

Managing Construction Projects: Best Practices in Good Times and Bad – Part 2

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Editor's Note

Revay and Associates Limited provide project management and construction claims services. The following material contains contributions from all five Revay offices in Canada and is intended to provide actions, which - if taken - they believe will improve the situation of construction industry readers immediately and in the long term. Max Wideman was formerly associated with Revay working on major claims litigation in Canada and in the US and was impressed by the extent of their expertise and experience. He has special permission to republish this paper here.

This paper, presented in two parts, deals with some of today's key issues in managing construction projects as follows:

In Part 1:

- Introduction
- Cash Flow
- Change orders in the Face of Recession
- The Shift Away from Cost Reimbursable Contracts, Creating Value for money, and Work Face Planning
- Constructability Reviews, and
- Performance Motivation

In this Part 2:

- Pricing Uncertainty
- Communications
- Construction Scheduling and Scheduling Updating
- Project Performance Monitoring, and Efficient Dispute Resolution
- Down time, and
- The Road Ahead

Pricing Uncertainty

The present slump has heightened our awareness of risk. Nevertheless, in the face of a volatile market, some businesses and project teams have made no attempt at pricing uncertainty. They presuppose that construction risk is unfathomable and/or that any data produced quickly becomes obsolete, thereby rendering the pricing exercise worthless. Absent appropriate allowances for uncertainty, decisions are, at best, made on analyses of partial data; in the worst case, no decision is made at all.

Revay does not agree that construction risk is incalculable. In Revay's role as claims expert, its investigations follow the path of root cause. In its risk practice, Revay¹ follows a parallel path, utilizing comprehensive cause analysis to identify any multiple pathways. The responsible risk owner is identified as the entity within the team most able to manage the risk, regardless of liability or exposure (see *Figure 2*).

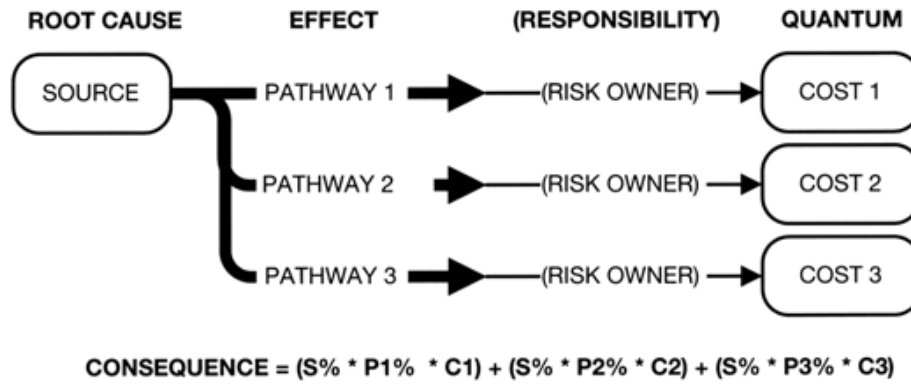


Figure 2: Risk Flow for Changes in Outcome Cost

Once uncertainty is identified both the source and the multiple pathways are assigned and probabilities of occurrence and quantum are estimated using Monte Carlo analysis techniques.

In so doing, the "unfathomable" is reframed as a quantitative input variable. Once an organization adopts this process as part of a complete risk management procedure, the potentially paralyzing failure to properly address risk is substituted by a repeatable and auditable management exercise. In the current climate risk aversion has become acute. Now is the time to rethink risk management practices.

Communications

In Revay's experience, personality conflict is the principal accelerant when it comes to disputes. Currently, sensitivity to money is heightened and many issues are being taken "personally". The antidote lies in treating emotive issues like any other business decisions and by taking especial care to avoid "ostrich mentality", to refrain from dishing out "mushroom treatment" (i.e. keeping subordinates in the dark about pertinent issues) and to eliminate potentially inflammatory language in conversation and written documents.

Dr. Francis Hartman, a respected project management pundit, in his first book states:

"Success of a project is directly linked to meeting stakeholder expectations, and failure is linked to communication breakdowns"² 10

This situation is mirrored in other industries.

By way of example, the following quote comes from an article published in the journal *Computer World*.

