Lean Project Management

How to manage a project with a minimum of overhead

Abstract

The purpose of this whitepaper is to explain how the Lean management principles Toyota developed since the middle of the last century can be applied to make project management more efficient. Is project management an area worth working on?

Regarding project success rates, there is room for improvement. This paper will try to identify the root causes of the high failure rate, explains Lean thinking and determines to what extent this mindset can be applied to project management in order to address the failure modes. By establishing a parallel with the implementation of Quality thinking in many production and service domains of today's world, the study will show how a similar evolution in project management might be an area for substantial savings that could be made fairly quickly.

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1. Management Summary

The purpose of this whitepaper is to explain how the Lean management principles Toyota developed since the middle of the last century can be applied to make project management more efficient. Is project management an area worth working on?

According to a recent study, only one project in four is completed on time and within budget and achieves the expected quality. The same number of projects is aborted midway, and the remaining part – i.e. over half of them all – costs more, takes longer or fails to deliver what the (internal or external) customer expected. So there is room for improvement, especially in a fast-changing world that needs to adjust quickly to ever-changing environments with more and more strategic projects to take care of.

The present paper will first try to identify the root causes of the high failure rate. Then it will explain Lean thinking and determine to what extent this mindset – or rather the philosophy behind the principles developed by Toyota for their production systems – can be applied to project management in order to address the failure modes. The main part of the paper will demonstrate how this can be implemented, building a link to the Lean principles and giving concrete advice as well as highlighting points to watch when setting up a Lean project. Finally, by establishing a parallel with the implementation of Quality thinking in many production and service domains of today's world – where customer satisfaction moved high up on the list of key performance indicators for all top managers – the study will show how a similar evolution in project management might be an area for substantial savings that could be made fairly quickly.

2. Introduction

2.1. The Challenge of Project Management

Many companies fully or partially live in a project world, yet most of them either do not realise it or they simply do not act like project-driven companies.

> A **project** is a temporary endeavour to create a unique product, service or result.

Definition 1: Project (Project Management Institute – PMI)

One reason might be the definition of a 'project' and the interpretation of the term 'unique'. A good example of this is a product design process, where the results (the product) might always be different to some extent but the way to get there (designing it) is quite repetitive. Is this a project or not?

Even if companies realise that they are in a classic project situation, they do not always use the right project management techniques to properly govern it, although these techniques have reached a good level of maturity and are proven to increase the chances of completing a project in time, cost and quality. Why is this the case?

> **Project management** is the application of knowledge, skills, tools and techniques to meet project requirements.
>
> This includes:
>
> • Identifying requirements
>
> • Defining clear and achievable objectives
>
> • Balancing the competing demands for scope, cost, quality and timing
>
> • Adapting the approach to the concerns and expectations of the various stakeholders

Definition 2: Project management (Project Management Institute – PMI)

In fact, according to several studies about the success of project management, more than two out of three projects fail. The root cause for this failure can usually be tracked back to a lack of proper project management, see Section 3.

2.2. Parallels between Project Management and Total Quality Management

In the early to mid-1980s, quality control in any production environment consisted of no more than a few heroic people fighting windmills. At that time, companies did not yet see the benefit in spending money to improve their processes. Prevention was an unknown concept; dedicated inspectors would perform random sample checks at operations known – or rather felt – to be critical. To protect the customer, all key deliverables were finally inspected just before they were sent out, and any defects would be 'reworked' – i.e. corrected using all the tricks of the trade (neither documented nor approved) to make them work.

Operators were not involved in the quality process. When asked about 'quality', their answer would always be: 'Not my job. That's what the Quality guys do ...' If a process repeatedly produced a defect, any remedial action was mainly aimed at the symptom, functioning like a Band-Aid. No analytical tools were used to determine the root cause and eliminate future failures.

The concept of using statistical data to qualify a process mathematically, showing that it either was capable of achieving the specification or not, was yet unknown. Therefore, the Quality and Process Engineering departments (if they existed at all) were in constant firefighting mode to do their best to stay on top of the situation and prevent catastrophes. Nobody logged the defects, which made keeping a trend analysis impossible; nobody cared about continuous improvement. The production processes were neither designed nor optimised to ensure or even enable good quality; the only criterion by which a production supervisor was judged was output. Planning for quality was considered impossible, which meant it was hardly ever tried. The cost of quality was not measured, let alone tracked.

Total Quality Management (TQM), originally a concept refined by some gurus in the US and first applied in Japan as part of the Toyota Production System in 1956, came to Europe in the early 1980s. At first, it was the car manufacturing companies that forced their suppliers to use it in order to reduce the price for purchased parts. It quickly became a must for any supplier. The idea is simple: The cheapest defect is the one you do not produce. Therefore, do not hide the symptoms by sticking Band-Aids on them – find the root cause and eliminate it so that the defect will not occur again.

Companies quickly found that investing in quality assurance was worthwhile. Scrapping fewer parts and eliminating rework yielded a fast payback for the investment made in prevention. And because the process rejected fewer parts, it was cheaper and safer to just scrap them instead of reworking them. Prevention became more important than detection. And suddenly, quality became the responsibility of every single employee. The inspectors disappeared to make room for visual boards in each production line; the reality was no longer masked. Controlling the process by facts – statistical data – was now commonly accepted.

Advanced Product Quality Planning (APQP) provided a framework for the planning of quality. All processes were documented and designed to enable and ensure good products. To be sure that the problem was permanently fixed, you needed to be able to measure it, which meant facts became more important than opinions. The use of statistical analysis tools such as Eight Disciplines (8D), Six Sigma, Design of Experiment (DoE), and Statistical Process Control (SPC) allowed for the development of mathematical models to see if a process was capable. Companies turned to trend analysis to adjust a process before it spun out of control.

Cost of quality has become a high-level key performance indicator that appears on every manager's scorecard in the company. A certification by an external auditor makes sure a company stays in tune and follows the newest trends (mainly ISO 9001, and later ISO TS 16949).

Finally, based on sound foundations, continuous improvement can now be used to fine-tune the process over and over. Thus, the level of quality has improved from a level of around 250 rejected parts per million parts produced in the 1990s to around 15 today. And the target has become 5 ppm, which is widely believed to be achievable.

Project management these days finds itself in a similar situation as quality in that long-ago era before the Total Quality Management movement of the 1980s. Companies running projects on a regular basis do not see the point in investing time, effort, or money in structuring their project management processes.

Project managers are usually 'super heroes' who – by chance – led a particular project to success and are then called on whenever there is a similar project on the table. Project management processes are rarely documented, making it impossible to reproduce or improve on them; each project more or less has to be 'reinvented'.

Working in a project is regarded as a 'hobby' to be handled on top of one's 'proper' job; therefore, project managers usually work in a very weak matrix where the functional supervisor of the project team members has the real power to set priorities, usually not in favour of the project.

