

PIP SPEAK

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Capital Projects: Fix the Wiring
upfront to maximise project returns

Capital Projects: Fix the Wiring upfront to maximise project returns

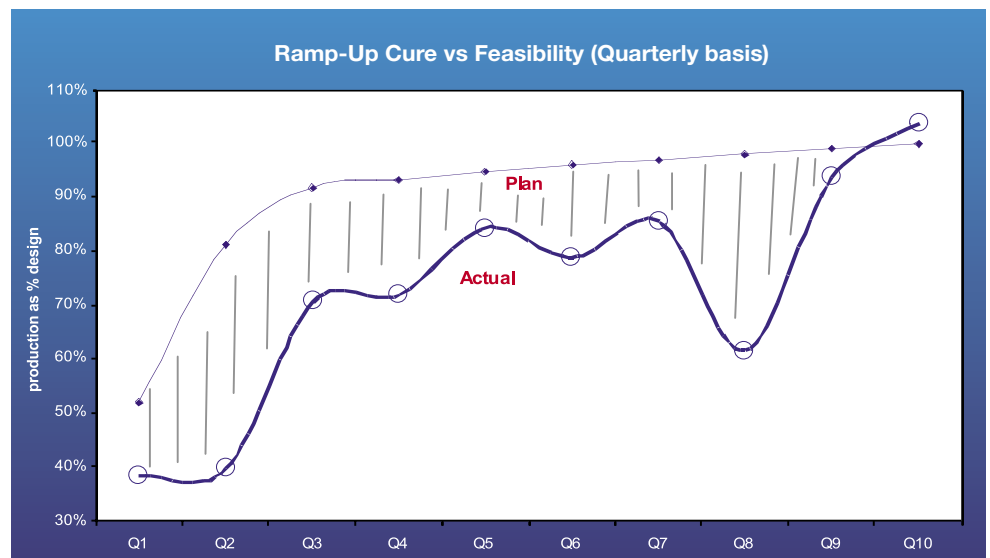
The net present value (NPV) of a project is determined by the actual onset of costs and then revenues. The ramp-up years of the project are especially critical, because of their disproportionate influence on the NPV calculation. A project ramp-up curve, such as the one shown below, is not atypical: under-delivery in the 1st years of a project can easily destroy 30% or more of the project's expected NPV.

PIP is regularly engaged on major projects after they have significantly under-delivered on their expected ramp-up curve. In most of these projects, effective processes were in place to ensure rigorous review of project design and extensive analysis of costs. As well, there was usually regular and comprehensive reporting to the Board of Directors on progress vs. plan of project completion and cost.

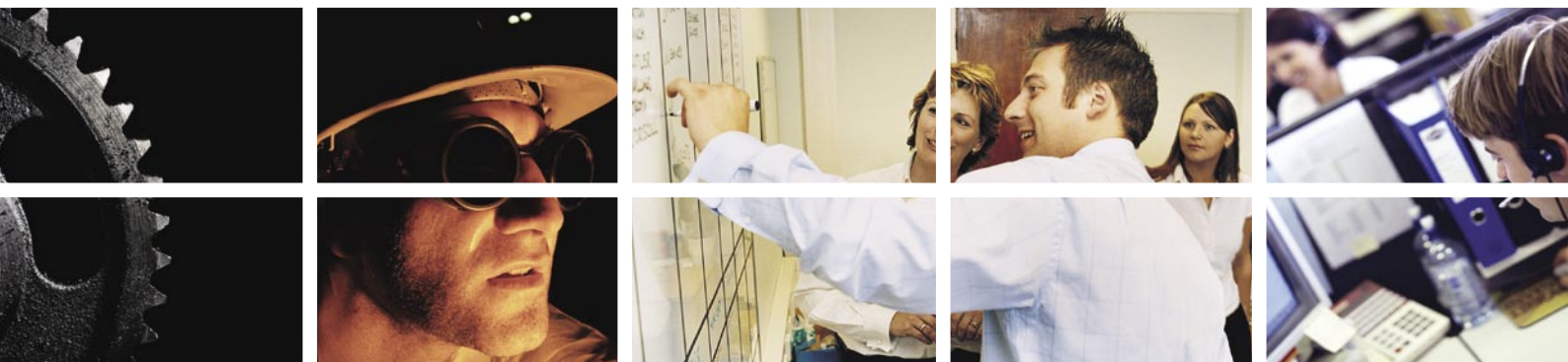
However, in almost all of these businesses, the planning and execution of the operational elements to enable project success was under-done. While tens, or in some cases hundreds of millions of dollars were poured into detailed

planning and governance on the capital side, insufficient money and attention was focused on planning and execution on the operational side. The implication of this lack of attention is two-fold: under-delivery during ramp-up (eg lower output, quality issues and cost overruns) and an inability to rectify performance over the rest of the project.

