

# riskassessmentworkshop

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**ACUMEN**  
Proven Project Analytics

**in 2010 & 2011 Acumen  
successfully conducted  
risk assessment  
workshops on CAPEX  
projects totaling over  
\$150 billion. These  
workshops led to a  
10% average reduction  
in project costs, 20%  
average schedule  
acceleration, and  
had 91% forecasting  
accuracy.**

# a c u m e n r i s k a s s e s s m e n t l e g a c y

Through a 20 year legacy in risk analysis, Acumen CEO Dr. Dan Patterson, has realized two core principles which have become the basis of Acumen's risk assessment methodology today:

1. A **risk adjusted schedule is much more valuable than a deterministic schedule** in terms of helping to forecast project completion. This is true for many reasons including:
  - It accounts for uncertainty and complexity of the work being conducted
  - It accounts for overly optimistic planning
  - It encourages the identification of risk events, and more importantly, the required response to risk mitigation by the project team
  - It provides a range of schedule forecasts against which execution can be tracked and controlled
2. While highly insightful, **a risk model is only as sound as the two moving parts** within the model itself:
  - The integrity of the underlying deterministic CPM schedule
  - The validity of the risk ranges, inputs, and scores provided by the project team.

These principles, spanning from Dr. Patterson's history as a principle at Pertmaster (now known as Oracle Primavera Risk Analysis), are the basis for Acumen's unique approach to risk analytics and serve as a permanent point of reference as our risk assessment process continually evolves. Learn more about how this approach can help your project team better forecast, reduce costs, and mitigate risk exposure.

# Learn how we can help you.



# project certainty

introduction to  
risk assessment  
workshops

# i n t r o d u c t i o n

Acumen's risk assessment workshops have one primary purpose: to provide you as the project owner or contractor with an unprecedented project insight and more importantly, a tangible and cost effective means of reducing risk exposure.

Adopting a unique combination of workshop facilitation and advanced analytics, Acumen's risk workshops have successfully been utilized on over \$150B in CAPEX projects. Our industry proven five-step approach overcomes common workshop challenges (such as team buy-in, biased perceptions of risk and lack of modeling expertise) by providing a proactive solution to both cost and schedule risk mitigation focusing on how best to reduce risk exposure, increase confidence levels, accelerate schedule and reduce cost overruns.

## w o r k s h o p b e n e f i t s :

- Validated risk adjusted schedule
- Actionable risk response plan
- Validation of assigned contingency
- Schedule acceleration of up to 20%
- Increased project confidence
- Executive insight into true risk exposure



## what is a risk workshop?

a risk assessment workshop is the heart of Acumen's risk assessment process. The objective of this on-site facilitated workshop is to extract from the project team and discipline leads accurate risk input values that will form the basis of the risk model. These highly interactive sessions typically last an entire day and provide great insight into both the mechanics of the project and the areas of potential problems within a project plan.

## o b j e c t i v e s :

**develop** cost/schedule risk register

**identify** uncertainty ranges

**determine** cost/schedule risk exposure

**pinpoint** risk hot spots (drivers)

**calculate** required contingency

**analyze** mitigation effectiveness

**compare** both pre & post mitigated risk

**identify** alternate risk-reduction scenarios

## s c h e d u l e :

**facilitated workshop:** (day 1-2) Acumen will meet with the project team and discipline leads to compile the risk input values that will form the basis of the risk model.

**off-site analysis:** (day 3-4) Off-site risk analysis and model development done by one of Acumen's advanced risk analysts.

**results:** (day 4-6) Delivery of results and follow up discussions.

## d e l i v e r a b l e s :

**workshop results:** in an executive briefing

**project risk exposure:** confidence levels for cost/schedule completion

**risk histograms:** determination of required contingency amounts

**risk ranges:** cost/schedule uncertainty ranges

**risk drivers:** key cost/schedule risk drivers

**risk scatter plots:** a "big picture" risk analysis of cost & schedule integration

**criticality reports:** critical tasks & the impact of uncertainty on critical task numbers

**probabilistic cashflow analysis:** forecasted estimate to complete (ETC) based on risk exposure

**"p" schedules:** what schedule should be targeted in order to achieve a given confidence level

**risk models:** retain all models developed (in an editable format) during the workshop process

# S1

## Non-Critiqued Schedule

**Non validated**

**Possibly buffered**

**Questionable realism**

Beginning execution without assessing schedule quality can result in project failure. Additionally, developing a risk model with an unqualified schedule is futile. At this stage, it is essential to do a schedule quality critique to pinpoint any areas of concern within the project plan.

# S2

## Critiqued Schedule

**Structurally sound**

**No built-in contingency**

**Sound schedule logic**

During the risk workshop Acumen employs Fuse, an enterprise project analysis software developed to assess project quality and correct problematic areas and activities. Once the schedule and cost estimate have returned a satisfactory Fuse score, the risk work can begin.