Planning is frequently considered a luxury only required for 'complex' projects and therefore rarely carried out. Sometimes a chart in Microsoft Excel is used as the primary planning tool, especially at the highest levels – which is certainly better than nothing, but hardly adequate in most cases since it does not allow for a way to manage dependencies or simulate the impact of a risk.

As no proper progress tracking is done, the project team also lives in a firefighting mode, constantly trying to correct what went wrong to keep the project on track. Project failure is usually detected too late and can only be recovered with tremendous effort, time, and money.

Quality management still is a rarity in projects, even though the tools are known and could easily be applied. The same holds true for project cost control and many other areas such as risk, communication or stakeholder management. No prevention is used. Risks are sometimes identified but not really reacted upon. Inside a project team, members feel like they are flying blind.Today, working as a project manager in most companies is not considered a career step.

2.3. Can Lean Management and Other Techniques Help?

Lean management – or, as explained below, the way Toyota combined the existing tools into principles – is a philosophy rather than a method or a tool.

> **Lean management** is a system for organising and managing all aspects of a business function by creating principles, practices and tools in order to develop goods and services with higher quality and fewer defects. The general outcome is to do this by using less effort, space, capital and time.

Definition 3: Lean management (Pfeiffer & Weiß)

In a nutshell, the basic idea is to eliminate waste (Japanese: muda), or expressed in more positive terms: Only keep value-adding steps in the process chain.

> **Value add** is everything worth to be kept as part of a process chain because
>
> • The customer is ready to pay for it;
>
> • It modifies the product or adds necessary information to it;
>
> • It is legally or contractually binding.

Definition 4: Value add (Pande, Neumann, & Cavanagh, 2000)

Lean – or rather the philosophy behind the Toyota Production System (TPS) – is more than just a rigid set of directives, tools and templates. It can be flexed to adapt to any kind of environment, e.g. non-production processes, which may be very different from what it was originally designed for. IT has developed the 'Agile' method, and TPS has successfully been applied to banking processes – so why not to project management?

Other techniques borrowed from the automotive industry – such as Six Sigma – are more focused on the tools and methods and can be flexed in the same way, teaching us some simple principles to make project management more efficient without adding complexity.

The purpose of the present whitepaper is to demonstrate how these techniques, when applied to project management, will produce simple but highly efficient structures shattering the preconceived opinions listed under 2.2 that are used as excuses for not following proper project management standards.

3. Market – Current Status and Outlook

According to several studies from the Standish Group, Gartner Group, Cutter Consortium, Center for Project Management, and others, on average

- Approximately 23 % of all software projects were successful;

- Approximately 53 % were completed but exceeded time and / or budget; and
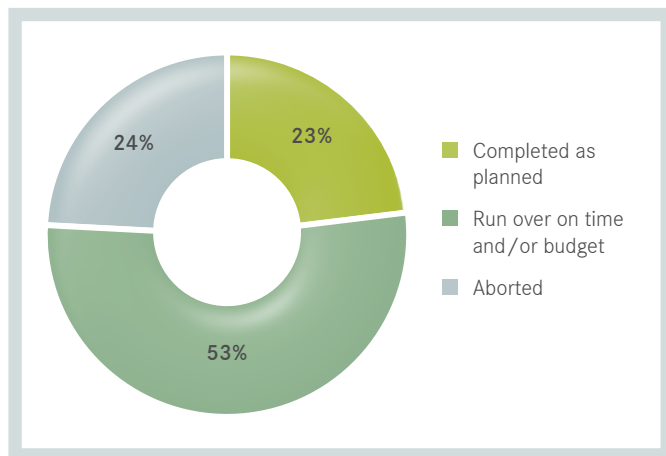
- Approximately 24 % were aborted (see Figure 1).

Figure 1: Project success rate (Gartner Technologies, 2011)

Also, there seems to be a direct correlation between team size, project duration and high failure rate (see Figure 2).

The root cause for projects failing is well known:

- Low / lack of PM culture and maturity

- PM regarded as heavy overhead bringing no benefits, therefore not implemented

- Organisation not adapted to the project

- Missing methods and processes

- Unclear roles and responsibilities

- Information does not flow properly

- Tools not adapted

- Unclear scope and requirements

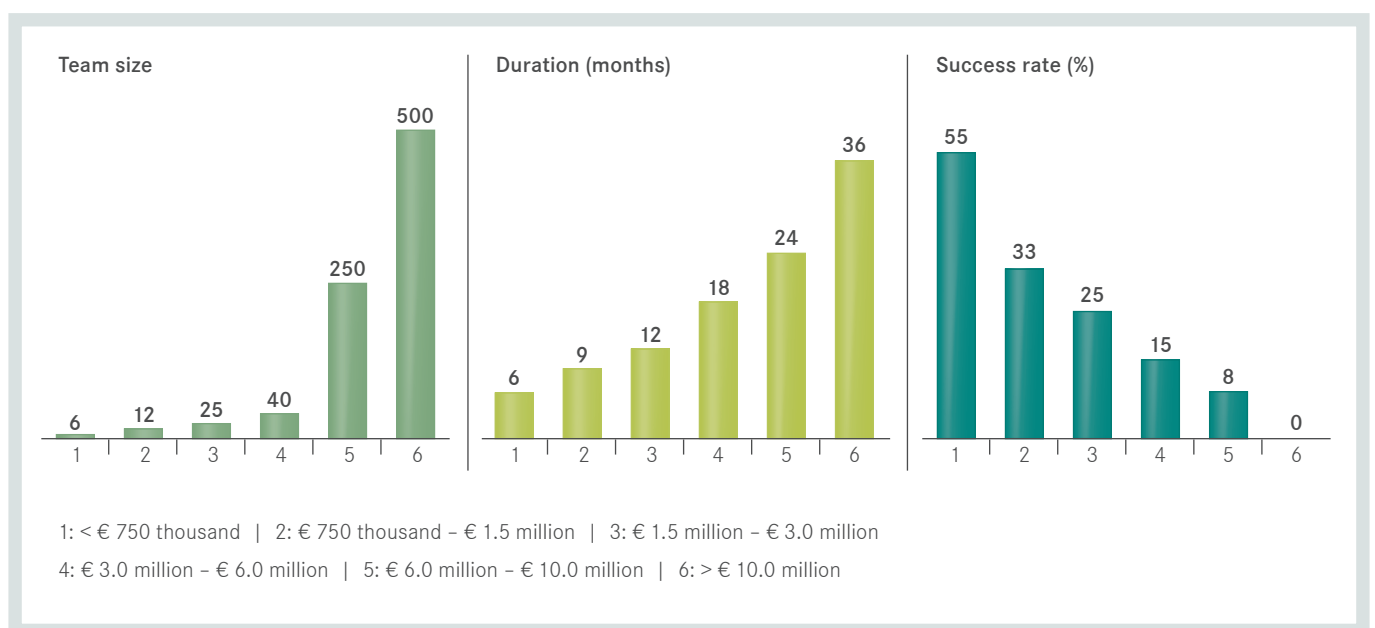- Missing prioritisation of requirements by stakeholders

1: < € 750 thousand | 2: € 750 thousand – € 1.5 million | 3: € 1.5 million – € 3.0 million

4: € 3.0 million – € 6.0 million | 5: € 6.0 million – € 10.0 million | 6: > € 10.0 million

Figure 2: Project failure increases with team size and duration (The Standish Group, 2011)

4. How to Manage Projects in a Lean Way

4.1. Lean and the Toyota Way

In the early 1950s, Toyota and other manufacturing companies with the support of the Marshall Plan decided to produce goods in Japan for the Asia-Pacific market. Looking at how US manufacturers – especially car builders – did it, they found that the Ford and GM method of mass production were not adaptable to their market situation.