"The research suggests that the culprit in 85% of project failures is silence. The study showed that there is a definable set of project communication problems that are far more common than most senior leaders realize. An estimated 90% of project managers routinely encountered one or more of five critical problems in the course of a project but the killer is the silence that follows."³

Bad communication is the death knell of construction projects. Yet, on many construction projects, clients and project managers will insist upon early warning of problems while contractors will be reticent to provide this for fear of adversely impacting working relationships and starting a letter war. Irrespective of the consequences of failure to satisfy notice provisions, contractors will too often address problems only after any opportunity to mitigate the situation has been lost. Occasionally, the client first hears about the problem through a Request for Equitable Adjustment submitted after substantial

completion.

Clearly, clients and project managers need to be receptive to genuine problems; for the sake of the project, they must create a non-adversarial environment wherein the contractor is empowered to provide early warning. By the same token, contractors must improve their communications, both in frequency and quality. There is a simple but effective channel for this during the course of each coordination job site meeting. It is to ask every contractor or subcontractor whether they are aware of any current or potential situation that is affecting or might affect the time and or cost to complete their work. Obviously, their responses should be minuted and agreement or exceptions to minutes recorded.

The intent is for issues to surface early so that the project team can address them in a cooperative manner, thereby saving money.

In the same vein, all project participants need to think twice before hitting the send button in "Outlook". Emails sent in anger serve only to increase the potential for communication breakdown. In its line of work, Revay knows only too well that keeping emotion out of emails and other forms of communication goes a long way to avoiding trouble on projects.

Construction Scheduling and Schedule Updating

The need for well developed critical path method ("CPM") schedules has become more pertinent in this downturn. Patricia Galloway, a past president of the American Society of Civil Engineers (ASCE), avers that CPM schedules can greatly increase the probability of completion on time while minimizing the incidence of claims.⁴ Her 2006 paper summarizes the findings of her extensive research of the industry's experience of CPM scheduling by means of surveys. Ms. Galloway can boast an impressive number of responses from all industry participants. Of the 429 responses received, 41% pertained to owners, 31% to contractors, 19% each to engineers and construction managers, with the remainder made up of consultants, university staff and students.

Ms. Galloway writes:

"While CPM scheduling has been around since the 1950s and is assumed to be a basic tool that is commonly used on all construction projects, the results of the industry survey demonstrate that CPM scheduling is still not a mandatory requirement nor is it a project control tool which has gained the trust of the industry..."

Her findings indicate that less than 48% of owners demand CPM schedules for their projects, yet more than 80% of contractor respondents indicated that CPM scheduling enables:

- Improved planning ahead of construction;
- Better scheduling.;
- Greater understanding of the project; and
- Improved project control.

Fifty three percent of contractor respondents confirmed that CPM scheduling brings increased control over risk and uncertainty. Regarding disputes, 67% of the total number of respondents verified that CPM scheduling minimizes disputes. Given the palpable benefits of CPM schedules, the slow uptake by owners is baffling. The prudent owner will go against the trend by including an independent bid item for scheduling in its tender documents and giving this discipline the deference it deserves in the contract.

The contractor should be contractually obliged as soon as possible after contract award to develop a

fully detailed and realistic, resource loaded construction schedule using quality scheduling software. An effective schedule:

- Incorporates input and has "buy in" of the subtrades and major suppliers;
- Shows all owner responsible activities;
- Plans and monitors construction activity, manpower and cash flow; and
- Includes all changes and additions that affect the schedule activities and impact the project completion date and is capable of producing look-ahead schedules.

Revay is frequently asked to comment on a contractor's position, only to discover that the contractor has failed to save every update as a separate file. Needless to say, without a record of the interim schedules, the contractor is pretty much hamstrung. More commonly, scheduling is ineffectual because activities required to complete the work are absent from the schedule, it contains logic errors, overly optimistic duration estimates have been used, or detailed and timely schedule monitoring is lacking. Even if these particular issues are remedied as work proceeds, the difficulty of determining schedule performance with any degree of accuracy persists.

Schedules, if developed and monitored appropriately, become invaluable if it becomes necessary to prepare a claim.

