

integrated

Bringing clarity to complex insurance claims





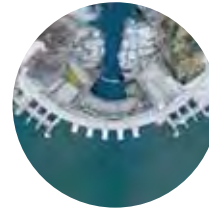
Issue Six 2019

**THE ROLE OF
BIG DATA
IN AUTOMATING
PROCESS INDUSTRIES**

**GOING UNDERGROUND
NATM CLAIMS CHALLENGES**

**THE MAKING OF A
WORLD CLASS
LOSS ADJUSTER**

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The majority of claims are settled without dispute, but the hardening market and potential restriction of design cover is a matter for concern as this has the potential to polarise opinion.

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We would like to thank Scot Peachey (Marsh JLT Specialty) and Jonathan Sargent (Swiss Re) for their invaluable contribution to this issue of **integrated**

This publication is for the benefit of Insurers, Insurance Brokers, Insureds and other stakeholders involved in the services that are provided by Integra Technical Services Ltd. It is not legal advice and is intended only to highlight general issues relating to its subject matter but does not necessarily deal with every aspect of the topic. © July 2019

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Integra Technical Services Ltd.
6th Floor, 117 Houndsditch,
London EC3A 7BT
Tel: +44 (0) 203 879 8320
www.integratechnical.com



Welcome to Issue Six of **integrated**, our magazine devoted to the specialty insurance lines marketplace and sharing knowledge, experience and insight to improve claims management. We hope you enjoy reading this issue and, as always, would welcome your feedback and ideas for future articles.

Cyber and Data risks are becoming more important in the industries we serve and increasingly intertwined in what might have once been the preserve of traditional property claims. We've taken the decision to appoint a specialist Cyber Loss Adjuster, Gerard Ward, and his deliberations about the 'Role of Big Data In Automating Process Industries' (page 10), particularly the pitfalls of placing too much focus on AI and Machine Learning too soon, is both thought provoking and highly relevant as our collective clients are adopting new ways of working.

With respect to 'Data', and as a result of engagement with a number of our stakeholders, we're building a secure loss database that will be launched in 2020. It will contain (anonymised) loss related data and insights using data drawn from our 21 years of adjusting claims around the world. You'll be hearing more about this in future issues of **integrated**.

What does 'World Class' Loss Adjusting look like? It's a question we've been pondering as we develop our in-house World Class Adjusting Program, to better equip our team for handling losses of all sizes and complexity in the future. It's not been easy defining 'World Class' but in the end we got down to three elusive qualities that World Class

Loss Adjusters consistently demonstrate (page 6). Many of you will have first-hand experience of working with World Class Loss Adjusters and I'd be delighted to receive your observations on this topic, please do call or email me.

Our World Class Adjusting Program is just one part of our strategy to help achieve our vision of being "the first choice loss adjuster in the industries we operate in."

Another element of our strategy has been to strengthen our management team and during Q2 this year we appointed Managing Directors in Australia & New Zealand (Tom Pasley), Asia (Alistair Lamb), Europe, Middle East and Africa (Phil Durrant) and a Global Head of Operations (Natalia Staina, who you can find out more about on page 4). As a result, we are now collecting greater insight from international offices, enabling more decisions to be taken locally and ensuring that we work more effectively when we assemble cross border teams to work on losses.

We know that we have much work to do to achieve our vision but we are excited by the challenge and putting in place the foundations upon which to build our success. We hope you enjoy reading **integrated** and thank you for your continued support.

Leo Dixon BSc (Hons)
Chief Executive Officer
Integra Technical Services Limited

APF 2019 A SELL OUT



Now in its third year and continuing to grow the Asia Power Forum welcomed some 360 delegates to hear a fantastic range of speakers and panellists discuss topics that included parametric solutions, confidentiality agreements, machinery warranties, transformer losses, DSU, renewables, the Asia Claims Solution and the death (or not) of coal.

A new initiative for 2019 was the half day Primer Session immediately prior to the main conference. A Power '101' offering a technical introduction to power generation and the insurance of power risk. Stephanie Etourneau (Marsh) and Jon Sykes (Burgoyne and Partners), Nick Sykes (Clyde & Co) and Philip Taylor (MDD Forensic Accountants) then engaged delegates with an interactive power generation claims case study.

Integra Technical Services are one of the founding supporters of the Asia Power Forum and their Asia Managing Director, Alistair Lamb, has been a Committee member from the outset. Alistair was delighted with the Conference “it’s such a pleasure seeing the gruelling team effort to organise the event and secure high-quality speakers pay off. We hope the delegates enjoyed the Conference and would be pleased to receive ideas and feedback to make 2020 even better.”

Alistair himself delivered a thought-provoking presentation about the application of Testing and Commissioning Clauses. As he explains “This clause sets ‘gateway criteria’ which must be met to allow acceptance of risks from construction projects onto the main operational policy. I wanted to explain how the clause applies in practice, as confusion about this has led to many difficult claim positions.”