In the aftermath of WWII, Japan – who had to import nearly everything – was not popular with its neighbours and suppliers, and therefore was forced to pay premium prices up front. On top of that, there was not a lot of land surface available to the industry (only 40 % of the land mass of Japan can be used for housing, agriculture and manufacturing). And finally, most of the young and skilled workforce had either died in the war, were permanently disabled or still retained as POWs.

The only way to success for a manufacturing company therefore was

- To accelerate the run-through times in order to keep the period between paying for the raw materials and receiving payment for the finished goods from customers as short as possible;

- For the same reason, to keep only a minimum of stocks, raw materials, finished goods, as well as work in process;

- Not to produce any scrap;

- To use a minimum of space;

- To simplify the work to suit an unskilled workforce.

This was the beginning of the idea of Lean manufacturing, trying to eliminate waste wherever possible (see Figure 3).

Simplification	Elimination of waste	Balancing production throughput	Continuous improvement	Quality at source and deskilling
• Product rationalisation • Component standardisation • Product differentiation late in the process • High-value resource for innovation	• Centralisation of inventory • Driving out non-value-add activity	• Demand drives supply (takt time) • Resource flexibility (level load)	Kaizen approach: • Organise for success • Involve the workforce • Visible performance management • Disciplined implementation	• Quality built into the entire process, not just at the end • Instant feedback • Lowest-priced resources in everyday business

Figure 3: Driving Lean principles and examples

As part of their famous Toyota Production System (TPS) established in 1956, Toyota hired specialists worldwide such as Joseph Juran ('Fitness for use'), Philip Crosby ('Zero defect') and William Edwards Deming ('In God we trust, all others bring data') and combined several known (but not yet applied) tools like Lean, Total Quality, Preventive Maintenance, etc. to a common mindset, later known as the 'Toyota Way'. It can be summarised in a set of 14 principles (see Figure 4).

Principle 1	Base your management decisions on a long-term philosophy, even at the expense of short-term financial goals.
Principle 2	Create a continuous process flow to bring problems to the surface.
Principle 3	Use 'pull' systems to avoid overproduction.
Principle 4	Level out the workload.
Principle 5	Build a culture of stopping to fix problems, to get quality right the first time.
Principle 6	Standardised tasks and processes are the foundation for continuous improvement and employee empowerment.
Principle 7	Use visual control so no problems are hidden.
Principle 8	Use only reliable, thoroughly tested technology that serves your people and processes.
Principle 9	Grow leaders who thoroughly understand the work, live the philosophy, and teach it to others.
Principle 10	Develop exceptional people and teams who follow your company's philosophy.
Principle 11	Respect your extended network of partners and suppliers by challenging them and helping them to improve.
Principle 12	Go and see for yourself to thoroughly understand the situation.
Principle 13	Make decisions slowly by consensus, thoroughly considering all options; implement decisions rapidly.
Principle 14	Become a learning organisation through relentless reflection and continuous improvement.

Figure 4: The Toyota Principles

After proving their success in the manufacturing industry, these methods slowly moved into non-productive areas – again, first in the producing companies themselves – to eventually reach the service providers. Today, Lean management principles and TPS basics can be found in the business processes of most of the 'Fortune 500' companies.

4.2. Applying Lean to Services

It is important to understand that the Toyota Way and Lean are not the same: TPS is much more than just the application of tools; it is a philosophy that should drive every decision in a company or any other endeavour. This is why it is much better suited when trying to improve service and support processes, as it is quite sophisticated and its holistic approach, which strongly emphasises the central role of the people, is key to the success of implementation.

Among the first to apply Lean outside the realm of production was William Lareau, who was also one of the first to publish a book on 'Office Kaizen' (Lareau, 2003).

In his book, 'The Toyota Way' (Liker, 2004), Jeffrey Liker says: 'If you are using the Toyota Way to become lean, the lesson here is that you don't have to get hung up imitating Toyota's use of specific tools so you can appear to be lean like Toyota. The Toyota Way is a **philosophy** and a set of tools that must be **appropriately** applied to your situation. But understand that these principles are something to believe and strive for. They are part of a greater system that is seeking harmony and perfection to sustain success.'

Therefore, applying 'Lean' to project management should rather be understood as applying the Toyota Way to it.
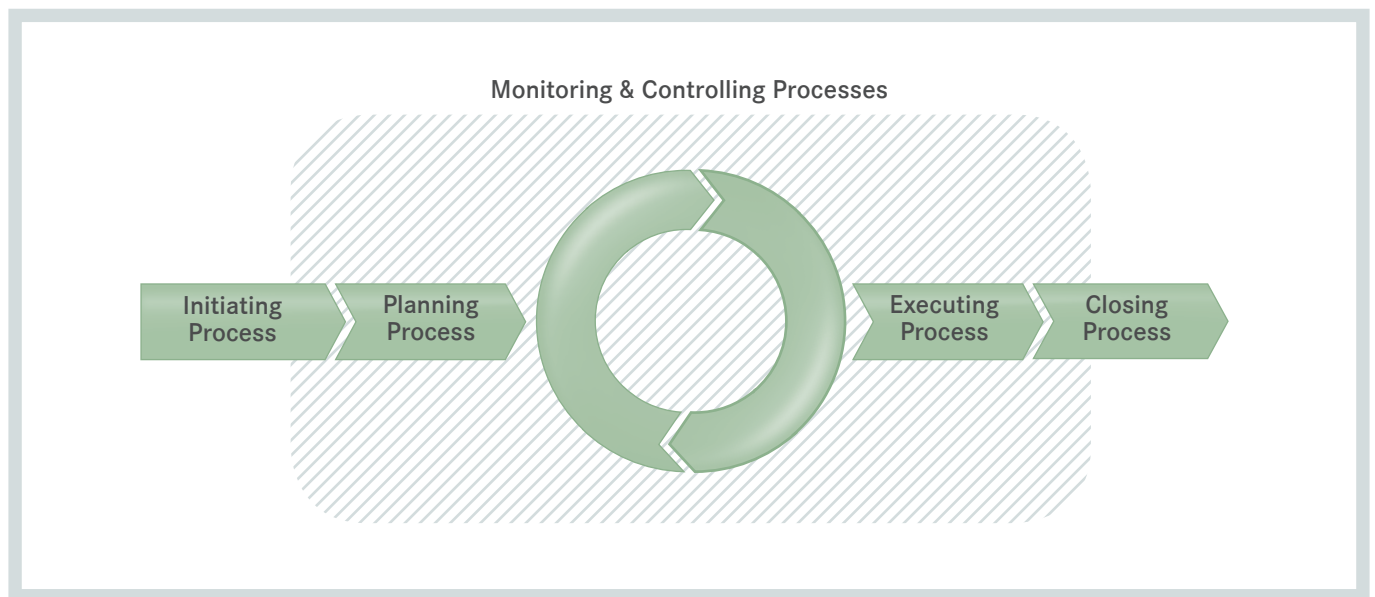
Figure 5: PMI 5-phase delivery model (Project Management Body of Knowledge (PMBOK Guide), Fourth Edition, December 2008)

4.3. Applying Lean to Project Management

The idea is not new: people like Lawrence P. Leach or Glenn Ballard have already applied it to areas like civil engineering.

