OPPORTUNITY

Risk Engineering News

Quarterly Newsletter

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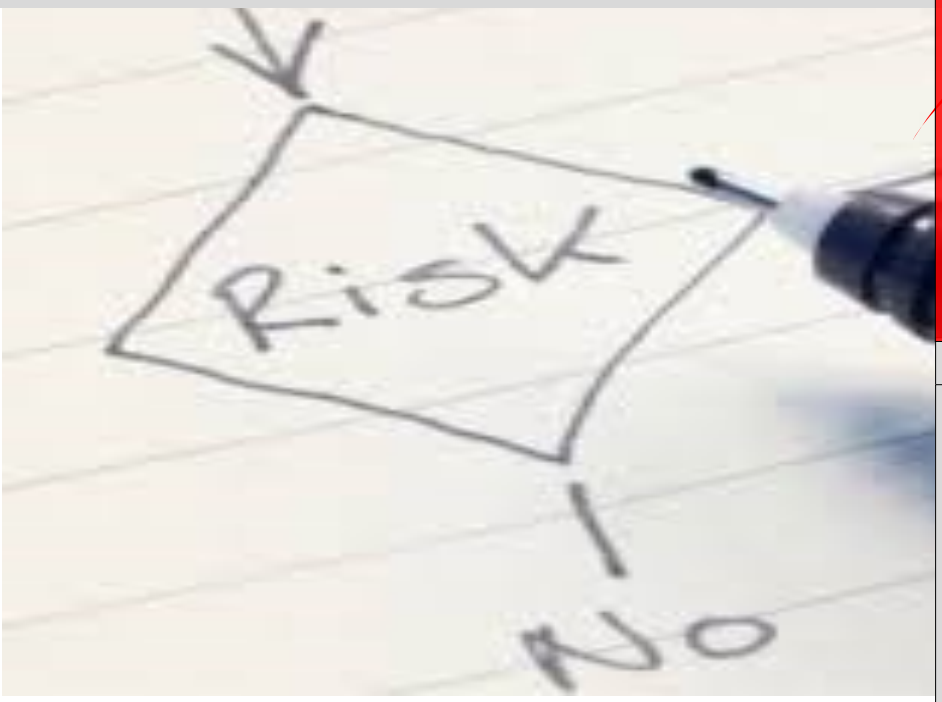

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Risk Engineering Society

President's Update

Hello colleagues in RISK and welcome to the 3rd quarter 2017 edition of OPPORTUNITY.

In this edition of OPPORTUNITY we provide an update and introduction to an initiative that the National RES Committee approved for funding at their August 2017 meeting. In particular we call upon our members to express interest in being part of the **REBOK Project Team** overseeing and conducting the preparation of the Risk Engineering Body of Knowledge (REBOK).

We are fortunate to have on board the ACT Chapter Chair, RES member and esteemed colleague; Ed Lewis who has willingly accepted the role of REBOK Manager, who essentially has the responsibilities of Editor-In-Chief. Thank you Ed for taking on this critical role to ensure the quality of the REBOK.

The Project Controls Conference 20-22 September in Sydney is shaping up to be a massive event in the Engineering and Project Management calendar for 2017 with over 100 organisations already represented. Please promote this conference widely amongst your project management colleagues so that no one misses out.

We also launch a new Q&A style column for members to ask questions and have answered by specialists in the RISK field. We look forward to seeing what you would like to know more about.

RES will again promote the Women In Engineering Newsletter by distribution to RES members later this month. It is a national WIE newsletter, so please make an OPPORTUNITY to promote and support WIE by sharing this publication.

Thank you for your ongoing support and I look forward to welcoming you at PCC2017 in Sydney in September.

Geoff Hurst (President)

QUARTERLY NEWSLETTER

The Risk Engineering Society is a Technical Society of Engineers Australia.

For Engineers Australia members, please remember to nominate your membership of RES when you renew your membership. NB: Non EA members can also join RES.

Risk Engineering Society

ENGINEERS AUSTRALIA

PROJECT CONTROLS CONFERENCE

ICC SYDNEY
20-22 Sept 2017

Improving maturity in Project Controls – keeping investments on track'

With less than one month to go, it isn't too late to register and attend the Project Controls 2017 Conference , 20-22 September at the International Convention Centre, Sydney.

Engineers Australia together with ***Risk Engineering Society (RES)*** and ***Australian Cost Engineering Society (ACES)*** are the hosts of this unique conference offering a comprehensive program which will showcase developments across all industries and sectors while exploring the theme **Improving Maturity in Project Controls**—Keeping Investments on Track.

Presentations and workshops will provide you with case studies that highlight best practice across the three key areas—People, Process and Technology.