EVENT ROUND UP

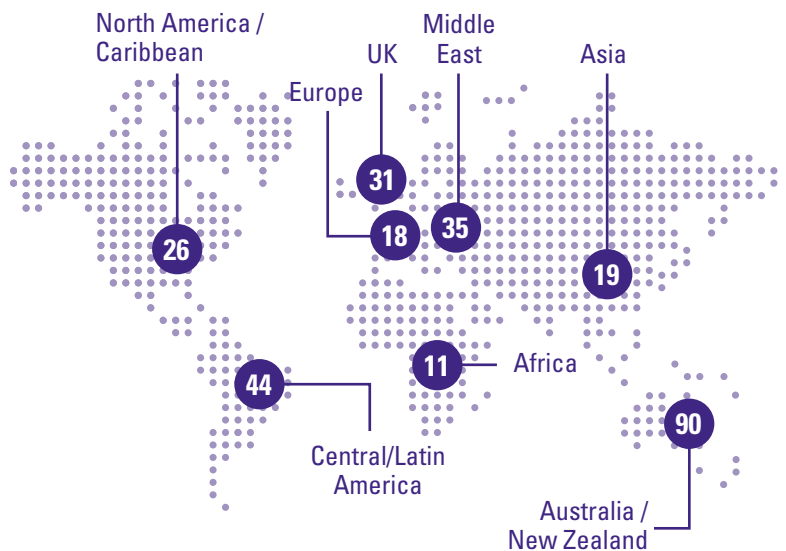
NORTH AMERICA

January 2019, Loss Executives Association, Florida - Phil Durrant, Managing Director EMEA, Integra Technical Services presented the topic of ‘Business Interruption Implications of Wide Area Damage’. He shared the stage with representatives from C Lewis and Foran Glennon, with the panel discussing Generali v Orient-Express Hotels (OEH) (Windsor Court Hotel, “WCH”) and its application in future claims.

July 2019 – Ewan Cresswell, Chairman, Integra Technical Services attended a two day Zurich North America conference. He joined Power Generation Underwriters, discussing policy points which directly influence claim outcomes. With Oil & Gas Underwriters he talked about the developing issue of permitting and how this can impact rebuild timelines. And his main presentation focused on Integra Technical Services’ experiences of Insureds in major or complex losses, offering case studies including managing expectations, overcoming adversity, recognising early settlement opportunities and citing a benchmark for cooperation by an Insured.

Integra Technical Services H1 2019 New Instructions

In the first half of 2019 Integra Technical Services have adjusted claims in 44 countries of the world.



Australia

Andrew Gibson (Executive Adjuster) and Denis Speyer (Senior Adjuster) of Integra Technical Services' Sydney office presented to AlphaXO, Thomas Miller and Zurich.

February 2019 presentation titled "That's Not The Chemical Cargo We Loaded!" delivered to specialist Marine Insurance Broker, AlphaXO and Thomas Miller.

May 2019 presented "Nothing Like A Good Derailment!" looking at Logistics Operators & Carriers' Liability to the Zurich Marine Claims Team in Melbourne.

Kuwait

Angus Bradley, MEA Regional Manager for Integra Technical Services partnered with Willis Towers Watson to run two separate one day construction claims workshops in Kuwait. The workshops were attended by over 100 delegates from Bahrain Kuwait Insurance Company, Kuwait Integrated Petroleum Industries Company, Gulf Insurance Group, Kuwait National Petroleum Company, and a number of PMC and EPC Contractors and subcontractors.

Singapore

On 15 May 2019 Alistair Lamb, Managing Director - Asia at Integra Technical Services joined Clyde and Co to present to Zurich Underwriting and Claims personnel about DE and LEG defect clauses. Alistair explains "defect clauses, especially LEG2, are not always straightforward and may not have the efficacy Insurers desired. Cause investigations are key, understanding what defect exists, the nature and whether it was causative, and the extent of consequential damage."

Bermuda

Ewan Cresswell, Chairman of Integra Technical Services presented at the Loss Executives Association's Spring Meeting in June, alongside Theresa Dunlop, VP and Senior Underwriter, and Mikal Thomas, Claims Analyst of Oil Insurance Limited (OIL). Ewan gave examples of the challenges in representing OIL and commercial Insurers, where the latter offer the OIL "Wrap" – a policy that provides difference in deductible and excess Property Damage and Time Element cover.

If you would like a copy of the presentations please email leo.dixon@integratechnical.com

FORGING LINKS IN RUSSIA

Andy Evans, Chartered Loss Adjuster, and Phil Durrant, Managing Director EMEA, of Integra Technical Services will be speaking about 'Defects and Damage and Mythbusting DSU Claims' at the RISKS&CLAIMS-2019 International Conference which is being held at the Metropole Hotel Moscow on 19th September 2019.

This conference is organised by the National Association of Insurance Adjusters (NAIA) with the support of the All-Russian Union of the Insurers. NAIA is the first Russian non-profit association for Loss Adjusting and Claims Management companies. The event will bring insurance Surveyors, Loss Adjusters and experts, Insurance and Reinsurance companies, Insurance Brokers, Lawyers, Insureds and Public Authorities together to consider modern



industry challenges related to changes in the economic and technological environment.

More information about this event can be found at http://www.naia-rus.org/risks_claims/about_conference/

MEET NATALIA



Natalia Staina joined Integra Technical Services in April 2019 as their new Global Head of Operations.

Prior to joining, she was Operations Manager for a London based hedge fund advisory and spent more than three years as Committee Manager for the International Association of Oil & Gas Producers (IOGP), which represents energy companies worldwide developing industry positions on critical issues and liaising with international regulatory and legislative bodies. Throughout her career Natalia has managed cross-functional projects involving IT, Risk, Finance, Marketing and Learning & Development and served as strategic expert for a number of start-ups.