This under-delivery on capital projects does not need to occur. Attention upfront to the detailed implementation of sound operational processes (the "Wiring") that can enable a smooth start-up and position the operations well going forward, is a sound investment –



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and cheap relative to the capital cost of the project (and indeed to the NPV cost of not doing so).

What is Wiring and why is it important?

The “wiring” of a business is the combination of systems, processes, competencies and disciplines that influence how the organisation’s people behave and therefore how the business will ultimately perform. There are a range of wiring gaps that, but some that PIP finds in most of these poor start-ups include:

1. Insufficient start-up resources

At a number of sites where we have worked, we have seen an ill-planned organizational structure directly impede project start-up. A typical mistake is to staff start-ups with the same org chart as the predicted ‘stable state’ org structure. When one considers all the extra work in start-up (resolving technical problems, getting systems and reporting to work, creating appropriate norms on how we will run the business, getting the management operating system to work) we would recommend start-ups are staffed up with extra hands on deck to ensure a smooth technical start-up and that the wiring is working like clockwork. At one site we were brought into, the organizational structure and resourcing for start-up were the same as that planned for the steady state organization. We were brought in after this under-staffed start-up had repeatedly failed to manage both the technical fire-fighting and to maintain the wiring. The resources had not coped with the spike of requirements at start-up: the root causes of technical problems weren’t tackled systematically and basic daily management operating system disciplines (e.g. collecting, reporting and acting on KPI data) were not embedded. As a result the site was in a vicious spiral of reacting to problems with inadequate data and never having the time and resources to get on top of the problems.

2. Lack of clarity in accountabilities

Often we find that insufficient attention has been paid to individual KPI accountabilities, resulting in overlaps in people’s accountabilities. Nearly all sites have the ‘boiler plate’ role descriptions but these are typically generic and don’t get sufficiently into the specifics to ensure that there are no overlaps in KPIs between people or gaps where no one owns a KPI. The impact on project start-up is acute: too many people focused on the same generic super-KPIs (availability) while other KPIs (percent of planned maintenance completed) are overlooked. At one recent start-up client site, meetings around start-up operational issues regularly involved 10-12 people with everyone having vague association with the KPI at hand, but no one person clearly accountable. This consumed vast amounts of scarce resources and didn’t leave any one individual charged with focusing on and resolving the situation.

3. Lack of regular reviews of KPI performance

Too often technical problems during start-up divert everyone’s attention and leave regular reviews of KPI performance to fall

by the wayside. We saw this first-hand during a project start-up with an Australian mining client. As the GM explained, “because of the plant crisis, no one is collating the KPI data into meaningful, practical information that we can use.” During the ‘crisis’ at this site, the regular reviews were postponed or cancelled and those that were held were not well-attended as people were “busy out in the plant.” What ensued was a spiral that was spinning the operation out of control: with data no longer available and ad hoc decisions being made on insufficient facts, root causes of problems were being overlooked which led to problems and solutions of symptoms piling up on top of each other creating an increasing burden on the operation and management.

4. Poor meeting disciplines

There is wide variability in the efficiency and effectiveness of meetings across organisations. In a start-up, where decisions often need to be made rapidly, it becomes more important still for people’s time to be used well. At the site outlined in 2 above, the damage from the lack of KPI role clarity was compounded by the absence of standard meeting disciplines. There were no guidelines or tools to help determine who should actually attend a meeting, there was little preparation before any meetings and agendas were not typically circulated in advance. Facilitation during the meeting was weak because no one had received formal training on what makes for effective meeting management. Any follow-up after the meeting was poor because there was no standard expectation of “actions, by whom, by when” being agreed. What ensued was a chain of time-consuming and ineffective meetings that paralysed the organization and frustrated its people to the point that several left for opportunities elsewhere.

