How Volvo CE removed silos between teams

Leadership and change management aspects of the Volvo CE end-to-end PLM program

Introduction: Volvo CE implemented Windchill to reduce the cost and complexity of legacy systems

Headquartered in Gothenburg, Sweden, Volvo Construction Equipment (CE) is a leading international manufacturer of premium construction equipment. Leveraging more than 180 years of construction expertise and the knowledge of over 14,000 employees, it supplies products and services to more than 180 countries around the world. With innovation at the heart of its strategy and culture, Volvo CE provides the right machines and solutions for any construction job to ensure customer success.

Ever-changing market conditions, shorter product lifecycles, and increasing product complexity are requiring industrial organizations like Volvo CE to change. Companies are adapting by creating new business models, globalizing operations through decentralized production, and leveraging technologies like automation and connectivity to enable customized products and smart services. To realize key business capabilities and secure

long-term growth, Volvo CE set out to define a vision for digital transformation.

Like many companies with a long history, mergers and acquisitions have impacted Volvo CE's product and service portfolio. A complicated and costly IT landscape—based on no less than four different product data management (PDM) systems—emerged over the last four decades. As a consequence, a significant part of the investment capacity went to keeping the old systems running. Little or no investment could be put towards actually improving ways of working.

Volvo CE needed a unified product lifecycle management (PLM) system. They chose to leverage PTC's Windchill, a comprehensive PLM solution for data governance and traceability, providing an authoritative source of truth across engineering, operations, suppliers, and customers. By creating a digital thread and consistent product architecture, Volvo CE would enable cross-functional teams to manage hardware and software complexity in one place.

The challenge: New ways of working require change management across the whole organization

Implementing a unified PLM system has organization-wide impacts. It would require changing ways of working and behaviors across the entire product development value flow.

Leading successful change management across a large organization is no small task. Throughout Volvo CE there are a countless number of ongoing projects, production lines, customer support cases, sales, and more. Teams are intensely focused on meeting their own KPIs. The team in charge of the new PLM had to find a way to implement things without disturbing the business.

And it's not just an issue of disruption—change management requires shifting the wills and habits of people. It involves building the right knowledge and skills so they can adapt to new ways of working. Adding to these challenges, the team had make do with limited resources, receiving less than 20% of the budget they forecasted was necessary to adopt PLM throughout Volvo CE.

To do this, they needed to create straightforward "as-is" and "to-be" pictures of value creation in collaboration with the teams on the ground floor. They also needed support not only from key users but frontline workers and leaders across the organization as well.

The solution: Create "pull" from the people and the organization

To drive change from the bottom up, the team introduced the concept of "pull." "Pull" describes when people in relevant parts of the organization want something from the team leading change. In this case, Volvo CE needed to create "pull" for a new PLM solution and more modern ways of working.

In order to create pull, the Strategy, Architecture and Systems team needed to define the vision in collaboration with key stakeholders and take an

agile approach to change management. Working with both frontline workers and leadership from sales, finance, operations, service, marketing, and more, they planned to identify local needs and pain points in order to define the global picture. To enable agility, these teams and stakeholders would meet periodically to align on progress.

How they did it, part 1: Defining the vision and involving teams in the journey

Volvo CE launched their Acceleration Workshop to develop and align on the vision. It was the first of many recurring meetings with cross-functional teams. More than 60 people across sales, marketing, IT, manufacturing, aftermarket services, and more attended the workshop. All employee levels were involved in developing a strategy and value flow, from senior vice presidents to operational experts.

The workshop identified several key outcomes that were used throughout the execution. Volvo CE would create more value in each site by empowering people, processes, methodologies, and tools to remove manual handovers and drive faster time to market, higher quality, and lower costs. By using a single source of product data along the entire product lifecycle, all work done would add value and collective knowledge, improving efficiency at every stage. Volvo CE also anticipated improving customer satisfaction and increasing quality through fewer mistakes caused by manual handovers and data duplication. And finally, establishing a product-driven digital thread would lay the foundation for becoming a service-oriented provider.

To ground the vision in specific capabilities, the team established an E2E PLM "house" that was a tactical landscape of all the building blocks

of the program. This "house" described the PLM fundamentals that would eventually enable end-to-end product and service documentation and model-driven development. The E2E PLM house helped visualize the "as-is" value flows versus the "to-be" value flows, painting a clear picture of realistic benefits to be realized over a specific period of time, as well as the impacted organizations.