WHAT YOU SHOULD KNOW

Home town: Tyumen, Russia, which is 1,600 miles east of Moscow and the first Russian settlement in Siberia. It's the largest city of Tyumen Oblast, an oil-rich region bordering Kazakhstan and home to many financial and energy companies.

Education: An MBA Graduate, Natalia also has a Master's Degree in Oil and Gas Economics and Management, a Master's Degree translating English and Russian and is currently studying an Advanced Diploma in Counselling and Psychology.

Car: According to Natalia "I don't drive, I am driven!" Living in London she does not need to drive (but accepts she should perhaps) but in Russia she has a big cherry-red jeep.

Film: Limitless, Inception, Matrix, Avatar, Indiana Jones, Labyrinth, Big Short.

Music: Hurts, Nostalgia, Kaleida, Empathy Test, Milow, Placebo.

Gadget: Latest gadget of choice is the Vector home robot who can apparently read the room, express the weather, announce when his timer's done (no overcooked dinner on his watch), take the perfect snapshot, and so much more.

Last holiday: Canary Islands

WHAT SHE DOES IN HER DOWNTIME

Natalia loves to network with friends on different technology, creative media and start up ideas and she's currently writing a 'career coaching' book and a 'tech & non-tech' skills training program for youngsters.

ADJUSTING TEAM ENHANCED

Integra Technical Services have welcomed four new members into their team in 2019:



Andy Evans
DIP CII, ACILA
London

Chartered Loss Adjuster

Andy joined Integra Technical Services in January 2019 and specialises in adjusting Construction & Engineering losses including DSU & ALOP, Inherent Defects, Project Finance Insurance, Power Generation & Transmission, Oil & Gas and Waste Water Treatment claims.



Domingo Salerno
Mech.Eng, MBA
Houston

Senior Executive Adjuster

Domingo joined Integra Technical Services in March 2019 and specialises in Oil & Gas, Petrochemical, Power Generation, Technology and Construction & Engineering claims. He will be operating in North America and Latin America.



Ali Ellesawy
LLB
Dubai

Senior Adjuster

Ali joined Integra Technical Services in March 2019 and specialises in adjusting Oil & Gas, Petrochemical, Renewables and Upstream Energy (including Land Rig) claims. He has experience working in Europe, India, Iraq, Kingdom of Saudi Arabia, Kuwait, Oman, Qatar and West Africa.



Gerard Ward
MISDF(Hons), BCom,
PMP, CISSP
Auckland

Cyber & Technology Adjuster

Gerard joined Integra Technical Services in April 2019 and he is both a Business Interruption and a technology specialist, in the role of Cyber & Technology Adjuster. He will be working primarily across Australia and New Zealand.

TEAM IN THE SPOTLIGHT MIDDLE EAST

Fact File

- ✓ Based in Dubai
- ✓ Love complex claims
- ✓ Like collaborating
- ✓ Set high standards
- ✓ Multi-sector skills

Integra Technical Services opened their Middle East office in 2010. From this office they provide services across the Middle East, Africa and into parts of Asia. As you would expect the team are steeped in experience of Construction, Energy, Power, Refining and Business Interruption claims, but discussion with them has revealed some unusual sporting facts.

Angus has swum across the Equator three times, Sam has survived a parachute failure at 200 feet, Ali is a qualified gliding instructor and Eoin loves to play hurling. A sport described by Jason Statham in the film Blitz as a cross between hockey and murder!



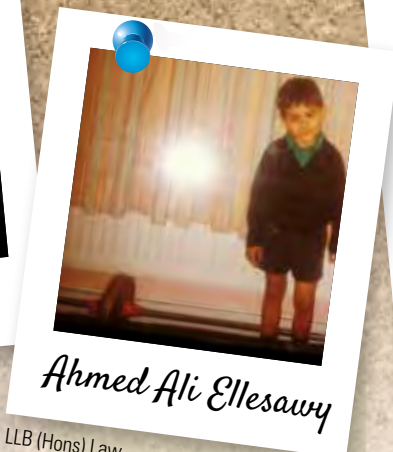
Angus Bradley

Chartered Loss Adjuster
Chartered and International Registered Engineer



Sam Foster

Meng | CEng | MIMechE | ACII



Ahmed Ali Ellesawy

LLB (Hons) Law



Eoin Russell

BBS | ACII | Chartered Loss Adjuster

Food:
BBQ

Film/TV:
Star Wars

Music:
Hard Rock

Sport:
Surfing/Snowboarding

Holiday:
Mentawis / Italy

Specialist subject:
Artificial Intelligence

Food:
Mexcian

Film/TV:
Layer Cake

Music:
Electronica

Sport:
Skiing / Cycling

Holiday:
Maldives

Specialist subject:
Yorkshire

Food:
Italian

Film/TV:
Narcos

Music:
Smooth Jazz

Sport:
Rugby

Holiday:
Vietnam

Specialist subject:
Houmus

Food:
Italian

Film/TV:
Peaky Blinders

Music:
Rock

Sport:
Hurling

Holiday:
South Africa

Specialist subject:
Cheltenham Races

'WORLD CLASS' LOSS ADJUSTING WHAT DOES THAT LOOK LIKE?