5. Lack of basic maintenance protocols

If a start-up site does not have enough resources or clear accountabilities to drive maintenance, protocols and daily routines such as the recording of vital maintenance history are often overlooked in the flurry of firefighting. Quickly a “reactive” maintenance culture takes over - as root causes of problems cannot be solved without data, the percent of unplanned maintenance starts to rise. This in turn results in planned and preventative maintenance getting behind which in turn increases unplanned downtime. This builds to a situation where plant and maintenance crews lurch from one major breakdown to the next. They are unable to carry out essential planned and preventative maintenance because of the lack of any maintenance history and a lack of resources to overcome the mounting workload. Often this leads to an increased number of contract maintainers and costs spiral further out of control.

6. Insufficient training prior to start-up

The amount of training that is done prior to start-up of operators on procedures differs widely between companies. Given the cost of slow start-ups, savings in this area may be misguided. The other aspect that we find missing in many of the start-ups that have gone awry is that of training managers

(from supervisors up to General Manager) in the Management Operating System and the wiring of the business – how are we going to run this business to ensure the wiring works and is maintained. This aspect of training steps back and reviews how the elements of wiring mentioned above need to be explicitly managed – as a system. Without this, management of the business is haphazard and based on the personal preferences of each individual manager – a less than ideal, but very common situation. In such cases, the culture, norms and behaviours achieved on site are not planned but a random consequence of a failure to have an explicit approach to wiring.

Whether the widespread under-preparation of a site from a wiring and people management point of view is a consequence of cost cutting late in the project or due to a lack of scientific approaches in organisations for laying down good wiring, the consequence of insufficient attention to operational wiring issues before project start-up can lead to 3 damaging consequences:

1. Destruction of a significant portion of the project's NPV from a failure to meet tonnage/quality and therefore revenue forecasts on the ramp-up curve;
2. Fire fighting, ad hoc and 'from the gut' decision-making that is neither fact-based nor likely to solve the root causes or fundamentally fix performance;
3. Excessive costs from the heightened chemical, maintenance and contractor costs associated with running an operation in a reactive, fire fighting mode.

The opportunity to reclaim value

A concerted and systematic effort to address key operational wiring gaps before start-up enables you to pre-empt the 3 consequences outlined above at a much lower cost. Proactively designing the wiring puts the organization in a much better position for:

1. An improved project start-up and consistent delivery on ramp-up curve forecasts;
2. Effective daily decision-making during start-up and beyond from an embedded management operating system and people trained to manage it that collects, reviews and acts on KPI data;
3. Improved cost-effectiveness from more stable plant performance and a systematic organizational focus on proactive root cause problem-solving.

The PIP approach

Design of the wiring plan

We bring a proven process to systematically design and implement the wiring within the organisation and coach players to manage this wiring themselves through start-up and steady state. Our approach incorporates six elements that together serve as the foundation for a 'hard-wired' organization:

1. Operating Strategy
2. Operating Disciplines
3. Alignment and Incentives for the business
4. Sustaining Disciplines
5. Continuous Improvement Disciplines
6. Visible Leadership Habits

1. Operating Strategy

The wiring effort here ensures that in each department and at each level in the organization there is clear understanding of the drivers of the operation and how the operation will be run. As an example, for a stage in a processing plant this includes an explicit articulation of how this particular stage in the plant works, the chemistry/physics associated with the stage, the detailed operating strategy and the KPIs and measures that will be used to monitor that the stage is on track. The same applies for a stage in mortgage or credit card processing although the strategy is less around how the chemistry works but more around the different paths that an application form might follow depending on its status as it enters that stage in the process.

Typically wiring outputs include operator guides and training tools introduced to promote understanding of these KPIs and how individuals at every level of the organization can impact them. Finally, value driver trees are developed for key areas of the business and sensitivity analyses are conducted, enabling us to quantify and prioritise the top KPIs for future focus.

2. Operating Disciplines

Once the operating strategy is clear, we can embed the disciplines to ensure the strategy is actually executed. Disciplines can include creation of standard operating procedures, development and training in decision tools to help operators problem-solve when KPIs move outside the desired range, training in statistical process control, introduction of shift handover tools, agreement on common site-wide meeting rules. Like any new habit, each of these disciplines requires frequent use and consistent follow-up and one-on-one coaching to ensure it is sustained.