Much of the E2E PLM work built upon PTC's Value-Ready Deployment (VRD) methodology. This out-of-the-box deployment of Windchill is a preconfigured, flexible configuration based on 25 years of PLM best practices. In the extensive preparation work, the team took the lead in creating prototypes and solutions that could be shown to stakeholders using the Value-Ready approach. When people saw the solution in front of them, the PLM team gained their trust and the pull became a reality.
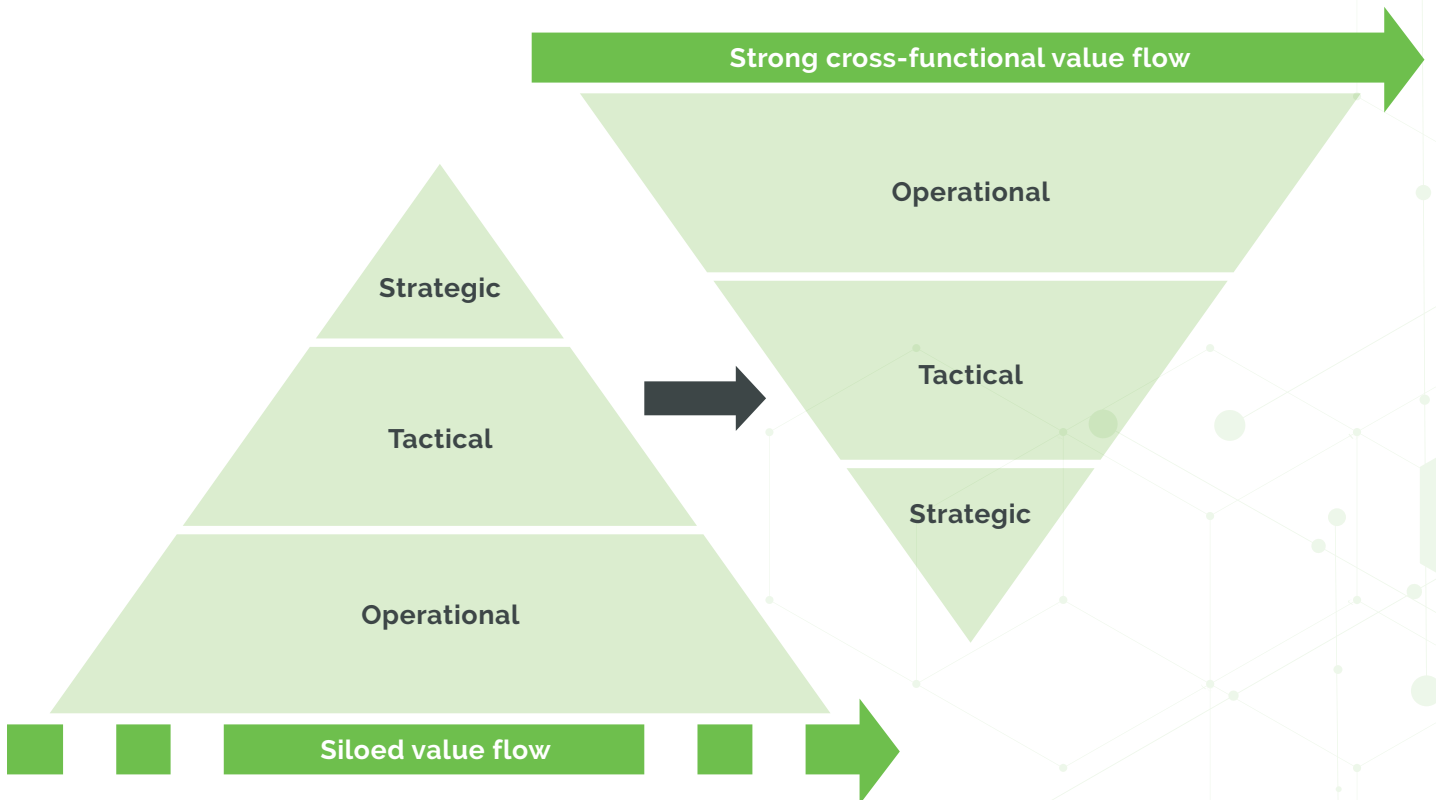
How they did it, part 2: Volvo CE established agility on a program level using a "viral" approach

The Acceleration Workshop got the PLM program started, but the leadership team needed a way to constantly nurture the program and maneuver

across both technical and change management obstacles. To accomplish this, weekly Pulse meetings focused on the value flow helped define team-level goals and align implementation procedures.

Typically, companies try to establish governance and processes and then harmonize teams around it. But that doesn't always work. Volvo CE took a bottom-up approach by having each community help define the vision and value in making the change.

Lean principles encouraged change from the bottom up. The PLM Program team leveraged the "ADKAR" model as a framework for creating pull through agile change management. ADKAR stands for "Awareness, Desire, Knowledge, Ability, and Reinforcement." In the framework, work is

done in sprints with a value focus to ensure it aligns to the overall vision. Follow-up meetings are conducted weekly, aligning all levels, and addressing any roadblocks for product owners. In more mature, agile organizations, follow-up meetings and tactical planning can be done on a quarterly basis.

As they rolled out the solution, early adopters on the ground floor acted as change agents throughout the organization. These frontline workers were trained first, and then drove change management by helping other team members learn and adopt the solution. This created a "viral" approach to training and adoption, where change spread naturally throughout the organization.