You will be inspired to:

- Create a winning culture
- Advance your processes
- Gain insights into cutting edge technology

RES is excited to announce that in addition to the full conference program, on Wednesday 20 September, prior to the official opening of Project Controls 2017, RES NSW President; **Pedram Danesh-Mand** will facilitate a half day workshop on practical *Probabilistic Cost Contingency Estimation* by following a number of industry references including the *RES Contingency Guideline*. Also join RES National President; **Geoff Hurst** who will host an Overview & Facilitated discussion panel.

To register for the conference, please use

http://projectcontrols2017.com.au/

Interested in contributing to future editions of OPPORTUNITY—Risk Engineering News?

Please submit your article via email to:

res@engineersaustralia.org.au

CUT OFF FOR NEXT EDITION:

25 NOVEMBER 2017

Question & Answer Segment

Do you have a question that you would like answered?

Please email us at res@engineersaustralia.org.au

Question:

According to the RES Contingency Guideline, the likelihood of occurrence of a contingent risk is always less than 100%. Say there was an uncertain event that had a 150% likelihood (i.e. 1.5 iterations on average per project, say for example the risk of theft). It may not occur, but does the guideline suggest this should be included in the inherent risk calculation?

Answer :

(by Pedram Danesh-Mand, Pedram.DaneshMand@aquenta.com.au):

Regarding the best method of inherent and contingent risks mapping within the schedule/cost risk model, I would like to highlight that there is no 'right' or 'wrong' method of modelling. Depending on the phase of project and available data, RES recommends a good practice below:

To ensure Base Estimate and Base Schedule are reasonably representing the 'most likely' or 'most credible' scenario if the project materialises as planned, all key assumptions (including logic, methodology, quantities, current productivity rates, delivery strategy, etc.) should be the team's current best prediction for a given scope of work prior to the addition of inherent and contingent risk values.

In practice, thesr is generally an overlap between many cost items and associated 'inherent' and 'contingent' risks. RES recommends that any assumption which represents the 'most likely' situation should be included within the Base Estimate. Then to model the uncertainty associated with this number, there are three options:

If the uncertainty can be presented as a range, i.e. the best and worst cases, a reasonable range can be associated to the 'most likely' number – 100% likelihood. So, no need for a contingent risk.

If the uncertainty does not have a considerable range, the risk can be modelled as a contingent risk – likelihood less than 100%. So, no need for an inherent risk.

Sometimes, both inherent risk and contingent risk need to be modelled to accurately and reasonably address the uncertainty for that specific item.

To give you an example, we might have $5m cost of 2 properties acquisition in our Base Estimate. There is an inherent risk that we might be able to buy them 5% cheaper (best case) or 20% more (worst case) – this range can be modelled as an inherent risk with 100% likelihood. In addition, there is also a risk of 'additional 1 property may be required for access' with the likelihood of 5% and potential cost of $800k (best case), $1m (most likely) and $1.5m (worst case). This should be modelled as a contingent risk, with a likelihood less than 100%.

In your specific example of possible theft, my personal recommendation is that most likely cost impact of common theft in similar projects can be included in the Base Estimate. You might also put a range against this cost based on your previous actual data – based on what has happened to your organisation in the past. Then, in addition, there might be a risk of 'theft of key items' (which has never happened to your organisation but has happen to other similar projects), with a big cost impact. This low likelihood high cost consequence risk can be modelled as a contingent risk, e.g. 5% likelihood and range of cost impact of $1m (best), $1.5m (ML) and $3m (worst).

Who Needs Project Controls?

There is a perception from some people in the industry that project controls don't add value to a project, says **Lance Stephenson**, AECOM's Los-Angeles-based Director of Operations. Lance points to research arguing that when a project controls practitioner was assigned to a project, the project could save approximately two to three times the cost of the project controls practitioner.

Lance will be speaking at the Project Controls Conference and his presentation 'Who needs project controls? Just do it' will draw on his experiences as a practitioner, educator, implementer and leader of strategic cost engineering and project controls.

"I will also be looking at how key drivers are corrupted if you do not ensure due diligence in implementing and managing a project controls process within an organisation and the project," he says. Project control practitioners can learn from some of the ideas presented by Andrew Hopkins in his book 'Disastrous Decisions—The Human and Organisational Causes of the Gulf of Mexico Blowout'.

Project controls practitioners need to ensure that they learn, develop and grow in their respective roles.

