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CAPEX PROJECT OVERRUNS:

Tackling the lasting negative effects of risk

WHITE PAPER

AVEVA™

"65% of project failures are due to less obvious aspects like people, organization and governance. Management process, contracting and procurement strategies cause 21% of failures, just 14% are down to external factors like government intervention and environmental issues."

CONTROLLING OVERRUN

At a time when commodity prices are changing in unpredictable cycles and directly affecting profit margins, there's increasing pressure to deliver capital projects on time and on budget.

This white paper examines how Owner Operators and Engineering, Procurement and Contracting companies (EPCs) can cut project overrun, boost profits and enhance business reputation by deploying a robust contract risk management platform. This approach enables decision makers to improve communication, manage change requests, flag risks early and constantly monitor risk – with the confidence that a clear, in-depth audit trail can provide essential defense against any litigation.

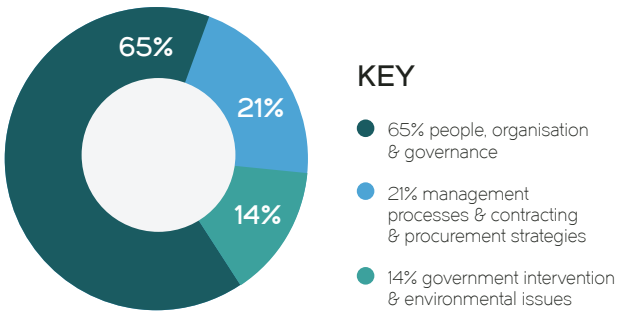
Global capex projects are complex

High value capex projects are very large investment projects that cost more than US$1bn. They attract a high level of public attention and political interest because of substantial direct and indirect impacts on the community, environment and budgets. They need complicated financing, have tight timelines, are technically challenging, involve many stakeholders and are often managed by several teams in different locations. The risks are substantial. Cost overruns of 50% are common and overruns of 100% are not uncommon.

In industries such as oil and gas, transportation and traditional, renewable and nuclear energy, capital intensive projects are important sources of revenue for the many project stakeholders who share the burden of cost and risk. With so many stakeholders' interests riding on the success of these projects – combined with the potentially devastating effect of failure – it is no wonder that there is intense pressure to deliver.

The political climate also continues to change, with more focus on environmental responsibilities and an increasing amount of regulation. In this shifting landscape, major companies are focused on protecting their investments to secure maximum return and the competitive advantage created by project success. 2014 EY research analyzed 365 complex projects and revealed that 64% of projects face cost overruns and 73% report delays. Completion costs were, on average, 59% higher than initial cost estimates – an increase in total cost of US$500bn. Tighter controls are clearly needed to prevent or seriously reduce overruns.

Image 1. Project failures:
Credit Suisse looked at the reasons projects fail, 2013.



WHY DO OVERRUNS HAPPEN?

It is important to work out exactly what can cause project overrun – and then to carefully manage these factors and risks. Cost and schedule overruns can be down to many different factors. Not all of these are within the control of the project stakeholders. It is often only when the project has started that the exact scope is clear and any necessary changes emerge. While project management issues can be predicted and controlled, external factors such as regulatory and political changes cannot. Rigorous planning, however, can help mitigate against their effects.

The lasting negative effect of overruns

The effects of overruns can be felt long after the project is complete and involve more than just budget issues. It is not just the obvious costs of spending more than the budget. There is a knock-on effect that can have a huge impact:

- Affecting a company's standing with lenders and access to future capital, because of delayed income and cost recovery issues
- Damaging a company's reputation as a project partner that doesn't deliver. This can affect access to new opportunities and give competitors an advantage
- Making it harder to recruit the quality project and contract professionals that are needed to replace an aging population of experts in the major capital project field
- Potentially leading to a costly, lengthy litigation process

Overruns are often caused by change requests. It is essential that these requests are tightly managed.

Common overrun causes

Factors we can influence

Poor concept selection
- Problems with funding
- Stakeholder relationship challenges
- Unrealistic scheduling and estimates

Poor execution
- Inadequate engineering design before project begins
- Choosing contractors based purely on cost
- 'Gold-plated' engineering
- Not being able to secure the right people

Poor governance
- Not having joined-up systems for consistent risk management
- Inadequate scrutiny of change requests

Factors we can't influence

Geopolitical factors
- Security issues and conflicts
- Financial market uncertainty

Regulatory or policy issues
- Ultra-stringent health, safety and environment issues
- Changing regulatory requirements

The days of managing these risk factors with a collection of spreadsheets, on multiple laptops and drives, are long gone. The process of tracking vast quantities of data, contract communications and potential versus actual spend needs a fit-for-purpose contract management system.

Image 2:
Confidently manage unplanned and urgent change with consistent best practice and workflow

Company site representative (CSR)

Action - CSR chooses the communication they want to send, eg site instruction. Approximate cost and schedule impacts shown in risk register.

Contract risk register is automatically updated - Estimated cost/schedule impact.

