OPPORTUNITY

Risk Engineering News

Quarterly Newsletter

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Risk Engineering Society

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President's Update

Hello colleagues in RISK and welcome to the second edition of OPPORTUNITY for 2018. Thank you to all those who have contributed to this edition of the Newsletter.

The REBOK Project and the RES CPD programs are certainly well underway with many people joining us (up to 230) in the webinars and auditoriums. Thank you to all for your support.

We have still many opportunities for improvement and participation and we appreciate your patience. We apologise for any inconveniences caused with timing and notifications. Praneet and his REBOK Team have also been hard at work in building our new REBOK website that will be released to interested RES members in the second half of 2018 for input and suggestions. It is anticipated that it will be of sufficient quality for public release during early to mid 2019.

Please make special note of this months news item on RES support for **AusEngCon 2018** being held in Sydney, September 17 - 19. We are co-hosting a Sydney Opera House tour. and we thank Gareth Byatt for his support and work in helping to make this event happen for RES and the College of Leadership.

We look forward to continuing to receive news of interest from our wider membership for publication in future quarterly editions of OPPORTUNITY. Also, please visit or post discussions on the RES LinkedIn Group.

If you are not connected to the RES Group here is the link to the discussion:

https://www.linkedin.com/groups/3751665

Regards,

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

Take and manage risk to achieve project success (Part 2)

Good risk management can make an invaluable contribution to the success of construction and engineering projects. Gareth Byatt* outlines some good practices in project risk management.

Following on from the March 2018 edition of 'OPPORTUNITY', we continue the discussion on 'Take and manage risk to achieve project success'. The first four key project risk management elements that can help you achieve project success were:

1. Ensure you have a good project team culture in place
2. Plan your approach, then work the Plan
3. Agree your risk appetite
4. Prioritise your risks

Gareth Byatt* will discuss the remaining three of seven key project risk management elements that can help you achieve project success.

5. Controls play a vital role

Controls are key to managing risk. Some industries, such as mining and oil & gas, have specific methods for managing controls as part of a control framework, including critical controls management guidelines. Controls for construction and engineering projects include Health & Safety controls, Design controls, Scope Change Control, Procurement and Contract controls, and others. Having the right controls in place to manage risk, knowing which controls are critical, evaluating control effectiveness and testing your controls is important to ensure that your control framework is robust and that you manage risk well. Controls must be proportionate to the risks that are faced so that effort is focused on what matters most. The biggest risks need the most controls focus, and controls that are "critical" are those that need the most attention. Modern technology solutions offer new and innovative ways of managing risk and controls in a project environment.

6. Manage risk in your everyday project activities

When the five areas described above are in place, the management of risk is part of what you do every day. Management reviews, design reviews, schedule reviews et al should all have an agenda section dedicated to managing risk. Weaving the management of risk into the rhythm of your project governance structure is critical to ensuring it adds value.

It is vital to review operational construction and engineering risks as part of your daily activities. Construction and engineering projects are dynamic and so are the risks you face as they change over time. What was a low risk yesterday or last month may now be a high risk, due to various factors (project progress on site, a new team coming onto site, weather changes, working in a new part of the site, or something else). Taking the time to consider "what's new or different today?" with your "What if?" mind set is crucial when you are undertaking your daily work.

7. Measure, learn and improve

Measure the effectiveness of taking and managing risk, ideally against your risk appetite. For example, measurement against safety targets, including lead indicators, will tell you how successful you are managing safety. In financial terms, measure the cost of controls and actions to manage risks, and their effect and benefits on your project's outcomes and objectives.

It is important to capture and share knowledge and lessons learned of how you have managed risk – the good and the "to be improved" – so that others on your project and across your organisation can learn from your experiences. Your RMP should include details of how you will run knowledge capture sessions to record and share your learnings. Seek further

learnings in return from other projects and your business.

Summary

Every project team takes risk and manages uncertainty. Done well, it is your ally. Taking the time to plan, implement and monitor how you take risk and manage uncertainty increases the likelihood of achieving your project's objectives and achieving successful outcomes.

* Gareth Byatt is an Independent Risk Consultant and owner of Risk Insight Consulting. He is based in Sydney, Australia, and has 20 years experience in risk and project management.

Safety Cases: A Personal View

Contributed by Garry Marling

On 20th February 2018 Mr Kevin Band of the Risk and Safety Group made a presentation to the QLD Chapter, 'Safety Cases – still of value in Safety Risk Management'. This is my review.

The presentation kicked off with some historical background on safety cases from an voluntary perspective of some industries from the 1950s and as a result of findings from some major unwanted events. Kevin also did a comparison of the USA and the European (including UK) perspective and then focussed on the Australian perspective.