Unlike Agile or Scrum, this solution focuses on how to Lean-manage the project, i.e. the frame keeping the executing phase up and running, and not on how to make the execution itself more efficient.

Project management can be highly complex. So the analysis will be done in small segments, mostly following the PMI method and the typical outcomes related to this 5-phase model (see Figure 5).

4.3.1. Initiating Process

Following Principle 1 and the philosophy of only keeping what is adding value to the company, the first question before starting any project is if this project is really leading your company into the right direction, meaning: Does it help to achieve the **Vision and Mission** your company has set for itself?

There are several methods and tools that can help to come to a conclusion. The most common and efficient one is **Project Portfolio Management.**

Here, the **Strategic Goals** of a company are weighted; then each project is rated according to these Goals and – combined with the resources (people, money, tools / equipment) required to complete it – a fairly objective decision can be taken on whether a particular project is worth doing.

This is an important step: firstly, it is much more cost-effective to stop a project before it has been started than to kill it midway; also, the effort spent in this process is not completely wasted as it forces all Stakeholders to clearly define the goal (read: scope) of the project, as well as collecting all the data required anyway to start it properly.

The only drawback: the larger the company, the more complex and lengthy this process can become, as the multiple parties involved have different goals and priorities (political agendas). Because of these 'emotions', weighting the selection criteria and then rating each project and dividing the resources among those that are kept might take several months.

For more information, you might want to read the book of my friend and former colleague Dr Shan Rajagopal, called 'Sun Tsu and the Project Battleground' (Rajagopal & Hawkins, 2004).

Once the decision has been taken to go ahead with a project, the initiating phase is started; this is where the foundation and frame of the project are set. Following Principle 13, you should spend time on the initiating and planning phases, as this **front loading** will prevent mistakes later and increase traction during the executing phase, so it is time well invested.

One main element is the selection of the **Project Leader.** Following Principle 9, this person needs to understand, live and breathe the philosophy of Lean PM besides all the other qualities that a good Project Leader needs to bring to the party – these can vary with the size, complexity and type of projects to manage. The Project Leader needs to get involved as early as possible, preferably already in the project selection phase. Also, the more power a Project Leader has – including Management attention according to Principle 12 – the greater the chances the project will succeed; these special authorities need to be clearly documented (see 'Project Charter' below) and communicated to all Stakeholders.

The next corner stone of a good project is the **Team.** Here, again – besides the right mix of specialists versus all-rounders, and chiefs versus Indians – you have to select people that are open-minded to learn and explore new ways (see Principle 10).

Many Project Leaders try to have only dedicated people on their Team; if planned and managed correctly (see Principles 2, 3 and 4), one can live very well with specialists that are only part-time on a given project. It comes down to a proper bottleneck management at programme level and a few simple rules to observe. This is very well described in Ely Goldratt's book,'The Critical Chain' (Goldratt, 1997), about the theory of constraints – easy to read and quick to implement.

More important than having dedicated resources, in my opinion, is the **co-location** of the Team – even though this is not always possible, especially in large global projects. Nevertheless, to ensure short ways and an open, clear communication (Principle 2, where the product is data), your Teams should sit together. And talking about clear flow of information: one important step while setting up a new project is the **Stakeholder Map.**

Here, the emphasis should be on identifying all possible Stakeholders and their interfaces with each other, as well as their position towards the project. One of the main tasks of the Project Leader will be to ensure that those Stakeholders with the most connections and the decision-making power have a positive attitude towards the project and are the best informed, as they can be used as multipliers for the others.

Developing a communication plan based on this Map during the planning phase becomes very easy.

One highly important tool – that at first looks like 'muda' to those with little experience in running large and complex projects – is the **Project Charter.**

There are many good and bad examples floating around, but again it is not the form itself that is important but the philosophy. A Charter is nothing more than a contract between the Project Team and the Project Sponsors. Following Principle 11, this contract should be based on mutual respect, enabling both parties to improve in a sustainable way through this endeavour. Therefore, the simple fact of collecting the data and trying to compile it into a Charter that both parties challenge, discuss and finally agree on, is important; it will prevent any kind of misinterpretation and discussions about goals achieved or not later on. Moreover, it will keep the Team focused on what is really important and avoid any gold plating or – even worse – off-tracking.

Also, properly prepared, the Charter already describes the basics of how the project will be managed.

A Charter is a reference document; it should therefore have no version number and can only be amended following a proper change control process, again trying to achieve a consensus between all parties involved.

