



Case study:

Maersk Line



Summary

With IT projects delivering too slowly, at a high cost and failing to provide desperately needed innovation, business stakeholders and IT providers within Maersk Line were frustrated.

They had tried various Agile methods, which had proved disappointing. Now, Maersk Line was clear that change was imperative, but those working there were wary of yet another 'Scrum in a box' solution.

Emergn worked with Maersk Line to analyze exactly what was causing the difficulties. From here, we developed a 'starter kit' of 8 key changes that would deliver results. Each step was supported by a range of tools, techniques and practices, but the teams were free to select and adapt these as needed.

They were able to decide 'how' they would work with such confidence because Maersk Line and Emergn developed a full education program that meant everyone shared an in-depth understanding of the principles – what we call the 'why' behind every tool.

Using this understanding and a bespoke Lean-Agile approach designed to deal with the challenges of scale, Maersk Line transformed their IT results and created a new, positive relationship between IT and the business.

Highlights:

5-10 times ROI increase

Time until benefits are realized
reduced by half

Features delivered and released twice
as quickly

More enhancements delivered

Total costs reduced by 3.6% despite
number of releases doubling and
increased productivity from suppliers

Success on business critical projects

Higher motivation, increased learning
and improved relationships

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The challenge

Maersk Line is the world's largest shipping company. It operates over 600 ships and 2.2 million containers and takes 23,000 bookings every day. With a 14.5% world market share, a Maersk vessel arrives in a port every 15 minutes. The banana you ate this morning, probably arrived on a Maersk ship.

Like many other companies, Maersk relies on its IT to deliver strategic initiatives in product, customer service and operational efficiency. Major projects at the time included a new global customer service booking system, upgrades to its enterprise services architecture and new customer facing systems reflecting Maersk's desire to lead through innovation. This meant IT was under exceptional pressure, with demand seemingly endlessly outstripping supply.

The bad news was that IT was not managing to keep up with expectations. In 2009/10 it took an average of 150 days for Maersk Line to get value out of its development pipeline. A quarter of all requirements took over a year to develop, while any meaningful change would take at least two years to deliver.

In other words, the company was moving too slowly – which also meant it was proving very costly to deliver IT. Nor were they really sure that they were delivering the right thing. The department felt pulled in competing directions by numerous stakeholders.

Sometimes the priorities produced an actual conflict – between quality and cost, for example, prototypes moved into production and being used by tens of thousands of users.

IT had somehow become an 'order taker' for the rest of the company. No matter how hard they tried to fulfill delivery on time and on budget, the rest of the business seemed to perceive them as slow, expensive and lacking in innovation. Everyone was frustrated.

There were significant problems that seemed to block any change:

- technical – a high level of dependency on legacy systems
- structural – significant off-shore and outsourced IT often caused priority conflicts
- organizational – budget and approvals processes could add months of time
- cultural – the teams had tried different ways of working before, including Agile and Scrum, but the changes had never stuck and it was making no meaningful difference to how long it took to deliver the change needed by customers.

The real challenge... a different approach

Many organizations decide to 'transform'. They hire consultants and do lots of research on methods and best practices. Once the perfect new approach has been selected, everyone is trained; new process diagrams go up on every wall and lots of presentations are given.

Nothing changes.

Two years later the organization starts the entire process over again.

Maersk Line was absolutely determined that this would not be the case for them this time. Four years before they had applied Six Sigma. Two years before they had undergone an 'Agile transformation'. Neither had delivered the change they needed.

Emergn was equally determined that this transformation would be different. We laid out what we felt to be the fundamental principle on which we could build success.

Focus on *why* not just the *how*.

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Maersk Line had already tried Scrum and various other methods and concluded that they didn't work. They were applying the 'how', but without really appreciating why they were needed or which bits could be adapted, which jettisoned, and which other tools might enhance the process.

If you tell someone to follow instructions, but don't tell them why, sooner or later they'll get bored and stop. Methods imposed from the outside simply don't have the sticking power of ones we select for ourselves.

That sounds obvious, but actually it requires a very different mindset.

Rather than introducing some new tools or practices, it meant we wanted to spend time understanding why change was needed and what had to change.

There would be no 'solution delivery'. Instead we would help Maersk Line build, adopt and adapt the tools that they decided would work for their particular, unique context.

We put education at the heart of our work with Maersk, ensuring that everyone who would work with it understood why it was important to prioritize, optimize flow, deliver early and often and gather feedback and what principles underpinned these ideas. This, we believed was more important than any particular toolset.

It shouldn't matter whether a team chooses Kanban or Scrum or something totally different. If everyone shared the same understanding of why, then each team could pick the how that suited their context – because two Maersk Line IT teams working on different projects would still have different needs.

