complex or intertwined. She admits that “It may take a little blind faith to start your Agile journey,” before adding, “the pieces will make sense. The teams will deliver more, you’ll accomplish more, and everybody will love what they’re doing.”

That, she says, is the game-changer. For Supply Chain Solutions, Agile allows them to adapt while the game itself keeps changing.

10

Future of Scrum, Scrum@Scale, and the Agile Operating Model at John Deere

In 2021, the use of Scrum@Scale throughout John Deere’s Global IT group represented one of the largest such implementations in the world.

The success of the AOM built on Scrum and Scrum@Scale as well as DevOps, Organization Design and a modernized technology stack is undeniable.

The group’s Scrum Teams are happier, more empowered, and more engaged. As Amy Willard notes, “We can deliver functionality that our customers love faster than ever before.” Rework is down. Quality is up.



“The verdict is in,” says Josh Edgin - The AOM was clearly “the right thing to do.”

Successful implementations are known to spread organically throughout an organization. Well beyond the group that launched the transformation. Edgin says this has already begun at John Deere.

“One of our Agile coaches was asked to go down to the factory floor and work with one of the factory teams. They had tremendous success.”

Global IT Vice President Ganesh Jayaram sees “The fact that Agile has made it into the vernacular of the broader company,” as one of his favorite signs of success.

Research and development, manufacturing, human resources, are all areas where he believes the AOM can help drive beneficial outcomes. “You can transform any function,” says Jayaram, “You have a backlog, you prioritize, you become customer-centric.” That, he says, would be the AOM’s biggest win.

As a company, John Deere’s higher purpose is clear: We run so life can leap forward. The Global IT group is positioned to help achieve that purpose for decades to come.

Update: On May 31st, 2022, Ganesh Jayaram was appointed the Chief Information Officer at John Deere.