4.3.2. Planning Process

The term 'plan' is somewhat misleading; most people having no affinity for PMI will just think of a schedule, but this is a much bigger step. If the initiating phase describes the **'what'**, the planning phase is where the **'how'** is worked out.
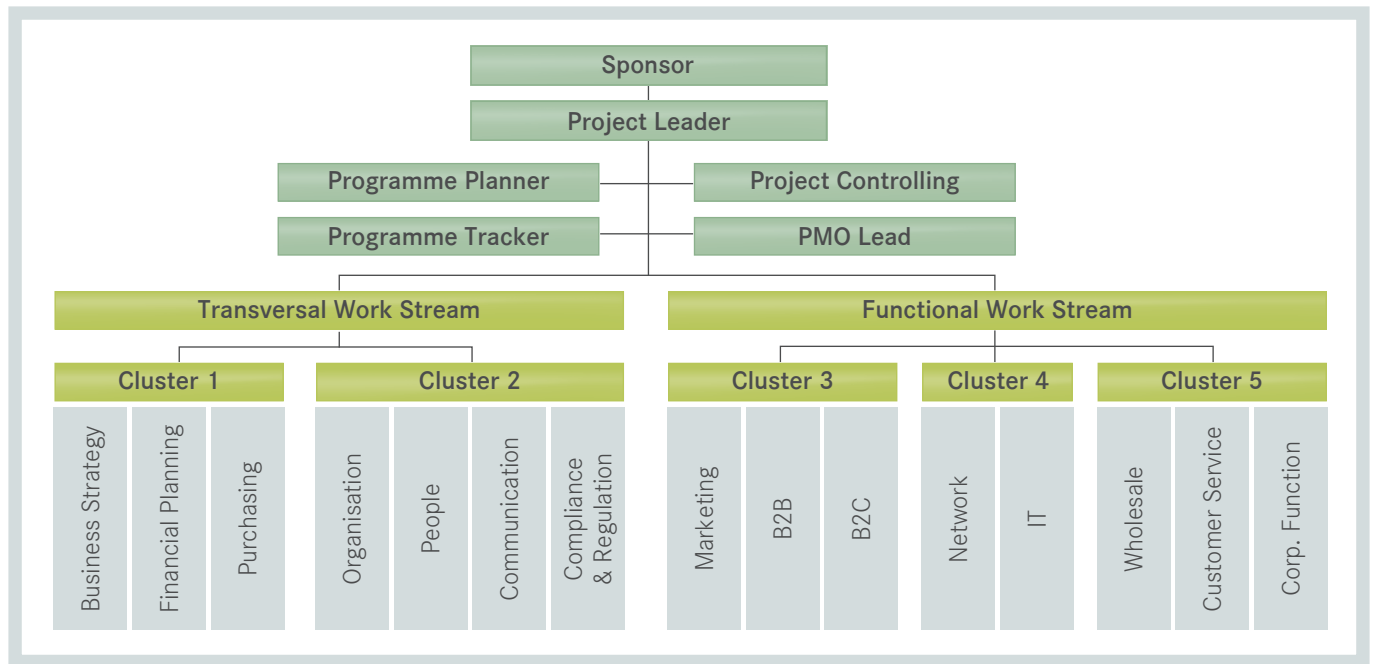
Figure 6: Example of a governance structure (integration project)

Rather than calling it a plan, in fact the Team will work out the structure and processes describing how the project will be delivered (following Principle 6) in a simple, efficient and repeatable way, not forgetting Principles 2, 3 and 4, of course.

In larger companies living in a project world, this is usually the job of the **Project Management Office (PMO).** After an initial effort of collecting and consolidating what already exists, the PMO will continuously improve these processes and ensure that the lessons learnt of closed projects contribute to the Best Practices of the company and the success of future projects.

Project management is about getting the right data (meaning analysed and condensed to the essential) to the right place fast. The backbone to achieve this is **governance.** This is the one process where everything flows together, therefore – to make your project really Lean – this is where the Team should spend some time and effort ('front loading' again, Principle 13).

First of all, it is important to create a **governance structure** (see Figure 6) – aka Organisational Breakdown Structure (OBS) – that enables a fast data flow. Ideally, it will match the organisation the project is delivering to; this way you can establish a 'Peer to Peer' relationship at each level. Some things just flow more easily and are more readily accepted when coming from someone talking the same language.

To make it really Lean and efficient, the OBS should consist of a minimum of levels between the executers on the Team and the decision-makers (usually a steering committee); each of these levels should have a designated **Leader** representing it.

You should be careful not to overload these Leaders by making the hierarchies too flat; it is sometimes smarter to add a level by clustering those Teams together that have many contact points or interfaces. By using the number of interfaces between Teams as a criterion to form Clusters or Work Streams, you ensure that many decisions that would normally have to be escalated are now resolved within a Cluster.

All of these Teams, Clusters and Work Streams have to be enabled to communicate in an efficient way; therefore, the **meeting structure** (part of your communication and reporting process) will now just follow your OBS, from the executers to the Steering Committee (for an example, see Figure 7).
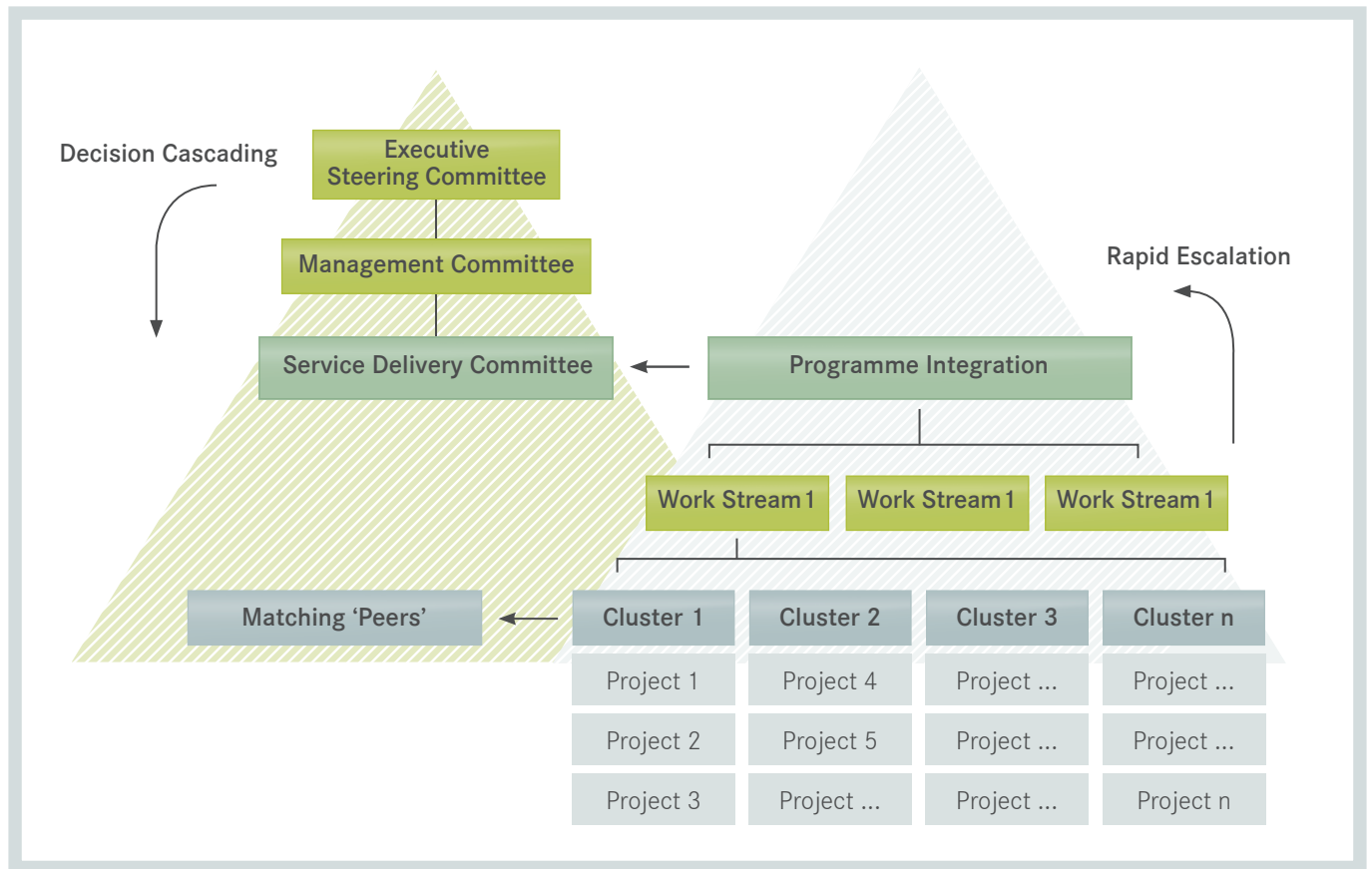
Figure 7: Example of a meeting structure