Kevin also covered off on historical regulatory issues starting with a letter from Stephenson in 1840 to the regulator outlining the need for a systems approach. He then took us through the UK railway safety case regime and how that shaped the current Australian rail statutory and co-regulatory model.

Some discussion was then undertaken on risk tolerability.

The following overall conclusions were made:

1. Safety Cases are not a panacea and they will not prevent all major accidents, nor less serious ones but they do seem to help us understand and then reduce the probability of a major event occurring and to mitigate the consequences of those that do occur.

2. Experience suggests the main benefit of a safety case comes from the process that the operator has to go through to prepare the case. Therefore, it is not the safety case, that should be seen as the greatest product of safety case regulations, rather it is the process of preparing the case - In this sense there is an element of self-regulation which is directly in keeping with the conclusions of Robens Committee.

3. There are problems in deciding the level of detail needed in a safety case. In practice a balance has to be struck between the needs of the regulator and the operators own staff.

4. However, all the evidence from across a wide range of industries, as well as from independent evaluations, points to their success, if appropriately developed and used by operators.

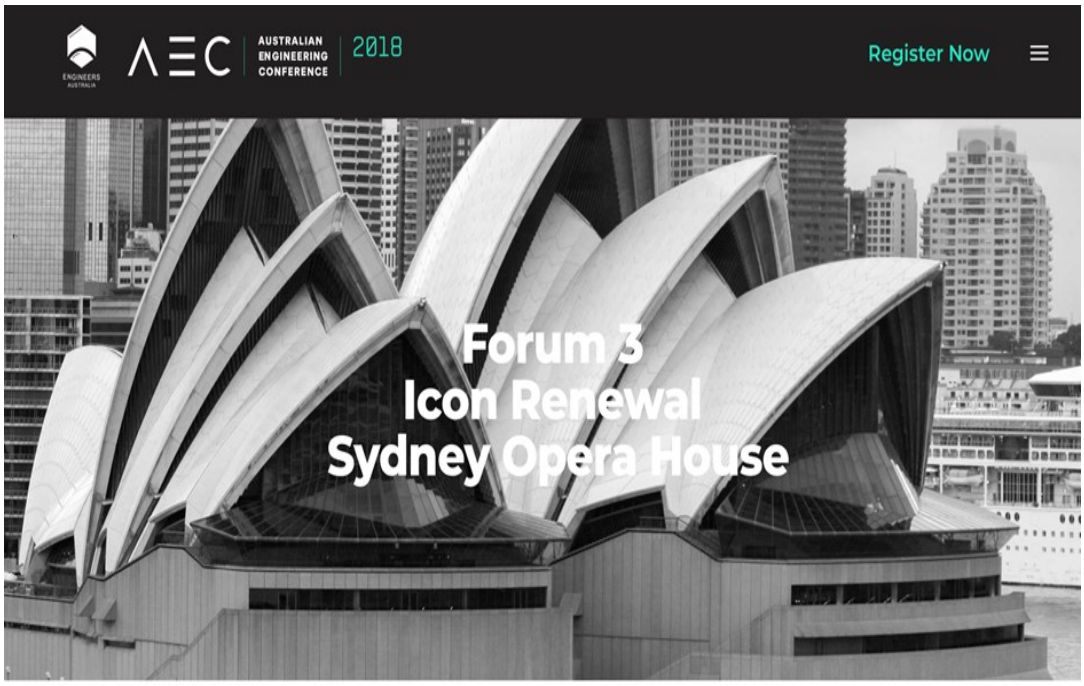
The ultimate test of success and failure of safety case systems is whether or not they reduce the frequency of major incidents. Fortunately, they are relatively rare events anyway so it may be some time before we can definitively judge success or failure. Indeed, HSE is only just starting to receive the safety reports produced as a result of COMAH. It will be the historians of health and safety who will have the privilege of making that judgement. However, we do not have that luxury of time and we must make judgements as we go along.

Kevin suggested the following as useful resources to consult on safety cases:

- Professor Nancy Leveson - *"The Use of Safety Cases in Certification and Regulation".*
- Peter Wilkinson - *"Safety cases: success or failure?"*
- Timothy Kelly - *"Arguing Safety"* (342pg thesis contains much Goal Structured Notation research).

AEC | AUSTRALIAN ENGINEERING CONFERENCE | 2018

The **Risk Engineering Society** is delighted to be an Engineers Australia co-host for one of the 13 offsite technical forums that are being organised as part of the ***Australian Engineering Conference 2018,*** which is being held between 17-19 September in Sydney.



What's the Opera House Site Forum 3 about?

The Sydney Opera House is an icon of modern Australia. It has been the country's premier tourist destination for decades. But Sydney Opera House's theatre systems are aging and in the midst of major upgrades – while thousands of visitors pour through its halls every day.

