Enterprise Scale
Agile Transformation at KPN

- On-time delivery metrics improved by 50%
- Dramatic reduction in software development lead times
- Radical improvements in business – IT alignment

IVAR JACOBSON
INTERNATIONAL

KPN Background & Environment

KPN is the leading telecommunications and ICT service provider in The Netherlands, offering wire-line and wireless telephony, internet and TV to consumers, end-to-end telecommunications and ICT services to business customers. KPN operates a global ICT services company with a market-leading position in the Benelux, offering end-to-end solutions in infrastructure and network-related IT.

ITNL is the internal IT department ensuring the right IT solutions are put in place to support KPN's business and technology strategies. ITNL has 500+ staff based in several locations in the Netherlands. It also uses a large number of outsource suppliers, based in the Netherlands and in offshore locations in India. When KPN wanted to improve the performance of its business critical IT services, it turned to trusted partner Ivar Jacobson International (IJI).
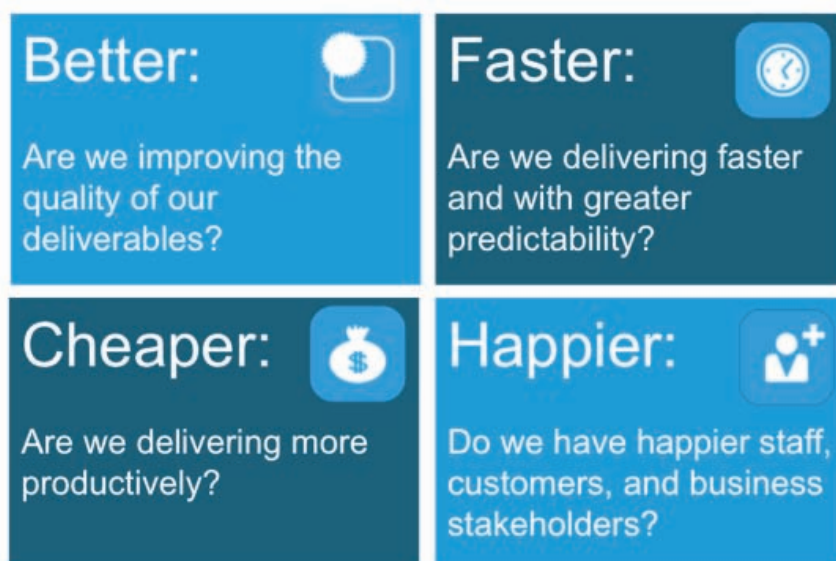
A Driver for Change

In 2008, global management consulting firm McKinsey & Company released their European IT Telecom Benchmark Report. The report put forward a number of recommendations for KPN, many of them centred on increasing application develop-ment efficiency and effectiveness, standardizing end-to-end processes and methods, and driving a culture of continuous improvement. After the report's release, the KPN management team knew they wanted to see change. IJI was selected to help KPN with the visionary transformation of their ITNL business.

The main aims of the engagement were to transform the way the IT function delivers value, improve performance in terms of productivity & predictability, and restore trust in its relationship with the business. Like most businesses in recent times, spend was under tight control and return on investment needed to be clear and measurable.

Achieving Measurable Performance Improvements

In order to transform the organisation it was necessary to change culture & behaviour by introducing new working practices, provide ongoing support to ensure they became properly embedded, and demonstrate that the new behav-iours were working. The new working practices were based on a scalable agile approach including use case driven require-ments management, and iterative, incremental software development. The engagement began with a stakeholder work-shop to understand the business drivers, goals & needs, and set some meaningful improvement targets based on a balanced scorecard: Better, Faster, Cheaper, Happier.

Better: Are we improving the quality of our deliverables?

Faster: Are we delivering faster and with greater predictability?

Cheaper: Are we delivering more productively?

Happier: Do we have happier staff, customers, and business stakeholders?