Why have meetings? I am sure everyone can remember something like the following situation: you had a problem and tried to quickly get the right decision-makers around a table, just to find out that the next possible date was in two weeks' time. And even then, the participants were only deputies having no authority to decide, and it took you another week to finally get the decision you required. Would it not be much more efficient to block a small number of short meetings in everyone's calendar – always at the same time and place, with the same participants, the same agenda – and cut the meetings short if there was nothing to discuss? At least, if in that case you needed a decision, there would be a defined moment in time when the required decision-makers would all be together and the Team was sure to get what was necessary. However, this only works if everyone – all of the Stakeholders – respects the rules for efficient meetings that will be explained in Section 4.3.3 Executing Process.

To make escalation fast, the timing of the meetings needs to be arranged smartly; the meetings' **sequence** has to follow the escalation path, e.g. Delivery Team Meetings Monday, Cluster Meetings Tuesday, Work Stream Meetings Wednesday, Project Integration Meeting Thursday, and Service Delivery Committee Friday (see Figure 8). Thus, from the moment a problem arises to the time a decision is taken, at worst the time elapsed will be five working days.

Clearly separate between **operational** meetings, i.e. those where decisions are taken that actively contribute to bringing the project forward, and **status** meetings, where the focus is more on presenting and getting approvals on the deliverables, and only few (strategic) decisions are taken. Even though status meetings are important (they are key events in the communication plan), the focus of the Project Team should be on the operational meetings.

Monday	Tuesday	Wednesday	Thursday	Friday

Weekly Data Freeze

Project Meetings → Agenda

Cluster Meetings → Agenda

Work Stream Meetings → Agenda

Project Integration Meeting → Agenda

Service Delivery Committee (bi-weekly)

Agenda

Management Committee (monthly)

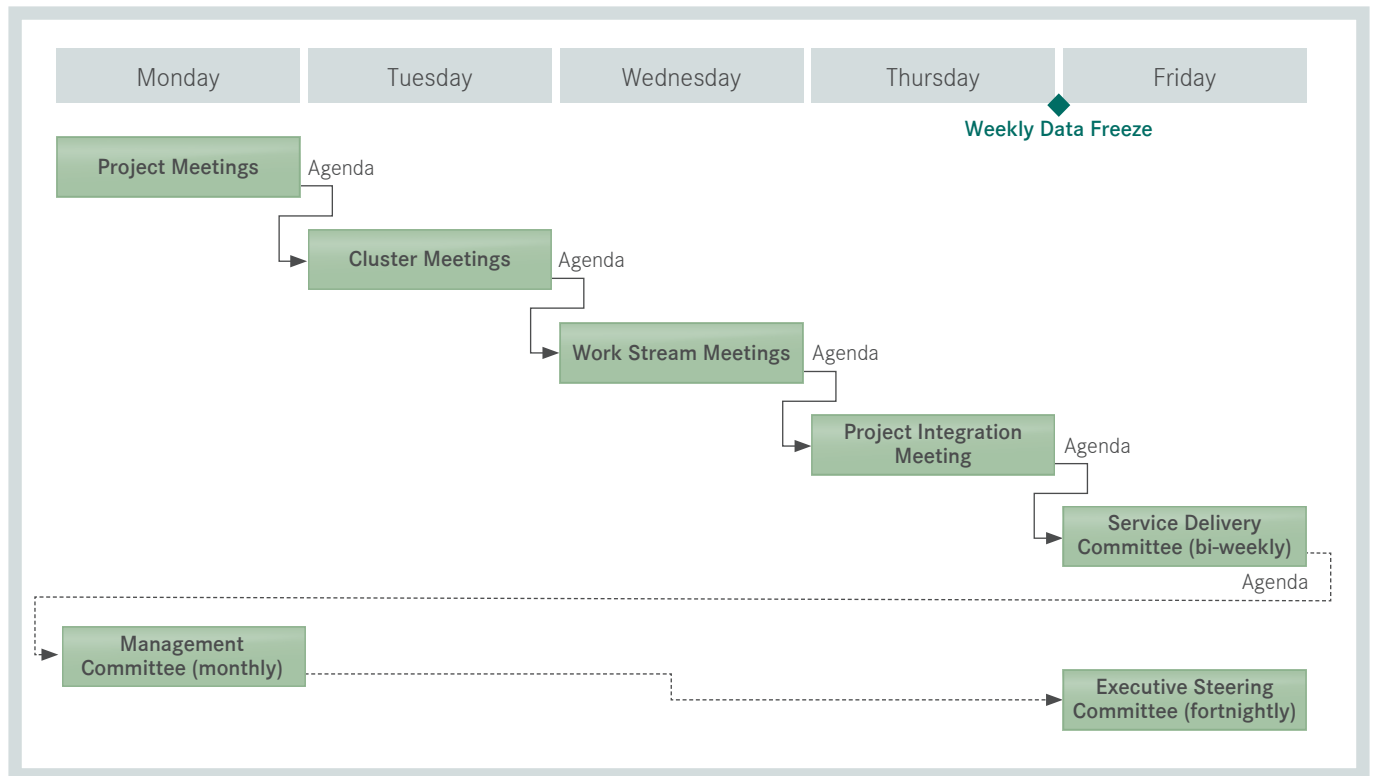Executive Steering Committee (fortnightly)

Figure 8: Example of a meeting cadence

Next, the Team needs to define the **process landscape** required to deliver the project.

Why should you document processes? In Edwards Deming's words: 'If you can't describe what you are doing as a process, you don't know what you are doing.' Principle 6 advises to standardise (and so document) everything you do; the reason behind this is twofold:

1. By writing down what you do and how you do it, you ensure repeatability; you increase the chances that, if it was good the first time round, it will also be good the second, third and nth time you do it. Moreover, the activity becomes executer-independent, reducing your dependency on some 'bottleneck' people and thus reducing the overall risk for your project. It will also help the on-boarding of new Team members, as it speeds up knowledge transfer.

2. Principle 14 says you need to learn from your mistakes and continuously improve – but you can only improve systems that are stable and repeatable. This is the sine qua non condition to find the root cause of any incident incurred and to implement a sustainable corrective action that will fix the issue once and for all.

Again, in companies that run projects on a regular basis, this is only a one-time effort, as artefacts from previous projects can easily be reused and adapted to a given environment. If the company has a central PMO, it is their responsibility to keep this knowledge pool up to date.