This forum will take attendees back of house while showing you the Renewal Project in action.

If you're an admirer of iconic architecture and innovative engineering, this forum brings both elements into harmony.

On this forum people will:

- Witness the Renewal project in action and get an understanding of its technical complexity
- Hear from the CEO and Building Director on the challenges of the Renewal project, their vision for the Opera House and the challenges behind its creation
- Hear from a renowned architect about the Opera House story vision and challenges behind its creation
- Participate in discussions about the risks and opportunities behind the Renewal project

Forum Speakers:
Louise Herron, AM – CEO, Sydney Opera House
Ian Cashen – Director of Building, Sydney Opera House

Hosts: The College of Leadership and Management (CLM), Risk Engineering Society, Asset Management Council

Register now for this event!

REFLECTIONS ON SAFETY

PART 2

By Geoff Hurst with acknowledgement to

Professor Erik Hollnagel and David Skegg

Welcome to the second instalment of the series 'Reflections on Safety'. In the previous edition of OPPORTUNITY, I provided a brief introduction to the series and what the series would cover. This instalment explores 'Avoiding the complexity'.

Organisations, small to large have responded to changes in technology that unintentionally have increased the complexity of human-machine interaction since the Industrial Revolution: in the 1800's with the advent of machines (warnings and inspections); in the 1900's to mass production and automation (Regulation, standardisation and Taylorism); in the 1970's the pneumatic and hydraulic controls were complimented or replaced by electronic devices (Ergonomics, Human factors, Risk Engineering - FMEA, HazOp, Fault Tree, Event Tree); in the 1980's computerization brought new benefits (Robotics, digitalisaiton and mechatronics) and challenges; and now we are at the point where big data and ubiquitous networking will change the nature of the game once again.

To capitalise on these advances in technology, organisations have focused on machine reliability to improve productivity (efficiency) by devoting resources (thoroughness) to equipment design and machine operational practices.

Improvements in safety have largely been as a byproduct of these technological advances that have relied on human involvement to compensate for any shortcomings of technology, rather than trying to understand how organisations have become Complex and intractable Socio-Technical systems.

Industries that have a small appetite for risk due to potentially large consequence values (such as air traffic control, nuclear power, chemical processing, and some areas of medicine) are paying increased attention to understanding the complex nature of their socio-technical systems. However, it is also the case that companies that are very concerned about risk tend to focus on simple explanations and simple solutions. Patient safety is a case in point. I think that the difference is more between companies who take a longer view of things, looking decades ahead, and companies that are preoccupied with how they do at the moment – and the public perception thereof.

We have tended to "follow the crowd" and the "flavor of the month" down the futile compliance or awareness based path.

So, what's next? The next part of the series will discuss the focus on compliance.

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:

17 AUGUST 2018

Two years since its first release, **2nd Edition** of **Risk Engineering Society (RES) Contingency Guideline** is just about to be released for public consultation in Jul/Aug 2018.

Our current time line is:

- Review by RES committee members nationally and key contributors to 1st Edition — comments by end of June
- Editorial review (during July) and Graphical Design (TBC—during July)
- Draft for Public Consultation to be published (late July/early August) for 4-6 weeks
- Completion of editing, graphic design, EA legal review, etc. (late August)
- Final draft reviewed, approval and endorsement (Sept/Oct)
- RES Contingency Guideline 2nd Edition to be released (Oct)

Whilst the structure of the Guideline has had minimum changes for consistency, the 2nd Edition of the Guideline has been considerably updated with additional methods of calculations, further details, practical notes, RES recommendations, etc. If you are interest in getting involved and supporting the process, please send an email to res@engineersaustralia.org.au

ENGINEERS AUSTRALIA

Risk Engineering Society CPD Program 2018

RESERVE THESE DATES IN YOUR CALENDAR!

- 26 June — NSW/Webinar Option Available — Cost Risk Analysis and Project Risk
- 28 June — QLD — Project Risk Quantification: Methods that work
- 10 July— VIC — Cost Estimation—Misconception of Structural Engineers in Proving Tender Documentation (Co-hosted with Structural College)
- 18 July —VIC—Dangerous Goods Through Tunnels (Co-hosted with ATS and SFS)
- 30 October—VIC—Building Construction Risk (Co-hosted with SFS and Structural College)
- 17-19 September—NSW—***Australian Engineering Conference 2018***

  (AUSENGCON 2018) - https://ausengcon.com.au/
- 23-26 September 2019—***International Congress on Engineering and Food***

  (ICEF13) - http://icef13.com/

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ICC SYDNEY
17 - 19 SEPTEMBER 2018

ICEF13 INTERNATIONAL CONGRESS ON ENGINEERING AND FOOD | *Engineering Innovations for Food Supply Chains*

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