Our aim was not to sell a solution for a month or even a year, but to ensure that Maersk Line could continually adapt and build on their processes and methods to transform themselves.

We think that the results have proved us right.

The results

Value

Improved cycle time value

The average delivery period to benefits realization has reduced from 30 weeks to 15 weeks.

Flow

Shorter cycle times

The average time from idea to release has been reduced from 208 days to 104 days.

Quality

More enhancements for users

The throughput of enhancements has increased by 15%.

Project results in detail:

Centralized booking system project

- Turnaround time reduced from 208 to 108 days
- ROI increased from \$4.1 (average across portfolio) to \$26.3 per \$
- 8.8% reduction in number of defects
- Required patches down by 85%
- Delays reduced by 80%

SAP project

- Turnaround time reduced from 168 to 60 days
- ROI increased from \$4.1 (average across portfolio) to \$44.8 per \$

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The steps to change

The initial exercise involved understanding what was going on across the whole IT 'chain'. Rather than getting bogged down in technical issues, we looked at issues around budgeting, approvals, prioritization and customer service. With this understanding we could appreciate what the key issues were for all stakeholders and so what changes could be made to start delivering against the most urgent problems.

We wanted results that mattered.

What mattered most: 8 key imperatives

1. Get to initial prioritization faster.
2. Improve prioritization using economics.
3. Pull work from a dynamic prioritized list.
4. Reduce the size of requirements.
5. Get to the point of writing code quickly.
6. Actively manage the work in progress.
7. Enable a smooth sustainable flow of work.
8. Enable faster feedback cycles.

This was what we called our 'starter kit'. If we could do all 8 things then we could improve the amount of value that was being delivered; we could do it faster, and we could ensure it was of higher quality.

You will also notice that every imperative produced behaviors that reinforced the others. Too often organizations change one thing – but everything else tries to snap the change back to the status quo. Here, every imperative fed the next – they drove a focus on value, faster development and feedback. Or to put it another way: value, flow and quality.

1 Initial prioritization – triage

Every new idea that came in was quickly assigned a value.



We hunted for ways to quantify the value, asking questions like what would it cost us to do this a different way, or if this change happened then what effect might that have? Then we made those assumptions visible and shared them. It kept everyone focused on whether features and projects were truly valuable to the company, and how we could test the assumptions behind that value.

2 Economic prioritization – cost of delay

A key element in making the most of the value figures generated in the first step was to decide how time sensitive the work might prove and also what information or learning value it might provide. This is a way to calculate opportunity cost and see the economic impact of slow delivery.

It allows much smarter and faster decision-making. Now Maersk Line could confidently analyze the trade-offs and decide whether it was worth paying more to move faster (using in-house or specialists). Because there was a framework for comparing unlike projects of differing value, time sensitivity and effort, these decisions could be made much more simply – often without needing to appeal to authority.

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3 Pull work from a dynamic prioritized list – CD3

With an understanding of value and cost of delay, all work could be prioritized by cost of delay divided by duration (CD3). This means that work blocks the pipeline for less time and delivers more value sooner.

It was also completely transparent. Everyone understood what would be prioritized and why. The whole relationship between 'the business' and IT began to shift. Rather than arguing over 'why is my project late?', the conversation became 'what would make my project more valuable?'

4 Reduce the size of requirements – batching

Our analysis showed that related requirements were normally batched into big groups of activity and released quarterly throughout the year. This overloaded the development teams, stretching their capacity and focus across too many tasks.

The answer was simple – reduce the batch size and limit WIP to start flowing single requirements through the development process. This made a dramatic improvement to speed.

5 Get to the point of writing code quickly – less analysis, more code

You can argue for weeks about what will work – or you can build it and find out. With this basic principle in mind, we cut analysis down to the absolute fundamentals and instead focused on creating something, from prototype to spike, which would help crystallize ideas and provide feedback.

6 Actively manage the work in progress – WIP tools

With smaller batches of work, it became easier to visualize and track what was in progress. The team could see where bottlenecks were occurring, do something about them and then work to stop them recurring. The teams had a variety of tools and techniques to use. Whether they were using task boards, kanban cards, flow diagrams or Little's Law, the real point was that they had a thorough understanding of why such techniques had been developed and where they were most likely to help.

7 Smooth, sustainable flow of work

The pressure the teams were under and the previous problems had created considerable friction between in-house and contract teams or with off-shore partners. Trust was in very short supply.