Project Performance Monitoring

Project performance monitoring can reveal potential problems before a project is impacted. Its usefulness when budgets are tight is plain. However, Revay has found shortcomings in the typical monitoring process:

- Cost monitoring is performed against preset cost codes which do not correspond to the project activities or project work breakdown structure ("WBS");
- Costs are too often only reported at a summarized level and the "current" cost data is usually too old to facilitate advance warning;
- Quality monitoring is limited to the quality assessment of too few key "products" or deliverables produced by the work;
- Change monitoring is limited to the running total amount of approved and pending changes to the work.

Fundamental to an effective performance monitoring system is a properly defined WBS that allows the performance of individual work activities to be integrated upwards to yield the overall performance. The health of a project or contract can be effectively assessed for each component of the work, using the WBS as a basis, by consistently measuring the following:

- Earned value measures including cost and schedule variances as well as projected final cost and duration, which require an accurate determination of the percent complete for each element of work;
- Labor productivity index;
- Change variance with respect to the work performed;
- Budget contingency variances;
- Unanticipated change variance with respect to the approved contingency amounts;
- The variance between the projected man-hours required to those available.

The above assessments can be made only on the basis of available data. By using the WBS and gathering the data at all levels of the work, the ability to focus on a specific area causing a problem is greatly facilitated, thereby giving management the information to take timely remedial action to correct

a problem before it has a negative impact on the overall work performance.

Efficient Dispute Resolution

In the economic circumstances preoccupying us all, our sensitivity to money is heightened and Revay anticipates more frequent disputes as a consequence.

"The success of the contractual relationship depends less upon what has been agreed than how the parties will agree to handle events in the future."⁵

Most contracts now make provision for some type of dispute resolution process prior to resorting to litigation or arbitration, and specify procedures for various types of Alternative Dispute Resolution (ADR).

One of the fundamental obstacles to the effective resolution of disputes at the project level is that often the same individuals who caused the problem in the first place are charged with providing findings on the issue. Positions harden, emotions frequently get in the way and the process quickly reaches a stalemate. For these reasons the intervention of a third party is often the catalyst required to break the impasse and move the parties to a settlement.

If parties are to reach an amicable settlement without external help:

- Ground rules must be established and agreed to by both parties before proceeding to any form of settlement procedure;
- Each party should take an informed position, born of a dispassionate business decision;
- Individuals prone to personal attacks or emotional outbursts must be excluded from the negotiations;
- Unless the parties intend to torpedo their working relationships, threats of forcing the dispute to litigation should be avoided.

Obviously negotiation should always be the initial step – it costs very little and often a mutually acceptable commercial solution is reached.

Alternatively, negotiations can be formalized and given more credence by resorting to mediation or a dispute resolution board. The major benefit of using a mediator or dispute resolution board is the structure and direction that it entails. Experienced mediators and dispute resolution board members will be able to spot parties who are simply "going through the motions" and will halt the negotiations. The caliber of these external aides is paramount. Amongst other things, they must be able to mitigate any unrest and be prepared to offer opinions to the parties on the strengths and weaknesses of their case.

Increasingly Revay has been privy to the mechanism described as 'Third Party Neutral' or 'Project Neutral' wherein an independent construction professional assists the resolution process by offering independent forensic analysis for both parties. Typically, the referral to the neutral party is voluntary and the decision is non-binding. The neutral party submits a written opinion to the participating parties and, although non-binding, it tends to promote an amicable settlement of the issue.

A similar approach is resolution by independent claims expert – this was the approach taken by the Greater Toronto Airports Authority during its recent \$4.4 billion development of Lester B. Pearson Airport.

In the event of an intractable disagreement, a claim is inevitable. Revay recommends that a claim always be prepared as if it was being litigated. Claims should be easily readable, properly substantiated and pragmatic. In today's market place the emphasis must be on making a claim in a timely fashion, if only

because budgets are tight and staff who can recall the facts may be more transient.

When considering whether to prepare a claim, the following steps must be taken:

1. Determine the merits of the case.
2. Determine the relationship between cause of action and damages suffered.
3. Decide whether the information needed to prepare a claim is or will become available.
4. Determine whether the action is time barred or will be before the claim can be realistically completed.
5. Allocate a budget and deliverables.