Integra Technical Services will be launching a World Class Adjuster Programme in 2020. Ahead of the launch, their CEO, Leo Dixon, considers the attributes of a 'World Class Loss Adjuster'. Do you agree with Leo's view? Email your comment and opinion to leo.dixon@integratechnical.com

Defining what makes a world class sportsman or sportswoman is a relatively easy task. Their status can be determined by a gold medal tally from Olympic Games and World Championships; triumphing against the odds; a track record of inspiring their team-mates to achieve beyond expectations; creating that game changing moment to clinch a title or promotion.

Closer to home, it's much harder to pin down what makes a World Class Loss Adjuster.

It should be recognised that only a percentage of the incidents that are notified to the (Re)Insurance markets each year warrant the appointment of a World Class Loss Adjuster, and in the aftermath of such incidents the stakes are high. The situation can often be fraught with political, legal, trade union, health & safety bodies and other government regulators involved. The Insured, their (Re) Insurers and third parties will likely be facing significant financial exposure as a result of the incident. The insurance press like to communicate what they perceive the financial exposures to be after these 'CNN moments' often with inaccurate information which can create unnecessary and unsupported expectations.

Despite what can be excessive pressure on the individual, and when the potential for conflicting stakeholder positions is high, World Class Loss Adjusters tell the impartial story. They bring clarity to the complex, report clearly on the facts, resolve technical and financial disputes – and ultimately enable a successful outcome to the claim for all parties.

"Par for the course"

In-depth industry knowledge, attention to the minute detail, the discipline of a commercial project manager and resilience under pressure are valuable attributes of a highly regarded Loss Adjuster. Excellent communication skills are of course expected: a great Loss Adjuster can



go into a difficult or sensitive situation – maybe one where loss of life or huge environmental damage has occurred – and straightaway start those challenging conversations with the Insured, the Brokers and (Re)Insurers without fear or favour in the search for the facts surrounding causation and the extent of damage.

Alongside these attributes, they also have the ability to interpret numerous different policy forms and retain a sound working knowledge of relevant case law. We're fortunate in our industry to have many Loss Adjusters who are building successful careers based on this set of capabilities.

Stepping Up to World Class

To make that step up to World Class Loss Adjuster isn't the case that the employer gives a badge boasting 'World Class Loss Adjuster'. If it was that easy, no doubt all adjusting houses would have swarms of World Class Adjusters in their ranks.

An Adjuster only achieves World Class status when they are appointed by claims stakeholders from all corners of the world to handle those incidents that create significant concern for all involved, and only their involvement brings peace of mind to the stakeholders. World Class Loss Adjusters are performing at this level over a sustained period of time and not on a 'one-off' basis. So, in addition to the attributes mentioned above, we believe the World Class Loss Adjuster needs to demonstrate three rather more elusive qualities:

1. What if? The World Class Loss Adjuster has a way of anticipating the future. Not in a clairvoyant way but based on hard experience: an elusive combination of having a detailed understanding of the nature of the asset or project that's insured; a

comprehensive knowledge of how the policy wording should be interpreted; if a commodity is involved, the market conditions affecting its current and future price; and finally (Re)Insurance market practice for handling claims of this nature. They can somehow smell, sense, feel in their gut what the final exposure will be. Within a short time on site they can make an accurate estimate of the real exposure, whilst explaining each of the assumptions upon which their estimate is based. If hundreds of millions of dollars are at stake, then reserving accuracy within single figure percentage points of the final outcome is crucial as early as possible, to ensure that all parties expectations are managed and (Re) Insurers capital is not unnecessarily tied up 'out of the blue'. The World Class Loss adjuster quickly sees all the pitfalls and possible scenarios and can answer any 'what if?' question from any stakeholder, using not guesswork but facts, judgement and experience.

2. Mitigation mindset. From the first meeting with the Insured, the World Class Loss Adjuster is looking for ways the loss can be mitigated. They grab the 'bull by the horns', take personal responsibility for the claim, and investigate ways with the Insured to reduce the financial exposure of the incident. They may find ways to enable partial production to be achieved when an asset has originally been deemed to be non-operable until repairs are completed, they may recommend an alternative repair solution that reduces the reinstatement period, may propose small changes in the supply chain and in some instances, with support from the parties to the claim, incentivise contractors to speed up manufacture of critical path items to (against the odds) reduce the financial exposure for all parties. They can do this because they have the experience and credibility to challenge, to take a contrarian position, to tell things as they are while maintaining

relationships and trust on all sides. It's a hard ask, but that's what goes with being World Class.

3. Respect relationships. Despite the pressure from all of the stakeholders, the prospect of litigation, high profile media coverage, the huge sums of money involved, or sometimes even the human tragedy suffered, they understand and respect the significance of relationships between the Insured and their customers, the Insured and their Brokers and the Insured and those (Re)Insurance markets who've subscribed to the Insured's account for several years. No matter how difficult their conversations have to be with each of the stakeholders, particularly when sharing one parties position with the other, they do so in a way that at a minimum maintains and, on occasion, deepens the relationship between the parties. Call it persuasiveness, emotional intelligence, charisma or cultural awareness, they always bring the parties to the claim along with them and don't jeopardise commercial relationships on the way to settlement.

Material Difference

World Class Loss Adjusters make a material difference to the outcome of the claims they are appointed on and deliver excellent service and results to clients consistently over a sustained period of time. Importantly they are continuously improving their skills and contribution, as they build on each claims experience. World Class is a journey for those prepared to embark upon it, not a destination.