Smooth flow requires excellent communication, collaboration and coordination skills. Rather than top-heavy progress reports and status updates, simple 15-minute conference calls acted to coordinate efforts and communicate what was happening. The small batches and WIP limits soon had their effect – because work was being finished and deployed faster, everyone could build on success.

8 Enable faster feedback cycles

Speed is not the goal in itself! A fast development cycle meant the team could check if they were producing the right thing, improve the quality and test out assumptions. In practical terms this meant defining acceptance criteria, demonstrating every week and taking a rigorous approach to defect reduction.



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The process timeline

October 2010 – Emergn begins working with Maersk Line

Understanding the problem: In-depth data analysis of cycle times, requirement numbers, work in progress and work process provided the evidence of what was happening. Serious games workshops and interviews across the business provided a sense of the context, constraints and culture within which development operated.

Looking ahead: Our analysis included forecasting demand and thus likely risks for the next two years, providing a compelling case for change.

Identify targets: We selected the key targets, built a business benefits case and identified the key projects, teams and practices that should be tested to observe results. This was set within a broader plan.

November 2010 – We begin the test

Focus on results: Aim for 90 days cycle time. By selecting a single portfolio to act as a test case we cut down communication overhead and began the granular analysis on what this particular workstream required. This included a 'notorious' project – a win here would be a huge persuasion for change.

Working with teams: Initial work included training in key concepts around value and flow, coaching and beginning measurement to provide data on progress against key goals.

December 2010 to February 2011 – Mobilize and refine

Applying techniques: The teams were now making changes: visualizing work, managing flow and working towards other high impact changes including economic prioritization and batch size reduction.

Managing dependencies: Changes in development meant changes upstream within Maersk Line and with vendors. Negotiations with other process areas begin.

Refining: The teams were making continual improvements using the tools in place. Each small success made further changes (involving other processes) a little easier. The teams began visualizing and refining upstream processes including approvals and funding. Publicizing the business case and cost of delay work began building momentum for change.

March 2011 – Starter kit defined and wider engagement starts

Introduce: New engineering practices and improvements were introduced to automate and shorten cycle time further. Coordination with vendors and upstream process improves with stand-ups and new process. CD3 is introduced, explained with training sessions and implemented.

Consolidate: Weekly prioritization sessions and dynamic lists were now embedded in the process. Task boards, self-organizations and other changes were working well. The results began to impress everyone – feeding further improvements.

Share: The 'starter kit' of 8 key imperatives is formalized and existing teams measure progress on each and share their results. Key improvements are logged and demonstrated.

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April to May 2011 – More data gathered to validate and refine solution

Moving forwards: A second pilot group is selected to provide further data and learning. The new group have unique needs around quality as well as flow and value. These are analyzed and the teams engaged with the ideas.

Implementation: The new teams begin adopting new practices and ideas following specific training and workshops. Results are measured and shared.

Education begins: The VFQ education material is launched with a series of workshops and training days. Maersk Line staff begin using the books for self study and implement activities for work-based learning.

June 2011 onwards – Rollout begins

Rollout! The rollout of the starter pack and supporting education and training, project by project and team by team begins, based around the Business Process Owners. There are different nuances of need and the rollout takes account of this. The 'Sys B' project wants to use cost of delay across all SAP teams, for example, while all 8 key imperatives are introduced into a single team.

May 2012 – Consolidation of learning and growing internal expertise

Education rollout: The VFQ education material is rolled out as book clubs and training sessions to 'champions' who lead the transformation process for their teams.

August 2013 – Proof of progress

Maersk Line champions take the BCS Practitioner Certification in Agile.



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True transformation: education led transformation

“ Culture eats strategy for breakfast. ”

PETER DRUCKER

Emergn's work did not leave Maersk Line with a few tools. It involved a far deeper transformation. People shared the same vocabulary, the same understanding of the problems and the principles of delivering value, improving flow and the essential nature of quality. This was a mindset change – people were aligned over principles, not rules.

Education underpinned the changes that happened at Maersk Line and helped to bring them about. But this is not as simple a statement as it seems. The most common means of delivering education – a short training course – is insufficient to make real and lasting change.

Maersk Line developed a hybrid style of learning:

- a kick-off training
- self-study and work-based learning activities
- fortnightly review sessions (like a book club)
- BCS certification study sessions for Agile 'champions'

There is no clearer sign of the education program's success than the way Maersk Line employees approach their work.

Özlem Yüce, the Agile Transformation Lead at Maersk Line, commented, 'People talk about how they can break ideas down in order to deliver value early and often. Teams talk about how we need to optimize the whole end-to-end value stream, not just their team or department. We talk about how we can increase the speed and coverage of feedback loops, knowing that this is how we improve quality.'



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