# S3

## Risk-Adjusted Schedule

**Estimate uncertainty**

**Risk events**

**Calculated contingency**

An S3 risk-adjusted schedule is achieved through Acumen's structured approach to risk assessment, which quickly evolves an S2 schedule to a fully risk adjusted S3 schedule with minimal disruption to the team.

## the acumen method

the purpose of the Acumen method is to evolve a non-validated, non-risk adjusted schedule or cost estimate into an actionable plan that optimizes project performance. Our proven five-step risk methodology goes beyond traditional risk determination. Instead, our integrated cost/schedule approach proactively targets risk hot spots, reduces cost overruns, accelerates schedules and increases confidence levels.

# S4

## Optimized Target Scenario

**Reduced risk hot spots**

**Lower criticality**

**Higher confidence**

The Acumen risk team will take an S3, risk-adjusted schedule and identify scenarios which reduce overall risk exposure, lower criticality, and therefore increase the overall confidence in the project.

# S5

## Team Validated Risk Model

**Team buy-in on the S4**

**optimized model**

The benefit of hiring a third party with proven results such as Acumen is the ease of which team buy-in is achieved. Acumen's proven track record and unbiased approach helps the project team to feel confident in the results.

Project phase:	pre-FEED/ appraise	FEED/ select	define	execution	operations
Characteristics:	Value proposition & Feasibility studies	Concept development & alternate scenarios	Long lead placement, EPC & Major contracts	Project Delivery	Revenue generation
Risk Model:	Initial risk appraisal	Capital value analysis	Project risk analysis	Risk performance analysis	Asset lifecycle analysis
Acumen Phase:	Risk register development	S1 > S3	S1 > S5	S1 > S5	NPV, Probabilistic cashflow
Value-Add:	Qualitative basis	Decision support	Baseline analysis	Ongoing risk exposure	Strategic risk value



## how does it work?

our workshops combine analysis techniques with historical risk libraries (RiBS) and facilitated team workshops for a quantitative assessment and analysis of both cost and schedule project risk. We incorporate estimate uncertainty, risk events (from both templates and existing project risk registers), weather events, and project scope uncertainty into a single comprehensive Monte-Carlo based analysis model.

# r i s k w o r k s h o p o v e r v i e w

Acumen offers five options for risk assessment workshops making it possible to fully evolve a schedule or cost estimate (or both) from S1 to S5 in a single risk workshop. You can choose to focus on either schedule or cost risk, or combine the two for an integrated workshop. Additionally, Acumen offers cost & schedule optimization and ongoing risk exposure and mitigation effectiveness reviews.

## 1 **scheduleriskworkshop**(s1 > s3)

A schedule risk workshop evolves a non-validated, non-critiqued schedule (S1) through to a fully risk-adjusted, team-validated scenario (S3). Additionally this workshop includes an analysis of both costs and benefits of mitigation.

## 2 **costriskworkshop**(s1 > s3)

Similar to a schedule risk workshop, a cost risk workshop evolves a hierarchical cost estimate (S1) through to a fully risk-adjusted, team-validated cost model (S3). Additionally, this workshop includes analysis of both cost contingency and mitigation.

## 3 **integratedriskworkshop**(s1 > s3)

An integrated risk workshop is really three workshops combined, including a schedule risk workshop and a cost estimate workshop, followed by an advanced integrated cost/schedule risk model determining the sensitive interaction between cost and schedule overruns.

## 4 **cost&scheduleoptimization**(s4 > s5)

Taking the (S3) risk-adjusted models from the risk workshop(s), this intelligent optimization approach accelerates schedule and reduces cost overruns through a highly focused optimization technique. Includes an (S5) team validation workshop.

## 5 **ongoingreview**(s1 > s5)

Acumen can additionally provide quarterly updates and reviews for insight into ongoing project risk exposure and mitigation effectiveness.



- quick turnaround
- team alignment
- 3<sup>rd</sup> party perspective
- acumen fuse<sup>®</sup>
- s1>s5<sup>™</sup> framework
- proven success

# why acumen?

## quick turnaround

Acumen offers a structured approach tailored from years of industry experience. Our five-step methodology is proven to be an effective and efficient means of assessing project risk and creating an optimized risk model, with minimal disruption to the team. A typical risk assessment workshop will last for less than a week including turnaround on subsequent analysis and briefing.

## team alignment

The Acumen approach allows your team to tackle problems and execute best practices when building, maintaining, analyzing and executing projects long after we are involved in the project. The workshop will end with a team-validated risk-adjusted solution garnering improved team alignment and a uniform insight into next steps. You will be left with workshop results, including the risk model developed by one of our highly trained risk analysts as well as an executive briefing, all validated by your project team.