During 2020 Integra Technical Services' in-house 'World Class Adjuster' program commences, as we aim to fast track the development of our team using the insights from our World Class Adjusters as well as those from Risk Managers, Brokers and (Re)Insurers. This we hope will better equip our team for handling losses of all sizes and complexity in the future.

PROJECT INSURANCE FOR SUB-CONTRACTORS

Ruling leaves questions to be answered



Law, insurance and subrogation: a combination of topics not exactly designed to combat sleepless nights. But it's worth paying attention to a landmark legal case which could affect the whole way large construction projects are financed and insured. A High Court judgment last year seems likely to set a precedent for the whole way insurance policies and claims involving Project Contractors and Sub-contractors are organised and managed (Haberdashers' Aske's Federation Trust Ltd and Others vs Lakehouse Contracts Ltd and Others [2018] and first reported in **integrated** Issue 4). Mr Justice Fraser ruled that insurers can pursue a subrogation claim against a Sub-contractor even if the Sub-contractor is (or believes it is) already protected under the single

insurance policy commonly used in large construction project financing.

According to Phil Durrant, Managing Director EMEA at Integra Technical Services "that judgment was due to go to the Court of Appeal in January this year, and was expected to be either clarified or overturned. But the case settled out of court before the hearing. So, for the time being at least, the ruling stands."

Single policy

When arranging insurance for a large project it is usually simpler, more cost-effective and more transparent (in terms of both coverage and cost) for the Owner, Developer or lead Contractor to take out a single policy covering the whole project, with Sub-contractors named as joint Insured parties.

Typically this single policy is then supported by a standard Joint Contracts Tribunal (JCT) construction industry contract between the Contractor and the Sub-contractor; along with a requirement for the Sub-contractor to arrange Public Liability insurance on its own account (usually up to £5m) to cover death, injury and property damage.

Phil explains "under this approach, if a loss transpires the insurer pays out without being able to subrogate any claim back to the Sub-contractor (because it is Co-insured under the single policy)."

In the Haberdashers' Aske's case, in line with the practice outlined above, the main Contractor entered into a Project Insurance Policy which included cover for Sub-

contractors. Subsequently the contractor engaged a Sub-contractor to perform some roofing works. Unfortunately while the works were under way a fire broke out, causing extensive damage to buildings. The Insurers indemnified the main Contractor, but then also filed a subrogation claim to recover some of the indemnity payment from the Sub-contractor.

No subrogation?

Again in line with usual practice, the Sub-contractor argued that the subrogation claim was not valid because it was a Co-insured party under the single project policy.

However the legal contract between the Contractor and Sub-contractor had featured an express requirement that the Sub-contractor would obtain its own Third Party Liability insurance: which it had indeed done. Consequently, the project Insurers argued, the Sub-

contractor was not entitled to be considered a co-insured party and was not protected from a subrogated claim.

Mr Justice Fraser accepted that argument, ruling that reference must be made to the conditions of the contract between the Insured Contractor and the Sub-contractor who is seeking cover under the policy. Other legal arguments – relating to agency and the policy being a ‘standing offer’ from the insurers – were also considered and rejected under the ruling.

Phil suggests that “even before the Haberdashers’ case, the principal that the Insurer could not exercise rights of subrogation in the name of one Co-insured against a second Co-insured had its limitations, normally defined within a Multiple Insureds Clause (or similar) and concerning Vitiating Acts.” Basically, if a Co-insured commits a Vitiating

Act then the Insurers can treat the party as uninsured and pursue a subrogation action.

Conclusion

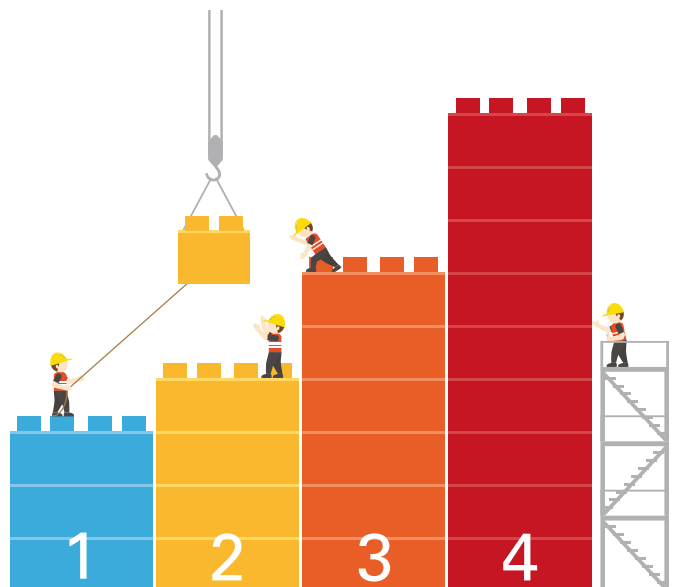
This ruling appears to open a further loophole. Insurers receive premium for providing cover for Sub-contractors but when (as is the case in many instances) Contractors include in their standard terms a clause requiring the Sub-contractor to obtain its own insurance, it now appears to leave the Sub-contractor open to a possible subrogation claim.

Of course, it’s possible there will be a new legal challenge to such a far-reaching ruling. But those kinds of challenge take a long time to emerge, and there is no guarantee of the outcome. For the time being, the precedent applies. And it might, or perhaps should, be causing sleepless nights for all parties.