To read more from Lance, please see full article at:

https://www.engineersaustralia.org.au/News/who-needs-project-controls

'Cost Estimation Guideline Note 3A' Response

In May 2017, the Department of Infrastructure and Regional Development invited Risk Engineering Society (RES) to provide comment on the draft version of *Guidance Note 3A – Probabilistic Contingency Estimation*. The GN3A aims to establish the principles for determining an appropriate project contingency allowance using a probabilistic methodology, noting that the Department requires a probabilistic cost estimation process be used for projects for which Commonwealth Government funding is sought with a total anticipated Outturn P90 cost (including contingency) exceeding $25 million.

Since the introduction of the 'Risk-Driver' terminology for estimation of project cost risks in early 2000 by a number of individuals and organisations including *Evin Stump P.E. in 2000*, *David Hulett in 2001* and *Asian Development Bank in 2002*, there have been quite a wide range of different interpretations of this method and its applications especially between the self-contained projects, e.g. within the resource sector, and heavy-interfaced projects, e.g. within the transport sector.

We believe that although the proposed 'risk-factor' approach by this consultative document is referring to the original 'Risk Driver' methodology introduced by both *Stump* and *Hulett*, in fact it is actually a different method and should be only named as 'risk-factor' which is also aligned with the defined 'risk-factor' capability within the *Pertmaster* software, currently known as *Oracle Primavera Risk Analysis*, as a quick and easy high level schedule risk modelling approach.

While the proposed risk-factor methodology may be adequate for the projects that are relatively self-contained or at the early stage of development, e.g. projects within the resource sector or at the initiation or optineering phase, in our view it may not fully address all requirements of infrastructure projects with many interfaces due to the nature of infrastructure cost uncertainties.

On the other side, the selection and modelling of risk-factors are very subjective, e.g. the uncertainty of labour rate can be modelled as one factor impacting all construction disciplines for example earthwork, structure and demobilisation activities or it can be modelled as three different factors for each construction discipline. This subjectivity will increase the risk of inconsistency between models and their outcomes between agencies and even their different teams.

To address these challenges, including consistency not only between Australian government agencies but also their counterpart organisations globally, and to ensure an optimum cost contingency will be assessed, especially for transport projects with many complex interfaces at the Final Business Case, RES recommends a risk-based bottom-up probabilistic cost estimation modelling with key correlations being addressed within the inherent and contingent risks.

A full copy of the RES response, including the recommended approach, can be found at the link below.

https://www.engineersaustralia.org.au/Government-And-Policy/Submissions-To-Government

To discuss the contents of this submission further or to arrange a meeting, please contact the NSW Chair of the Risk Engineering Society: Pedram Danesh-Mand

Risk Engineering Body of Knowledge — Project Announcement

The REBOK will be developed via a community of practice with a community website that is cloud based withfull online database and community features.

Following is a basic process proposed for REBOK:

1. Organise webinars around key themes defined by a controlled wiki.
2. Run and record the webinars.
3. Transcribe the webinars.
4. Edit the transcriptions and upload content to relevant pages in a wiki (using freelance journalist) in a format approved by the RES National Committee
5. Undertake an initial quality check on new content.
6. Invite RES and REBOK project members to comment.
7. REBOK Project Team members collate comments and update content.
8. Periodically review gaps in the wiki pages that need fleshing out.
9. REPEAT

Expressions of Interest are being called for the following **REBOK Project Team** roles that are designed to spread the workload, so no one team volunteer is unduly burdened.

⇒ **REBOK Community Leader** — Essentially this person will run the community like they own it. They will assist with appointing the other roles, approve all webinars/initiatives and delegate tasks/fill gaps where necessary. They will also be the communications manager, responsible for issuing a regular REBOK newsletter and moderating the community members where required.

⇒ **Webinar Program Manager** — This person will organise the webinar schedule in liaison with the Theme Leaders (refer following) and liaise with Engineers Australia to get it scheduled.

⇒ **REBOK Manager** — This role has been filled by Ed Lewis. This is the editor-in-chief, i.e. person who develops the wiki and liaises with the freelancer to get the wiki content as good as it can be. Responsible for the quality control and consistency of format that you would expect of a world class BOK product.

⇒ **REBOK Theme Leaders** — REBOK will be divided into a number of key themes. Theme Leaders will identify topics that need to be addressed, find speakers, arrange to host these speakers in the live webinar (if available), edit the freelancer's summary contribution to the wiki, collate any comments on a page and update it to reflect, and any additional information as they see fit.

⇒ **EA Community Coordinator** — This is an Engineers Australia position. A staff member (appointed) will deliver the following service to the REBOK project:

a. Website set up, upgrades and maintenance
b. Setting up webinars in GoTo Webinar
c. Setting up registration for webinars in the CVENT system
d. Issuing CPD attendance certificates (for live webinars only).
e. Organising transcription of video recordings
f. Hosting video recordings
g. Sales of recordings
h. Provision of training/guidance documents for webinar hosts and presenters, including speaker agreements
i. Backup for webinar hosting if required.