3. Alignment and incentives

With a clear strategy and agreed disciplines, we need to ensure that all individuals within the organization are aligned and incented to carry out the operating disciplines and to focus on their priority KPIs. Wiring tools that promote alignment include detailed role descriptions (rather than the generic descriptions for roles that can be mass produced but convey little information around the specific role), individual KPI scorecards, KPI maps which lay out for each role the types of tasks that should be carried out in order to deliver the KPI results and incentive plans which emphasise the priority, highest value KPIs for the individual. These tools combine with the sustaining disciplines described below to create alignment and focus on priority issues and close the loop on performance.

An important issue to address in the Alignment wiring effort is overlapping KPIs. Typically there is no shortage of KPIs that are being reported on at a site – the problem is more of

ensuring there are No Overlaps and No Gaps (NONG) and that each stratum in the organisation has KPIs which logically feed up to those of their manager. As part of the work to ensure effective alignment, driver trees are used to logically set out the KPIs that cascade from the top of the organization to the bottom. Accountabilities are then mapped on to the driver tree using the site's organizational charts. In this wiring exercise, any overlaps and gaps quickly become apparent and can be resolved. As well, the relevance of any "important" KPIs that don't appear on the driver trees is actively challenged.

4. Sustaining Disciplines

Sustaining disciplines ensure the elements in the wiring pyramid below are kept in place (sustained). They ensure that an organisation maintains its operating strategy, operating disciplines and alignment tools as "the way we do business". Sustaining disciplines take the form of tools and processes to "close the loop" and ensure key items are regularly reviewed and remain in place. Regular and formalised reviews of KPI performance (Results-Action-Reviews) at all levels of the organization are a critical tool to ensure the operating strategy and disciplines are in use and effective. Other examples include audits to ensure SOPs and shift handover checklists are followed and maintenance practices are maintained. Effective sustaining disciplines are what enable an organization to maintain its operating performance despite the turnover of key personnel.

The most important of these during start-up are the reviews which occur each week and drive down variability and improve performance by reviewing results and putting the focus on completing the few priority actions which will make the most difference to the operation. The role of the wiring team prior to start-up is to lock in the formats of these reviews and largely automate the collection of data and production of the review packs to make it relatively effortless for people to prepare for these meetings and enable emerging issues to be readily identified.

5. Continuous Improvement Disciplines

These disciplines are intended to ensure the organization has the processes and skills in place to continue to drive improved results. Work here involves embedding formalised target setting (annually and monthly) across the organisation to ensure a continual stepped process to improvement. The wiring effort also focuses on developing credible monthly plans to deliver on the stretch targets and measuring the impact of improvement initiatives to assess progress.

In a start-up situation, only the most relevant core disciplines are introduced: training in root cause problem-solving,

familiarisation with decision trees to solve problems and the use of paretos as a quick prioritisation tool.

6. Visible Leadership Habits

In a start-up situation, work on visible leadership engages the organisation's top leaders to focus the rest of the organization on the priorities that matter most. With so many potential distractions, the ability to convey a clear and consistent message that aligns all departments and employees is a prerequisite for start-up success. Wiring work here focuses on tools and processes to help managers improve problem-solving, prioritisation and communication. A key part of the wiring effort here is to make prioritisation by managers more visible to their reports and to standardise prioritisation tools and disciplines across managers so they are clear, understood and expected from employees. Much attention is focused on coaching senior managers to develop and use effective Management by Walking Around (MBWA) skills.

Summary

Start-up project performance often falls short of expected performance by 30 to 40 per cent on cost and throughput targets during the first 1 to 2 years after start-up. This represents a significant NPV loss and a serious reduction in return and credibility.

Often the losses can be attributed to a lack of attention to the systems, processes, competencies and disciplines within the organisation - what at PIP we call the organisation's "wiring". Pressure on the organisation during the commissioning phase leads to wiring issues being relegated to the sidelines, intended to be resolved after ramp-up. But as the wiring silently assists to stabilise the start-up this deferment is often buying medium term problems.

Addressing the key wiring issues upfront, before start-up, positions the organization to maximise project profitability and optimise operational performance beyond the project. The approach needs to systematically focus on each wiring gap and 'hard-wire' the organization for success by embedding practical tools, proven processes and effective disciplines.

Link to other PIP newsletters:

- Optimising facility capital work (ROCX)
- "Hard wiring" for high performance
- Getting the most from your people (performance management systems)

Please contact us if you would like a copy of these newsletters.

Partners in Performance

Partners in Performance is a firm that builds better businesses. We deliver rapid performance improvements in industrial, resource, manufacturing and service companies, using specialist teams and a hands-on approach to lower costs and increase revenues.

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