It was important to achieve a balance of these measures, so that we didn't increase delivery speed whilst sacrificing employee or customer satisfaction, or improve quality whilst lowering productivity. The kick-off workshop enabled us, in collaboration with the customer, to select one to two measures in each category – measures that were both aligned to business goals and relatively easy and low-cost to collect. We created a simple metrics dashboard to capture and publicise the measures so that everyone could see the targets, the current status, and the improvements taking effect. The metrics were captured on a monthly basis which gave us and the customer an instant feedback mechanism on the effectiveness of the approach and how the desired improvements were materializing, allowing us to jointly adjust the approach as required. The resulting measures showed clear improvement trends in all areas, and provided a baseline for continuous improvement.
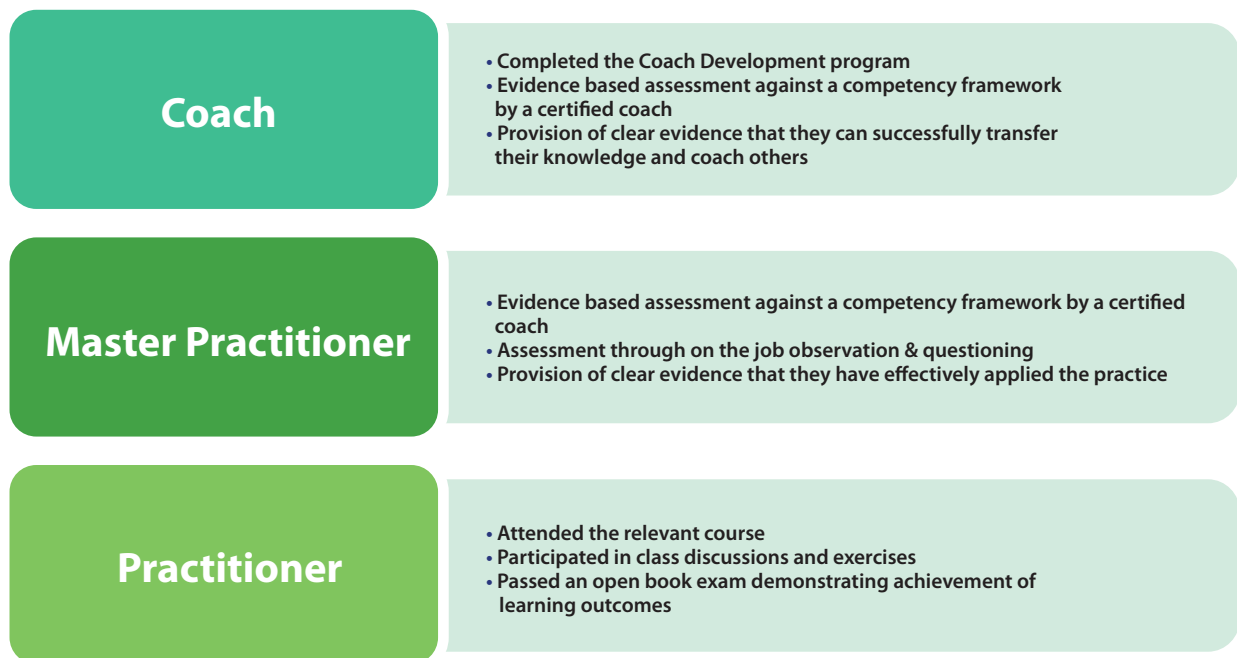
Selecting the Right Practices

To help KPN improve its systems delivery performance and effectiveness, IJI recommended that KPN standardize on an agile development approach based on practices. This would create a standard yet flexible way of working for the teams which would drive consistency and predictability in their software development. This also enabled KPN to manage the change one step at a time, by only changing those practices that needed changing.

A select group of practices were chosen from IJI's essential practices library. These included the use case, iterative and team practices. These practices were blended with new KPN specific practices to create a "starter pack" for new teams and to help facilitate the transformation to the new way of working.