Contractor

Action - Contractor receives and agrees site instruction. Work starts.

Contractor

Action - Contractor raises change order request (COR). It includes the scope, plus the cost and schedule impact.

Contract risk register is automatically updated - Estimated cost/schedule impact.

CSR

Action - CSR looks at COR and negotiates or agrees. The risk register is automatically updated.

Contract risk register is automatically updated - Estimated cost/schedule impact. If revised COR is rejected by contractor, there could be a future claim.

Company contract administrator

Action - Contract administrator sends the change order to the contractor, confirming the scope, and the cost and schedule impact.

Contract risk register is automatically updated - Actual cost/schedule impact.

Contractor

Action - Contractor completes work.

Contractor

Action - Contractor submits AFP (Application For Payment) - pro forma invoice and supporting documentation.

Contract risk register is automatically updated - Potential expenditure.

Makes sure all contractual obligations have been met.

Company contract administrator

Action - Contract administrator issues payment certificate.

Contract risk register is automatically updated - Actual expenditure. Issue is removed from active risk register.

This diagram shows how to robustly manage change requests caused by unplanned and urgent work on site, which is not always standard but is often the most challenging.

KEY

Kept informed

- Contract holder
- Technical authority
- Engineering manager
- Cost engineer
- Planning and scheduling
- Company site representative

Exxon Neftegas, Arkutun Dagi platform, Sakhalin

- Owner operator Exxon sued contractor WorleyParsons, claiming it took 2.7m more man-hours than originally estimated, delaying the project by a year
- The contractors denied this, saying Exxon increased the scope of work and didn't make them aware of problems
- In May 2015, WorleyParsons reached a settlement of the dispute amounting to $78m

How contract risk management software could have helped:

- The software would be used to transmit all significant contract communications between the parties involved. These communications are securely stored and the audit trail acts as the independent source of truth. It flags risks early to those who need to know, along with any associated financial and schedule impacts
- Real-time data shows potential and actual costs at any time
- The clear audit trail speeds up the discovery process, reducing costly fees from law firms, consultants and forensic accountants

"A major global oil company identified over $300m of cost saving on a 2012 development project – directly attributed to their use of AVEVA ProCon."

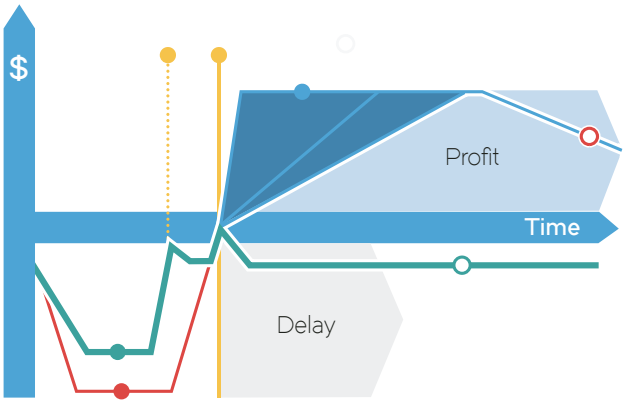


Image 3: The impact of risk

Unplanned cost overruns affect project cash flow, reduce profit and are a major source of claims. Unplanned schedule overruns delay revenue and can disrupt handover to operations. Overruns damage the reputation of project stakeholders and can affect their market value.

KEY

- Plant handover to operations team
- Project go-live date
- Cost return
- Cost overrun
- Capex
- Opex
- Impact of cost overrun
- Revenue

FINAL THOUGHTS: TAKE CONTROL AND REDUCE OVERRUNS

Contract risk management solution, AVEVA ProCon, puts owner operators and EPCs in control of a shared communication channel, reducing the risk of overruns and increasing cost recovery. It connects all decision makers, managing and recording all commercial activity, including change requests. If litigation does happen, ProCon offers the depth of information capture you need to successfully defend your position.

Projects will run far more efficiently and effectively. You'll have better project control and timely, accurate communication and reporting. You can identify potential risks, flag problems early and control costs.

You'll easily see, manage and mitigate overruns; from incomplete design or poor contracting strategy and delivery. It's even possible to see who is in the project team – making sure contractors use their promised A-team, not their C-team. And it's a way to formally manage, track and store your contract agreements, bonds, guarantees, certificates and change requests.

Forward-thinking companies using systems like AVEVA ProCon have successfully completed major capital projects on time and on budget, enhancing their reputations as world-class project partners.

LEARN MORE

To read more about how **AVEVA ProCon** can support your contract risk management needs, please visit **aveva.com/en/solutions/contract_management**

For a demonstration of the **AVEVA ProCon Contract Risk Management** platform please request a demo or email **community@aveva.com**

i - Credit Suisse, 2013

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About AVEVA

AVEVA software and services enables our customers to solve the world's most complex engineering and design challenges. Discover how we can help you redefine engineering possibilities to successfully create and manage world-class capital-intensive assets. Headquartered in Cambridge, England, AVEVA employs more than 1,600 staff in 50 offices around the world.