Conclusion: Summarizing the most important change enablers
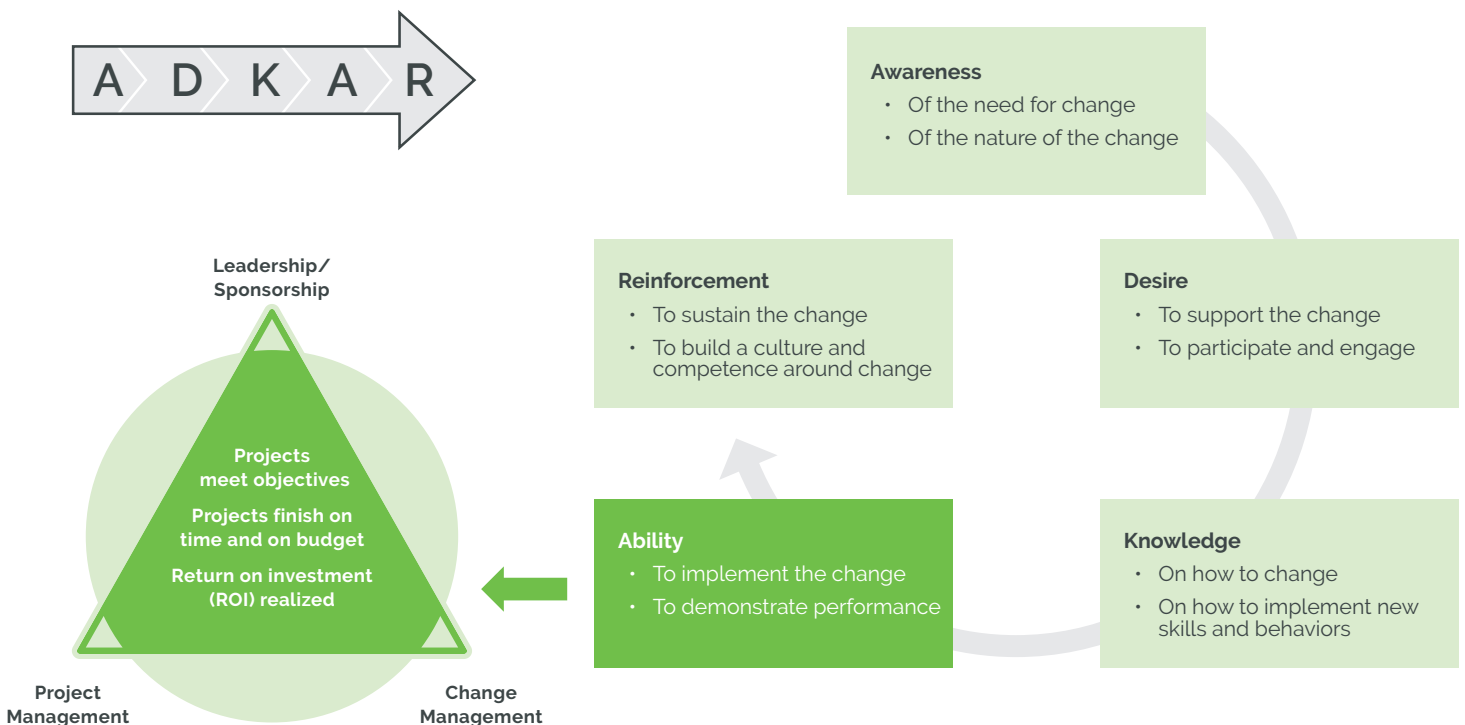
The team successfully created pull across the organization and led agile deployment. As a result, Windchill now helps harmonize processes across factories and improves handovers, product structures and information, and more. Today, Volvo CE has trained nearly 3000 users and successfully implemented Windchill in 15 sites. They fully upgraded the first three legacy systems to Windchill and made progress toward the fourth, allowing them to start taking advantage of improvements like digital assembly, smart diagrams, and more.

Below Volvo CE PLM team summarized the most important points from a leadership perspective:

The value-stream-centric approach and the tactical plan to capture value

Have a clear view of what value should be captured and enabled in each step and know the boundaries. Put a program team behind the delivery who facilitate the change over time, moving from site to site and platform to platform.

Awareness
- Of the need for change
- Of the nature of the change

Desire
- To support the change
- To participate and engage

Knowledge
- On how to change
- On how to implement new skills and behaviors

Ability
- To implement the change
- To demonstrate performance

Reinforcement
- To sustain the change
- To build a culture and competence around change

Leadership/Sponsorship

Projects meet objectives

Projects finish on time and on budget

Return on investment (ROI) realized

Project Management

Change Management

Knowing how users were impacted, in detail

With the PTC VRD approach, Volvo CE was able to develop the use cases in collaboration with key users across sites in a very hands-on manner.

Weekly management of scope where risk could be judged from all sides

Manage the scope through Pulse meetings with the involvement of the program team. Ensure global scope and change management aspects are well maintained.

Managing the soft aspects of change

Similar to the Pulse meetings, conduct weekly meetings to discuss the "soft" and team aspects of change. In these meetings the team often discusses suitable change agents and how we could onboard leaders and cross-functional teams. When needed, open invitation to join and discuss team matters that are best resolved behind closed doors.

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