FOUR QUESTIONS TO CONSIDER

Aside from the potentially significant precedent, the ruling raises some important questions.

- 1 Are more Insurers starting to use the judgment to subrogate against Sub-contractors?
- 2 Are we likely to see an increase in claims now that the precedent has been established? Might it open the floodgate to a new high level of litigation, especially for larger claims?
- 3 Has it affected the way Project Insurance proposals are now being structured, including the insurance advice being given to Sub-contractors?
- 4 Should all parties – Owners, Developers, Contractors and Sub-contractors – now be considering the potential implications of the ruling when agreeing new standard contracts?



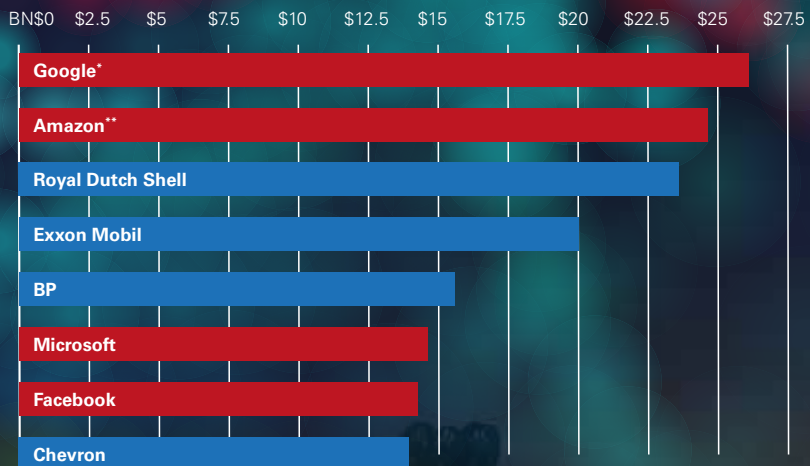
THE ROLE OF BIG DATA IN AUTOMATING PROCESS INDUSTRIES

Data is becoming increasingly vital in support of modern industrial processes. Gerard Ward, Cyber & Technology Loss Adjuster at Integra Technical Services, looks at how the oil of the new economy – ‘big data’ – is supporting the Oil & Gas and Petrochemical industries in optimising their operations and considers how insurance and risk management strategies need to evolve to remain relevant.

In March 2019, the Wall Street Journal published an article titled ‘Data Really Is the New Oil’ in the context of how the capital expenditure of tech companies was beginning to exceed that of traditionally capex intensive industries. As the diagram opposite shows, in 2018 the combined investment by the tech companies totalled USD77.7 billion, compared with USD71.5 billion spent by oil and gas majors Shell, Exxon Mobil, BP, and Chevron.

Among the biggest tech spenders was Amazon investing approximately USD22 billion in assets that include data centres supporting cloud delivered services, such as data warehousing and high-performance computation for algorithms that power Artificial

Greasing the Wheels
Capital expenditures for 2018



*includes Other Bets **includes capital leases
Source: company data, FactSet

Ranking of capital expenditure (capex) by firm

Intelligence (AI). And let’s not forget that the chart fails to really illuminate the extent to which the Oil & Gas and Petrochemical

industries are themselves investing in big data in their drive for automation that can create new competitive advantages.

IMPORTANCE OF DATA ANALYTICS

GE and Accenture published a research report in 2016 highlighting that 81% of Oil & Gas and Petrochemical executives considered big data analytics as one of their organisation's top three priorities. It's a point that was brought into focus again in April 2019 when the President of the oil services company, PUMPCO, observed that to boost efficiency the Oil & Gas and Petrochemical industries need unique technological differentiation which in the "new normal includes the adoption of big data as operators work with Google, Amazon and Microsoft to gain information about improvement of field operations, equipment, and well management."

Highlighting the journey of these sectors in using big data, in 2015 Shell reduced its cost of oil extraction by partnering with Hewlett-Packard and Amazon Web Services (AWS). Using HP fibre optic cables and storing the enhanced data sets acquired in AWS's cloud facilities, the resulting insights provided a more detailed vision of what lay below the ocean floor enabling geologists to more accurately determine where to drill.

MACHINE LEARNING

Big data is the foundation of industrial automation, and a critical first step in implementing AI. Providing a foundation for its data sets, the Oil & Gas and Petrochemical industries rely on Industrial Control Systems (ICS), Programmable Logic Controllers (PLC), and Supervisory Control and Data Acquisition systems (SCADA) to both control and report on the operating state of industrial assets.