A preliminary review of the issues in dispute, based upon the evaluation of a few key documents will provide an indication of the merits of a case, as well as the wherewithal to prepare a document that will either facilitate the settlement of an issue or serve to proceed to litigation. Following this type of preliminary review, a budget estimate for the preparation of a suitable document can be estimated.

Claim preparation generally comprises the following stages:

1. **Review and compose** – the salient events are extracted from the contract and project documentation and a clear concise narrative describing the issues in dispute is composed. The review determines if the party has complied with the contractual notice provisions and/or requirements essential to establishing entitlement.
2. **Analysis** – project schedule and schedule updates, labor and cost records are analyzed to determine cause and effect of disruptions and delays, to quantify the delays, evaluate resource productivity and determine labor losses.
3. **Presentation for senior managers and the opposition** – Revay has found that presenting the essence of the results of the research and analysis as a clear and concise narrative accompanied by simple explanatory diagrams and charts to be a most effective manner of communication. Carefully prepared and clear graphical representations that set out the facts and findings are essential aids to understanding the issues and invaluable at negotiations for settling disputes.

A contractor's claim for additional compensation will only be as good as the information used to prepare it. Hence the need for proper contemporaneous record keeping throughout the execution of the work is a fundamental responsibility of all those involved in any type of construction activity.

Down Time

To any reader in the unenviable position of having time to spare, Revay would argue that the time could be beneficially used to create "Cheat Sheets", update operations manuals, and/or compile databases of normalized costs from historical projects to improve estimating capabilities. "Cheat Sheets" are self-help tools for use by project personnel that collate and distill the commercial obligations, duties and rights into a few pages of easily accessible rules and guidance in plain language. The sheets should be embedded by means of training sessions featuring real life scenarios with which the project teams can identify.

An operations manual that clearly defines the intentions and common actions of the firm is one way that companies can ensure that sound business and construction practices are clearly laid out for the current and future work generation. Unfortunately, far from being a firm's keystone document that guides their principal movements in all things, operations manuals very often turn out to be:

- An excess of outmoded policies;
- Mostly left on the shelf, thereby leaving room for inconsistency;

- Not championed by senior management, so permitting mavericks to operate freely (or the blind leading the blind);
- Poorly constructed, with no flow of information; and/or
- Authored without taking into account the complete spectrum of operational, business and commercial issues.

By revamping operations manuals:

- Bad habits that have, over time, crept into the company can be quickly identified and dealt with;
- New hires can gain access to an understandable and functioning document that will quickly assist them in achieving a high level of productivity;
- The organization gains a tool that promulgates the common objectives, procedures, and rules that support the firm's work.

The Road Ahead

At this juncture, Revay urges you to take the opportunity to take stock and make any necessary course corrections in the way you do business. In particular, the recession presents an opportunity to prune from your ranks the individuals who have habitually made mistakes, those pre-occupied with winning prestige for themselves at a project's expense, the disaffected and those disinclined to help others succeed. By doing so, contractors may be able to regain the trust of owners, many of whom were short changed during the boom.

Now is the time for all participants in the construction process to seize the occasion and inform and educate themselves on all the available technologies, best practices and innovations to improve the overall performance of the construction process.

Conclusion

In this report, Revay has presented food for thought, which – we hope – will improve your situation immediately and in the long term. For the past 39 years it has been Revay's privilege to serve the needs of the construction industry and we will continue to do so whenever the need arises.

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¹ The reader will have noted that, although not mathematically correct, as is usual in risk management texts the terms uncertainty and risk are herein considered as synonymous.

² Hartman, F., *Don't Park your Brain Outside: a practical guide to improving shareholder value with SMART project management* (1st ed.) (Upper Darby, Pennsylvania: Project Management Institute, 2000).

³ Scott, R., *For IT projects silence can be deadly*, Computer World, 5 February, 2007
<http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=279450> .

⁴ Galloway, P., *CPM Scheduling and How the Industry Views Its Use*, Cost Engineering: The AACE International Journal of Cost Estimation, Cost / Schedule Control, and Project Management (January 2006).

⁵ McInnis, A., *Relational Contracting Under the New Engineering Contract: a model, framework and analysis*, (London, England: Society of Construction Law, September 2003). Arthur McInnis, PhD is a consultant with international law firm, Clifford Chance, in Hong Kong.