⇒ **Freelance Journalist** — A freelance journalist will take the video transcription and edit it to create content for the wiki in a format and style approved by the RES National Committee. They will also edit the video recordings, insert opening and closing slides, upload to the webinar platform with description content and insert links to the recording in the wiki and other required places.

We look forward to hearing from committed members of the RES community and maintaining momentum for this highly needed REBOK.

Your EOI with supporting information should be forwarded to Geoff Hurst via email: ghurst10@live.com by **30 September 2017**.

REBOK

Expression of Interest

Risk Engineering Society (together with Engineers Australia) is currently seeking expressions of interest from members to participate in two specific **Standards Australia** committees on a voluntary basis.

The nominee (s) would represent the **Risk Engineering Society** and **Engineers Australia** on the following:

- MB-025 – Societal Security
- OB-007 – Risk Management

These committees work with all sorts of risk related Standards, the current active projects are:

- AS/NZS 5050 - Managing disruption-related risk
- HB 292 Guide to managing disruption-related risk: A companion to AS/NZS 5050
- SA/SNZ HB 470 Making decisions about risk
- AS 5212 Proposal for new Standard for Crowd Management for Mass Gatherings
- SA TS ISO 22317 Societal security - Business continuity management systems - Guidelines for business impact analysis (BIA)

Australian Standards underpin the nation's economic efficiency, international competitiveness and contributes to community demand for a safe and sustainable environment. The contribution to the community, to Standards development and to engineering, in general, is important and appreciated. Engineers Australia encourages its members to participate in the work of the standards development committees whenever possible and values each nominee's contributions.

Benefits to you for participation in Standards development:

- Keep up-to-date with the latest developments in processes and technologies.
- Expand your professional networks.
- Claim Continuing Professional Development (CPD) hours for your work under Type V (Service to the Engineering Profession).
- Know that you are contributing to the betterment of society through improving processes and safety.

In considering your role as an Engineers Australia nominee on Standards Australia Committees you should:

- Represent the views of the practicing engineers in the field and act in accordance with the Code of Ethics and current Engineers Australia positions.
- Keep Engineers Australia informed of significant activities such as drafts for comments, publishing of new standards and or issues of contention.
- Provide advice to Engineers Australia and its membership on the relevant standards if requested – this may be in the form of email or phone correspondence or assisting with Engineers Australia technical seminars & presentations where appropriate.
- Be aware that your name and email address will be provided to the Chair of the relevant learned society group, e.g. College Board in order for that group to keep in contact with you.
- Be aware that you will be requested to provide regular (6 monthly) reports to Engineers Australia on the activities of the Standards Australia Committee you are the EA nominee for.
- Inform Engineers Australia of any change to your contact details or ability to contribute to the Committee.

Further information on the Roles and Responsibilities can be found here:

http://www.standards.org.au/StandardsDevelopment/Developing_Standards/Documents/SG-004%20Roles%20and%20Responsibilities%20in%20Standardisation.pdf

If you require further information before making a nomination; please contact us at:

standards@engineersaustralia.org.au.

If you are interested in being a Risk Engineering Society/ Engineers Australia nominee on the above Standards Australia committees, please complete the following information and return to:

standards@engineersaustralia.org.au.

Name:	
Member No.:	
Area of expertise:	
Relevant Engineers Australia College or Group:	
Comments	

Upcoming Events 2017/2018

RESERVE THESE DATES IN YOUR CALENDAR!

- 14 Sept (WA) - Organisational Resilience—How Organisations Can Prepare to Survive Crises
- 20-22 Sept (NSW) - Project Controls Conference Sydney 2017—International Convention Centre
- 17 Oct (VIC) - Insurance Primer for Engineers
- 12 Dec (VIC) - RESV General Meeting & Presentation

ATTEND & GAIN CPD HOURS
ENGINEERS AUSTRALIA

Insurance Primer for Engineers

Look out for the RES CPD event on 17 October. Find out about the insurances that make mega projects possible and what happens when things go wrong. We have secured speakers from international brokers and loss adjusters working with the construction industry. Come and get an overview of the big risks and how they are covered . See how Engineers are involved throughout the project development and construction cycle and how as Engineers , you may find yourselves interfacing with the claims resolution process. This event will give a basic introduction to project insurance and through case studies, introduce the technical process of loss adjusting.

IDEAS?

What do you want/need?

Meeting Topics?

Issues? Activities?

Your local Committee wants to hear from you. CLICK HERE to send your ideas, suggestion and issues.

Risk Engineering Society
Email: res@engineersaustralia.org.au
Website: https://www.engineersaustralia.org.au/risk-engineering-society