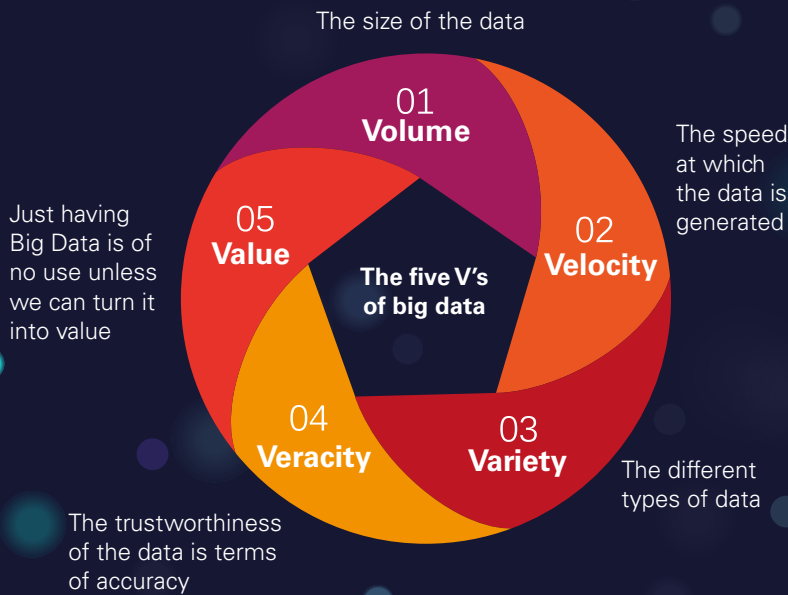
In the world of big data the information captured by ICS and PLC and aggregated by SCADA has a much more expansive application. For example, Shell now uses machine learning to assist operator control of drilling equipment. Machine learning is a technique that utilises algorithmic classification of data sets so that patterns can be identified and used to inform automated decisions. It requires data in large enough quantities and of appropriate quality to train the algorithms.

The control data that was historically used for real-time monitoring now takes on new value. It's use in training machine learning forms a cornerstone of AI, so what was once temporal data is now an enduring asset for many organisations. Not just within the Oil & Gas and Petrochemical industries but across many different sectors, including for example retailers and airlines.

THE FIVE V'S OF BIG DATA

The Oil & Gas and Petrochemical industries have long incorporated control data into process flows, with much of the equipment deployed having sensors and actuators for regulating valves, for example flow meters, submersible pumps, and other downhole monitoring systems. While historically this control data supported monitoring and operator directed intervention to assist the big data attribute of 'velocity', this time continuous data is being combined with other organisational data such as risk, asset and project information, to derive near real-time actionable intelligence.

04 INSPIRATION



Introducing the AI controlled smarts is increasing implementation of Cyber Physical Systems (CPS). These are meshed networks comprising nodes of sensors and actuators coordinated by edge computing and cloud hosted big data to create a new paradigm in connectivity. Edge computing is a technical term referring to computation being completed as close to the device as possible. For example, in the Oil & Gas sector using well data AI can identify kicks in the well and then determine actions that avoid destructive blow-outs.

SCALE OF RISK

These developments are undoubtedly fuelling advancements and creating new advantages, but they require a complete refresh of risk modelling, rethinking the propensity for scale events.

The tragedy of the two Boeing 737 Max air crashes illustrate the

consequences of bad sensor data informing an algorithm. The MCAS system (a CPS) was introduced by Boeing to eliminate the need to retrain pilots following the installation of larger engines that changed the aircraft's aerodynamics. The engines were designed to improve safety, but the implementation and use of AI resulted in greater complexity. This has led to the grounding of all Boeing 737 Max aircraft, with the delay in the manufacturer implementing a fix illustrating the risks of complexity overlaid on the limits of technology.

While the media is full of articles about enterprises adopting AI, and technical white papers talk to successful case studies, wringing productivity gains from big data and AI does involve a progressive layering of complexity.

As the Boeing 737 Max situation shows remediating CPS implementations is complex and can involve millions of sensors and

actuators controlled by thousands of central processing units (CPUs). The ability of the crisis teams to comprehend the full extent of the problem may diminish proportionate to the systems complexity.

This may provide a perfect warning for risk managers of asset fleets in Oil & Gas and Petrochemical, and potentially other industries. The implementation and reliance on AI may support more consistent utilisation of assets compared to using human operators, but human error is usually contained whereas the deployment of an algorithm creates a greater potential for scale events.

RISK MANAGEMENT IMPLICATIONS

Just how can risk managers determine and model the potential outlier risks that exist in algorithms? Particularly as they are largely software problems the test cases may not envisage and the big data that informed the decisioning in the first instance may not have encountered the combination of events that give rise to the outliers.

In considering scale risk, if a single asset crashed or exploded following an algorithmic error, would the balance of that fleet be stood down while root cause investigation and remediation ensued? If the fleet was idled significant business interruption losses then flow from that decision, but would these be insured under a traditional Property Damage policy?

In circumstances such as faulty sensors that inform algorithmic decisioning, and for which historic data sets had not encountered that

combination of circumstances, liability on the part of the machine learning trainer or sensor manufacturer may not be clear. How will a smart building be impacted if the algorithm interprets warning data as a false negative and ignores it, will a Property Damage policy still be triggered if the building catches fire as a result?

What if that fire had originated from the malicious interference of a bad actor through tampering with those systems in that smart building, does the Property Damage policy still respond?

RAMIFICATIONS

These questions and others have been vexing insurance market practitioners and regulators alike. It's led to much debate about silent cyber risks and transparency about what is covered and what is not covered.

In January 2019 the UK regulator, the Prudential Regulation Authority, called on Lloyd's and the wider UK (Re)Insurance market to ensure more effective management of silent cyber exposures. They ordered firms to work towards developing an action plan in the first half of 2019, and to set out clear milestones and dates by which action would be taken.

Following this Lloyd's consulted with the market and announced that from 1 January 2020 Lloyd's Underwriters will be required to clarify whether first-party Property Damage Policies affirm or exclude Cyber Cover.