## 3<sup>rd</sup> party perspective

Like most systems, a risk analysis is only as good as the basis upon which the model is built. Throw erroneous risk ranges at a schedule and the results will be equally erroneous. Instead, by pursuing a well structured third party facilitated risk workshop, you ensure accurate inputs and model development. An Acumen risk workshop is not an internal replacement, but rather an objective perspective on the project, combined with specialized risk analysis expertise.



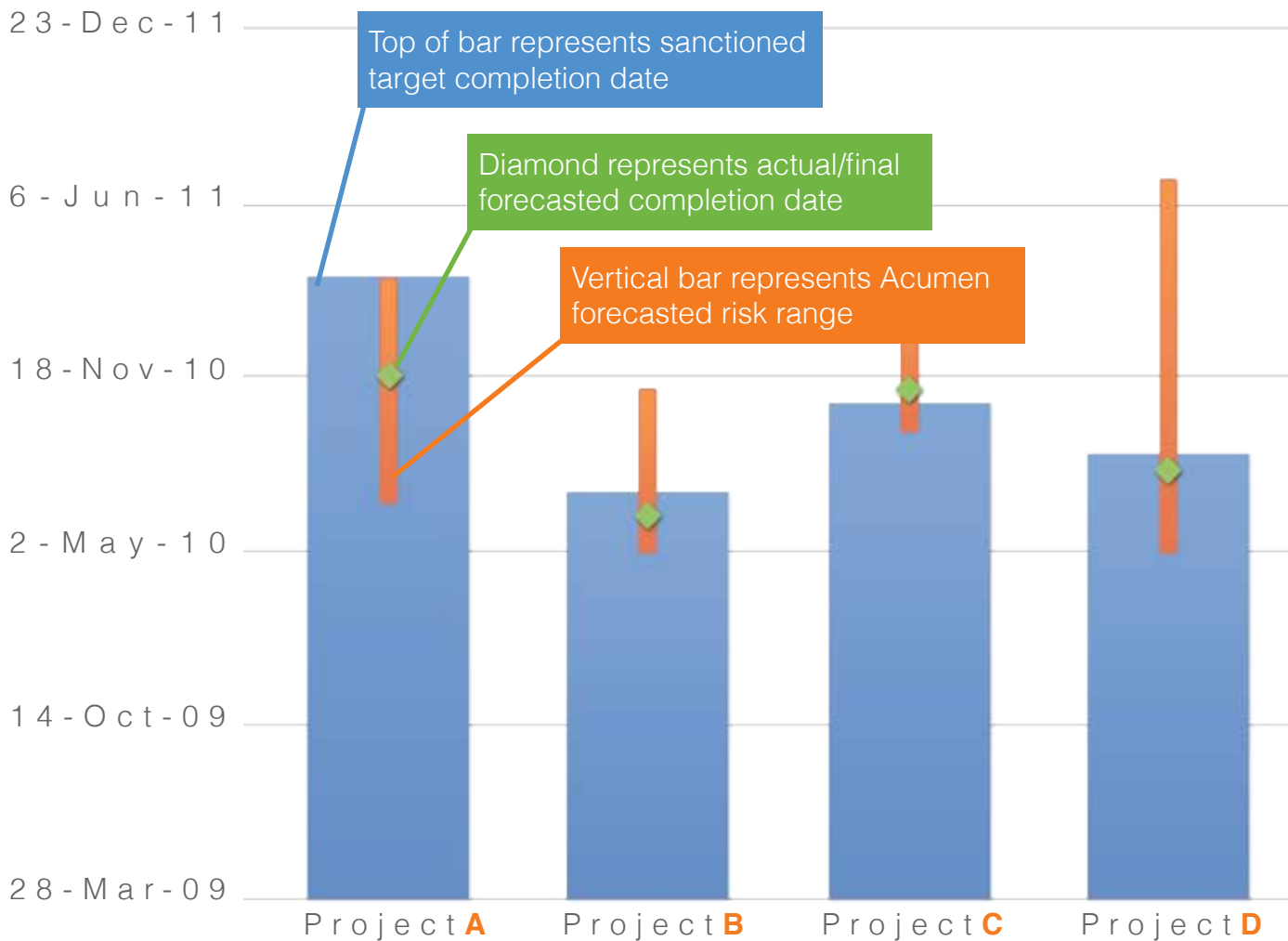
Acumen's enterprise project analysis software, Fuse, easily analyzes project risk inputs and exposure to ensure more realistic risk model development. Through libraries of metrics, Fuse assesses schedule quality, helping to evolve a schedule from S1 to S2, validates risk inputs (S3), and helps to evaluate an S4 risk-adjusted model to pinpoint any areas of concern. Fuse is one of the key tools used by the Acumen risk assessment team, and can be purchased separately as a means of ensuring future, internally generated risk plans are reliable.