When deciding which processes to document, do not worry about methods or tools; just keep it simple and Lean (as good as required, not as good as possible). The few processes that should always be documented as a minimum are the following:

- Governance Process: as above, but including risk & issue management and reporting

- Document Control: describing naming convention, approval process, storage, confidentiality

- Change Management: handling changes in a controlled and traceable manner

- On-Boarding: describing how new Team members are taken on, e.g. 'soft landing', trainings, system access

- Planning Process: planning strategy, definitions, soft links between plans, reporting

One word on planning: there are a few simple rules to observe in order to arrive at a good **timing plan** that is light enough to be useful but contains everything you require (based on Principle 6, 'say what you do, do what you say'):

- A sequence of tasks should always begin with a set of **prerequisites** (= Gets) and end with a **deliverable** (= Give).

- Give and Gets should be defined as **milestones** and represent concrete (i.e. tangible) elements; thus, the status is either 0% (unfinished) or 100% (done and accepted). Do not get stuck in any discussions about something being 66.33% finished. Muda!

- By giving the Gives a defined reference, other Teams needing this output as an input for their work can now reference it. It is easy to report on **dependencies,** collapsing the plans to milestones only and just sorting by this reference, without having to hard-link plans together. Those who have tried it will know how difficult this is; those who have not tried it yet, don't!

- In large and complex projects where all work streams depend on a handful of specialists, the plan will help to manage these **bottleneck resources** by adding buffers only where required and ensuring that they never run idle (theory of constraints).

- **Reporting** is now easy: just reduce the plans to the Give milestones (deliverables); if they are behind schedule or at risk of being late, there should be an action plan in place describing how this risk or issue will be resolved to get back on track.

- **Tools:** MS Project and Co. are good and can make life a lot easier (especially for reporting) but are not always required; an 80-percent plan on paper is better than no plan.

In any process the Team needs to implement, they should not start by worrying about tools. Essentially, a tool is only useful if it supports the process, which means the process has to be described first. Only then should one look for tools that fit the modus operandi and either make it easier, faster or safer (see Principle 8).

The only 'tool' especially geographically widespread projects really cannot do without is a **collaborative workspace** everybody on the Team can access, no matter when and where. It will take time and discipline to ensure that the latest versions are uploaded, the old ones archived, with no local copies floating around, but once implemented, it will ensure that all Stakeholders work off the same data. Also, such a shared workspace (e.g. MS SharePoint) can help automate data flows as well as reporting, and again will make life easier for the Team so that they can concentrate on the essentials.

Finally, after completing all of these preparatory steps, the initiating phase should end with a proper **kick-off event.** This event should include all Stakeholders identified by then and be an open presentation of the way the project will be managed, the results achieved so far and decisions taken. It is the official starting point of the project.

4.3.3. Executing Process

There is not much to say about the executing process from a Lean point of view: the content of the work packages differs from project to project, and the Project Leaders should make sure they have the required specialists to complete these tasks. Therefore, only the processes inherent to project management will be described below.

First of all, the different **roles and responsibilities** in the Team must be clearly defined, described and lived. Any gap or overlap in the system will quickly lead to major issues and, which is worse, frustration in the Team, and it will take a lot of time and effort to compensate for it. It is worth spending time to clearly describe who is doing what; a RASIC chart[1] can help with the documentation.

1) A RASIC chart describes who is Responsible, Accountable, Supports, is Informed or Consulted in a given process step.

Special care should be taken to define the person **accountable** for a step: they are not the ones with the dirty hands but will get their heads chopped off if the process they supervise is not executed properly and in the most efficient way (i.e. as described in the procedure). There can only be one person accountable for any given step. In a project management model, several roles can be defined, but this does not automatically mean you need one dedicated head for each 'hat'. One person can hold several of these roles, and in some cases it is worth the investment to dedicate several of your Team members (permanently or temporarily) to one role, e.g. planning, change management, risk & issue management or document management.

Talking about **risk & issue management,** this is a key process that a project absolutely needs (see Principle 5 about stopping to resolve the problems). All of the Stakeholders, and especially the Project Team, need to understand that the project will only be successful if risks and issues are put on the table and openly discussed, and if a proper resolution plan is devised and executed to address the root cause of the problem.

Therefore, right from the beginning, the Project Leader has to establish a culture of open communication, mutual respect and trust. Bad habits like finger pointing or dwelling on mistakes that have been made need to be explicitly banned. A central RAID[2] log stored on the collaborative workspace and accessible to everyone will help to implement a solution-oriented mindset. Making sure that all deviations from the plan are documented as a risk or issue, and tagging properly to what level these have to be escalated to get a decision that will resolve them, provides the basis of the agenda for the corresponding operational meeting. It takes some discipline to keep it up to date and ensure that it is not used as a to-do list.

One very important rule that needs to be enforced is that decisions must be taken at the lowest possible level. **Escalation** is only allowed if important Stakeholders affected by the decision are not around the table; the level of escalation is then defined by where these people will all be in one room next.

Decisions must be taken based on **facts** and be transparent to all to avoid acceptance problems.

As described in the initiating and planning process, the operational (i.e. escalation) meetings are the most important elements of a Lean project management set-up; these meetings have to be extremely efficient, if they are not, participants will tend to stay away, which prolongs the time required to get a decision when it is really needed.

Efficient **meetings** fulfil the following criteria:

- Only as many as required (see governance)

- As short as possible

- Moderated with clear and agreed meeting rules

- Everybody comes prepared (and brings data)

- Clear, open and transparent communication; no 'need to know'

- Fact-based discussion and decisions

- Based on a single set of data (timing plan and RAID log stored in a collaborative workspace)

- Following a standard agenda structured in a specific way:

  1. Introduction
     - Reminder of the purpose of the meeting
     - Introduction of new faces
     - Decision cascade from higher meetings

  2. Decisions required (eliminate immediate roadblocks)

  3. Status of open risks and issues (long-term items and action plans)

  4. Look ahead (risk management)
     - Will milestones planned to be completed in the next few days be finished on time?
     - Any potential roadblocks that might hamper any work planned to start in the next few days?

  5. Info share (time permitting)

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2) Risk, Actions, Issues and Decisions log

Using this agenda, the important topics are handled first; once point (2) has been dealt with and the relevant decisions have been taken, the meeting could in fact stop here (which a good moderator will do if the allocated duration has been reached). The critical points to discuss under each topic come straight from the RAID log.

Last but not least, during the execution, the Team has to be properly **managed.**

The Project Leader and his deputies (i.e. the Team Leaders designated at each level, see 4.3.2 Planning Process) are responsible for the human resources they have been given, while these work on the project. They need to feel 'at home', just as if they were working at their home base; also, their project assignment should be beneficial to them, i.e. help them prove that they are ready for more by giving them tasks where they can demonstrate in a small and controlled environment that they have the required capabilities or skills (see also 4.3.5 Closing Process).