Creating Sustainable Change

The first step of the change was a training programme where all IT staff were trained in new practices. Coaching was then provided to individuals and teams as they began to engage on projects and programmes after the initial training was complete.

A key part of the strategy to achieve lasting change was to train KPN's people to become in-house coaches, which eventually enabled them to become self-sufficient, and less reliant on our external support. We introduced a certification framework so that we could track individual progress based on demonstrated evidence of using the new techniques in the workplace.

Coach	• Completed the Coach Development program • Evidence based assessment against a competency framework by a certified coach • Provision of clear evidence that they can successfully transfer their knowledge and coach others
Master Practitioner	• Evidence based assessment against a competency framework by a certified coach • Assessment through on the job observation & questioning • Provision of clear evidence that they have effectively applied the practice
Practitioner	• Attended the relevant course • Participated in class discussions and exercises • Passed an open book exam demonstrating achievement of learning outcomes

In total, IJI trained 43 teams and 344 practitioners were certified. Practitioners consisted of IT consultants (analysts), designers, architects and project leads. 23 people were selected to become coaches and 11 of them achieved coach level certification – these coaches were released from their everyday activities on a part-time basis so they could coach their colleagues.

Challenges Encountered

Challenge #1: Size & Distribution of Team:

KPN's IT function consisted of 500+ people based in a number of locations, which made organisation change, and the consistent adoption of new best practices difficult. In such an environment, without proper support and guidance, new practices tend to be adopted in ad hoc, inconsistent ways, which often leads to failure and a tendency to blame the new approaches for the failure. This challenge affected everyone, but particularly the practitioners. The solution was to establish coaching hubs in each of the main locations which took responsibility for owning and supporting the roll-out of new practices.

Challenge #2: Outsourcing of Development & Testing:

All software development and testing is outsourced to a number of suppliers. Business requirements, systems architecture and integration functions remain in house. The biggest challenge was getting the suppliers on-board with new ways of working, otherwise the entire programme would have been fruitless. The solution was in two parts: firstly, we helped the customers senior IT leadership to ensure that all suppliers would deliver working, tested software, every iteration; and secondly, we worked with the customer to define a clean, clear order concept that meant that all suppliers could interface seamlessly with IT by picking up well defined pieces of work for delivery 4-8 weeks later.

Challenge #3: Complexity of Systems:

Being a telecoms provider, typical systems are large, interconnected systems of systems, where seemingly small changes at the top involve multiple inter-dependent changes to many smaller systems at a lower level. Simple iterative, or agile, techniques often do not work so straightforwardly in such environments. The solution was to adopt an approach to development that scales to large programmes of work – this was based on use case driven, iterative incremental development, and a project management approach which synchronized multiple project release cycles using release trains.

> "We are continuing to roll-out our new practice based approach to our partners. By developing a consistent and measureable way of working we are witnessing an easier method of analyzing performance and correcting errors earlier in the process which saves us money and time."
>
> **Program Manager**

Benefits Realised

The realised benefits, or return on investment (ROI), for KPN, were both objective and subjective. The key benefits included:

> "By applying the use case essentials practice combined with the discipline of release and iteration scope planning, we have established a truly collaborative relationship with our colleagues from the business. Before this we would have very difficult discussions with the business about scope, and this inevitably resulted in over promising and often under-delivering. Now the debate is transformed; we are constantly discussing the scope of the releases and the next iteration. The business trusts our judgement and our ability to deliver. One of the key benefits has been to reduce the gap between releases, and that means that the business is getting value more often, and we are more able to adjust our direction to react to changing business priorities."
>
> **Program Business Consultant**

Improved relationship between IT and the business:

The previous approach, based on a "waterfall" lifecycle, with declarative requirements, had resulted in release schedules that were too long and lacked sufficient predictability to be acceptable to the business. The new approach, based on use case driven agile development, has enabled the customer to analyse the business requirements, define which scenarios are the highest value to the business, and prioritise them accordingly. Every iteration, the priorities are revised with the business, to identify what is essential, and what can be left to the next or later releases. This means that there are regular deliveries with the highest possible benefit.