# proven success

- 10% average reduction in project costs
- 20% average schedule acceleration
- 50% improvement in schedule achievability and confidence
- 91% forecasting accuracy
- 100% client satisfaction

## acumen forecasting accuracy



# r e c e n t w o r k s h o p c l i e n t s

Acumen has over 20 years of combined experience in assessing and analyzing project risk. Our world-renowned risk assessment workshops are geared towards one objective: risk exposure reduction. To meet this objective, the Acumen risk assessment team utilizes a unique combination of project insight and advanced risk modeling techniques and methodologies, unlike that of any other in the industry. Acumen has led countless project teams through the risk optimization process using the proven five-step risk management approach.

As an Oracle certified Primavera Risk Analysis (PRA) trainer and Oracle's go-to risk partner, Acumen has a unique expertise in Primavera Risk Analysis software as well as additional industry-accepted risk tools.

BG
Marathon Oil
Anadarko
Petrobras
Shaw
Benham
Sonatrach
Enbridge
Kosmos
Fluor
DHS
Dow Chemical
Inpex
Repsol
ConocoPhillips
Amec
Oceaneering
Bechtel
KBR
SNC Lavalin
Noble Energy
NASA



# workshop readiness check list:

## s c o p e o f w o r k

- Is the project scope well defined?
- Are the scope changes to date what is expected for this stage of the project?
- Is the project team aligned on the defined scope?

## s c h e d u l e

- Does the current schedule align with the scope of work?
- Has the schedule been validated by the project team for their respective areas of responsibility?
- Is the schedule at the appropriate WBS level for this stage of the project?
- Does the current schedule include ranges of uncertainty on the deterministic durations?

## c o s t e s t i m a t e

- Does the current cost estimate align with the scope of work?
- Is the estimate at the appropriate WBS level for this stage of the project?
- Does the estimate include ranges of uncertainty on the current estimated values?

## r i s k e v e n t s

- Has a project risk register been developed?
- When was the risk register last updated?
- Have the probability of occurrence and impacts been assigned and validated by the team?

# workshop cheat sheet:

## s c h e d u l e u n c e r t a i n t y r a n g e s

risk factor	best case (optimistic)	worst case (pessimistic)
Very Conservative	50%	100%
Conservative	75%	105%
Realistic	90%	110%
Aggressive	95%	125%
Very Aggressive	100%	150%

## r i s k e v e n t s c o r i n g

probability	insignificant (1)	minor (2)	moderate (3)	major (4)	severe (5)
(5) Almost Certain (>75%)	Green	Yellow	Yellow	Red	Red
(4) Likely (50% - 75%)	Green	Yellow	Yellow	Yellow	Red
(3) Possible (25% - 50%)	Green	Green	Yellow	Yellow	Yellow
(2) Unlikely (10% - 25%)	Green	Green	Green	Green	Green
(1) Rare (<10%)	Green	Green	Green	Green	Green

## c o s t / s c h e d u l e r i s k e v e n t v a l u e s

	very low	low	medium	high	very high
Probability	< 10%	10%-25%	25%-50%	50%-75%	> 75%
Cost					
Schedule					



# · a b o u t a c u m e n

· Acumen was born from a recognized need for improved project  
· planning and performance. Through the use of project analytical  
· techniques and best practices, we have built a company that is  
· second to none in providing not only insight into project challenges,  
· but more importantly an effective means of solving them. We are  
· passionate about aligning project success to corporate vision.

· Our extensive experience, spanning multiple industries, has  
· helped us develop three strategic means of instilling project  
· confidence within owners and contractors alike including  
· risk assessment workshops, project management software  
· training, and our own enterprise analysis software: Fuse.

## · r i s k a n a l y s i s t h o u g h t l e a d e r

· Dr. Dan Patterson, PMP is the founder of  
· Acumen and is a recognized thought leader  
· and visionary within the project management  
· industry. Prior to starting Acumen, Dan  
· was Executive VP at Pertmaster leading  
· the Americas business unit from inception  
· through to acquisition by Primavera. Dan  
· is also responsible for developing a now  
· widely accepted integrated qualitative/  
· quantitative approach to risk analysis  
· through facilitated risk workshops. His depth of knowledge extends  
· well beyond risk into schedule analytics and project optimization.



· Dan has a proven track record across multiple industries including  
· Aerospace & Defense, Government, Energy and EPC. As CEO  
· of Acumen, Dan now places focus on Acumen Fuse®, the most  
· advanced and comprehensive project analysis tool available for  
· Microsoft Project, Primavera, Deltek, Microsoft Excel, and more...

[www.projectacumen.com](http://www.projectacumen.com)



**ACUMEN**

Proven Project Analytics

7320 N Mopac

Suite 301

Austin, Texas 78731

1 512 291 6261

[info@projectacumen.com](mailto:info@projectacumen.com)

[www.projectacumen.com](http://www.projectacumen.com)