There is no such thing as 'external' motivation; if you want people to go the extra mile and give more than 100%, they have to be convinced that the project is worth it. Principle 12, 'Go and see for yourself', will help here: it is proven that Management attention can improve any process by 10–20%, just because 'the boss' comes by and shakes hands. A good example is the Hawthorne effect, where improved lighting combined with a lot of Management attention resulted in an increased efficiency that remained high even after the lights were removed again (The Hawthorne Effect, 1932).

Don't forget, some large projects can quickly become larger than many medium-sized companies out there, so why not handle them in the same way …

4.3.4. Monitoring & Controlling Process

Just like in TQM, the goal of the Project Leader and his Team should be to work in a **preventive** rather than a detective mode, i.e. concentrating on risk management rather than firefighting. To get there, the data flow within the project needs to run like a well-oiled machine; it is important to keep the traction going and avoid everything that might reduce it. Prevention means to be able to react ahead of time to eliminate or at least mitigate the impact of an incident. The key to this 'look into a crystal ball' is good reporting as well as quality assurance actions such as audits.

Reporting, and in this case especially project performance reporting, does not have to be complex: KISS – Keep It Simple and Specific, preferably in a visual way and posted centrally for everybody to view (Principle 7). With the governance model described in 4.3.1, most of the data is already there; the trick is to interpret it in the right way. Here, selecting a tool that will help to automate reporting for example might be very useful.

Following the same rules as communication, nobody should be afraid of performance measurement but rather see it as a chance for improvement. The same holds true for audits: getting a third-party opinion and a view from outside might help to see things in a different light and give new ideas on how to make them better.

This automatically leads to Principle 14, **continuous improvement.** Based on the results above as well as concrete issues that have slipped through the 'prevention' filters, the Team should never be satisfied with the status quo and always look for ways to make things easier, faster, and safer. This behaviour must be lived by example by the leads, anchored in the project, and rewarded. By using the entire Team to implement improvements, it is possible to handle many issues at the same time; there is no reason why only a few people should be able to manage changes. On the other hand, you have to be careful not to change too much at a time and to keep a stable core.

To underline this, according to Principle 8 ('do not change a running system') the major risk to a continuous flow in a project is **change,** especially in the Team or in the process. Therefore, change management in these areas has to be handled carefully (Principle 13); every aspect of the change and the shock wave it might create needs to be analysed and preventive measures taken to soften the impact. In projects with a lot of changes, it might be worth dedicating several resources to manage this process.

The Project Leader has to be very sensitive to **creeps,** i.e. uncontrolled slippage or changes over time. They are usually invisible at the beginning and once they reach a critical mass (and become visible), it is sometimes too late to row back; but their effect is usually worse than a properly planned change as the time to soften the impact will be short to nil. Even though it is not always convenient, it is worth addressing creeps as soon as possible and handle them through the change management process even at the risk of a confrontation with some key Stakeholders.

4.3.5.   Closing Process

Last but not least, once a project has been completed (hopefully in time, cost and quality), there is still a lot to be done.

On the process side, to support Principles 6 and 14, collecting the **intellectual property** developed during this project will help for the next ones.

Tools like a SWOT analysis[3], cause / effect diagrams or simple brainstorming sessions may help to compile the **Lessons Learned** from the past endeavour; these can then be knitted into the (existing) **Best Practice** project management processes to improve them in such a way that future projects of the same type will not make the same mistakes.

Here again, it might be worth investing some time and money in prevention; keeping people away from 'productive' work by giving them the time to do the above will need some convincing in a lot of companies. Just think of the time this will save in the initiating and planning step of your next project. Of course, this supposes that your company has a proper place to collect these artefacts and a process to keep them at the disposal of the next project.

A very important step is to take care of the **Project Team.** They have surely learned a lot during the course of the project; some of them might even have been given the possibility to demonstrate their capabilities and skills in areas they have not worked in before. All of this needs to be documented and fed back into the home organisation. Especially people who have demonstrated good instincts in project management need to be earmarked; a smart Project Leader will always enlist those resources again for the next project. Also, if working in projects is seen as a way to fast-track a career, more people will be motivated to be part of the next one to come.

On the process side, the people now need to be officially **released** and handed back to where they originally came from. This also needs to be properly planned to prevent that the positive energy a Team member accumulated in the course of the entire project will burn away in just a few frustrating days. If you had external contractors on the Team, there is some administration work to be done to terminate the contracts, etc.

Once this is done, well let's look for the next challenge and do it all again, just better …

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3) Strengths, Weaknesses, Opportunities, Threats

5. Conclusion and Outlook

So what makes this project management process Lean?

- Empowerment of the right people to take decisions at low level

- Short ways of communication both horizontally (to the 'client' organisation) and vertically (escalation and cascading)

- Standardised processes to ensure everybody uses Best Practices

- All elements of governance are fine-tuned to work together

- Tools are there to support the Team

From experience, it takes the different Cluster or Work Stream Leaders about ten minutes a week to update the RAID log, and another ten minutes to maintain their timing plan. On average, they attend 2.5 meetings a week at about one hour per meeting – so, in sum, this is less than three hours 'lost' on administrative work each week that are more than outweighed by the advantages.

Utopia

Imagine the companies that (fully or partially) live in a project world were to follow the TQM path of the automotive industry in the 1980s and started to apply some of the principles to project management that they currently use to improve quality.

How could this be done?

Companies could collect the project management's Best Practices in the company from the 'super heroes' and combine those in a single, documented process that everybody could use when managing a project.

The 'project manager' would be a job in its own terms and no longer just a 'hobby' on the side. It would have value in a person's career path. The company would dedicate the right number and quality of people to run projects. Project roles would have proper job descriptions.

Senior project managers would train people in Lean project management methods (designed to be scalable, as required, and adapted to each project, as described above) and enforce that these standard project processes are followed.

Every project would be planned using the appropriate tools in order to forecast roadblocks and build in contingencies to protect critical milestones. The project would be tracked using simple, measurable criteria. Visual reports could automatically be updated as project data was entered, showing the health of each project. Project controls displaying progress, cost, and quality tracking could be used as an early warning system.

Prevention would prevail over firefighting; risk management would become more prevalent than fixing issues. Management would give project management at least as much attention as quality, and the company would embed governance and project oversight into its cadence and culture.

By clearly defining roles and responsibilities and empowering the Project Team through Charters, the company would ensure that decisions could be made at the lowest level possible to avoid escalation, thus giving the project more traction. A central data collection system would allow a structured, disciplined flow of information to ensure that decisions are based on a full, factual picture.

After each project is completed, the Team would collect Lessons Learned in order to tweak the Best Practices and ensure mistakes are not repeated. Thus, continuous improvement – the famous ball rolling uphill – could start its journey. It would be the job of the newly chartered Project Management Office to make sure it never rolls back down again.

In a word, project management would become an integral part of the company culture, just like quality management already is. Companies would embrace it and spread the word because they would see the long-term benefits of applying Lean project management. There are quite a few companies – among them Orange, Dow Corning, Continental or Motorola – that have already implemented Lean project management successfully. But they don't tend to shout it from the rooftops, as it still gives them a considerable competitive advantage.

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