Cost & schedule improvements:

IT is now hitting its release milestones with much greater predictability. An agile, iterative approach has enabled the programme to reliably release every 3 months with ad-hoc releases in between for defect fixes and minor updates whilst adhering to cost estimates. This represents a substantial schedule and cost saving compared to previous releases using old ways of working. The iterative approach has also enabled the program to find defects earlier when the cost of fixing is cheaper. Conservative estimates indicate savings of 25-30% for defect detection & resolution

Increased team morale & continuous improvement:
The whole teams' morale has drastically improved, buoyed by the successes of reliable delivery and having the time to think not just of delivery, but also about how things can be made better. There are regular assessments and awareness of what can be done better, and resources allocated to ensure that they are.

The ROI and benefits described above were proven by measuring things that mattered. For example, we measured: release milestone achievement, escaped defects, average team productivity, and customer satisfaction. This was done using the Better, Faster, Cheaper, Happier approach described earlier. These measures were agreed with our business sponsor and key stakeholders at the beginning of the engagement, and reported monthly.

Lessons Learned
Lesson #1: "We're too busy delivering to improve our way of working!":
Typical projects and programmes at KPN were large business critical pieces of development work, so there appeared to be no time or effort available to stop what we're doing and start thinking about how to improve. The solution: set some achievable improvement objectives and get started. The key was build on early successes and not to take on too much change at any point in time. Improvement objectives were incorporated into the normal iterative planning cycle so that making the changes did not require additonal capacity. Achieving the improvement objectives was reviewed along with the delivery objectives at the iteration assessments.

Lesson #2: "When the going gets tough":
When introducing new working practices into an organisation, things will not always go smoothly. Changing peoples behaviours is hard, and sometimes people hit obstacles which they couldn't surmount. When people came up against these obstacles they wanted to blame the new approach and the tendency was to revert back to old ways of working. This was the time to be positive and work out how to overcome the issues, not blame the process. The solution was to work with senior management to reaffirm their commitment to seeing new practices adopted successfully, and provide reward, encouragement and support to the teams who needed it. This was a key moment when things could have gone either way. Seeing the commitment from senior management encouraged the team to see the change through and overcome the issues they were seeing.

Lesson #3: "It's all about team work":
Process and cultural change cannot be done by an individual, so involve the whole team. The initial practices introduced were use cases for requirements management and iterative development & project management – practices which affect most if not all members of the programme team. Left to their own devices, people had a tendency to interpret new working practices in their own way, which did not facilitate working together, and hampered consistent adoption of new practices. We solved this by providing best practice guidance in simple card format, which everyone could quickly, read, learn & put into practice.

> **"We went through a tough period in our adoption of the iterative and use case practices, but now I can categorically say that I could not contemplate changing back to the old way of working. I used to be constantly fire-fighting issues, now we deal with those issues in a much more controlled way, and this enables us to reliably deliver on our promises to the business.**
>
> **As an example of how we are doing, we recently delivered against plan for 10 iterations in a row. I couldn't even have imagined us adhering to that level of performance before we implemented these agile practices. We are a proud user of this way of working and have achieved major improvements on our KPI's; better, cheaper, happier and more efficient."**
>
> **Program Release Manager**

Conclusion

The transformation of KPN's ITNL business has been a challenging but ultimately a highly rewarding journey. Working together with IJI, KPN has restored trust between IT and the business and dramatically improved the efficiency and predictability of systems delivery.

KPN has achieved improvements in performance that are clear and measurable, and enabled sustained adoption of new working practices by building its own in-house coaching communities.

The journey continues.

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About Ivar Jacobson International

IJI is a global services company providing high quality consulting, coaching and training solutions for customers implementing large scale, distributed agile software development. IJI improves the perfor-mance of software development teams by introducing new practices, and removing barriers to their wider adoption.

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