While the cyber debate aims to bring certainty to (Re) Insurers and Insureds, achieving that outcome may not be so easy. The increasingly pervasive nature of big data supported CPS in industries like Oil & Gas and Petrochemical means qualifying the data and AI cannot be done in broad cross-industry terms. It will likely need to be more targeted, challenging the use of industrial special risks wordings and positioning standalone Cyber Insurance as being best placed to approximate the needs of rapidly evolving technology and data dependent businesses.

Just as a reliance on data is both challenging and changing the Insurance industry, Loss Adjusting also needs to change. Adjusters cannot rely on their traditional Property and Liability claims experience to guide them in the investigation, mitigation, adjustment and settlement of Cyber and Data related insurance claims.

Without understanding the composition of information flows, data and its role in supporting modern business models it is difficult for Loss Adjusters to qualify and attribute loss or support recovery strategies.



MEET THE AUTHOR

Gerard Ward is a cyber insurance specialist with deep knowledge of the technology industry. He understands data driven business processes, the financial models that data informs, and applies that knowledge to cyber and technology related insurance claims.

Since joining the insurance industry, Gerard has adjusted cyber and technology claims on behalf of (Re)Insurers for SME's through large corporates. Prior to that, he managed Information Technology (IT) projects focused on process and data security across Australia and Asia for clients operating in banking, insurance, retail, transport, and aviation. Following the Christchurch earthquake series in 2011, he

joined a New Zealand Loss Adjusting firm as a Financial Lines Adjuster to primarily manage technology related losses. His ability to drive claim outcomes draws on his experience as an IT project manager, supported by his having started his career as a management accountant.

Complementing Gerard's professional experience is specialist IT qualifications. He holds a Master's in Information Security & Digital Forensics, is a certified project manager and a certified information systems security professional. And he is advancing a PhD around risk in cyber physical systems and is the recipient of a doctoral scholarship from the University of Auckland Business School.

GOING UNDERGROUND

Urbanisation is stimulating investments in energy, transportation and water, potentially creating a healthy tunnelling construction project pipeline. Many of these urban tunnels will be constructed using the New Austrian Tunnelling Method (NATM). Claims arising from NATM tunnel failures are already among the most technical and challenging to manage, but could a hardening insurance market add extra complexity?

Urban expansion is growing at unprecedented rates, as cities spread out and new global cities emerge. The United Nations predict the shift from rural to urban living will continue for some time to come, with potentially an additional 2.5 billion people living in urban areas by 2050.

Tunnel construction may provide some answers for those involved in urban planning, helping to maximise space utilisation and reduce the environmental impacts of development. Railway tunnels for metro, light rail or main railway lines. Road tunnels that relieve congestion in city centres and reduce pollution using ventilation and clean air systems. Tunnels that convey water and wastewater, and pressurised water mains that support sustainable energy from hydropower plants.

Suitability of NATM

NATM is one of the most common methods for constructing tunnels in urban environments. Widely used to build shallow tunnels in soft ground below city centres, it is a particularly popular solution for underground stations, where very large diameter tunnels with complex junctions and interfaces would be difficult to construct by traditional methods. According to Andy Evans, Chartered Loss Adjuster with Integra Technical Services “NATM is commonly

used for creating shorter tunnel sections (normally less than 2km) and where there are variable ground conditions. It does not have the long and costly mobilisation process associated with the Tunnel Boring Machine method, so is generally more cost effective and flexible. When compared with Cut and Cover it minimises the impact on the environment by avoiding surface disruption.”



NATM has been used to construct tunnels in many parts of the world including the Frankfurt Metro (above), Crossrail, Prague Ring Road Tunnel and M11 Extension to the Istanbul Metro.

Technically complex claims

Whilst accurate and up to date loss data is difficult to establish, there is no reason to suggest that NATM presents frequent losses or has a worse claims profile than other tunnelling methods. Reports point toward 70 significant NATM tunnel failures between 1973 and 2007, including high profile incidents such as Heathrow Express Rail Link, Sao Paulo Metro, Barcelona Metro and the Lane Cove Tunnel in Sydney.

Jonathan Sargent, Head of Wholesale Property & Casualty Claims EMEA and Director Claims Corporate Solutions at Swiss Re concurs “it’s not frequency, it’s that losses tend to be catastrophic, quickly getting north of USD10 million and often running into tens of millions of dollars.”

According to Scot Peachey, Managing Director International Construction, Marsh JLT Specialty, “managing tunnelling claims is certainly not business as usual. Anyone that has managed a tunnel collapse will testify that these are complex and highly technical loss adjusting assignments. There are so many different considerations, that determining cover and setting appropriate indemnity cannot be compared with a traditional fire or flood loss.”

Root cause

Many of the technical cover considerations come back to root cause of the loss. The NATM construction method involves spraying thin layers of concrete as the open face of the tunnel advances, taking advantage of the inherent strength of the surrounding ground. Movement and settlement are closely monitored

throughout the construction, with strengthening measures adopted depending on the results which is why it is often referred to as ‘design as you go tunnelling’.

According to Andy “Integra Technical Services have handled (and are currently handling) many NATM tunnelling losses and it’s common for parties to blame ground conditions, or workmanship or both. However, the NATM design, construction methods and systems of work must all be carefully analysed. Causation is often not the ground conditions, but defective workmanship or design leading to the use of the wrong construction method in the ground conditions which existed.”

The Loss Adjuster and independent Engineer will gather complete information and evidence: answers to key questions (see next page); copies of site geotechnical reports and monitoring that was undertaken both before and after the collapse; NATM design information including drawings, method statements, settlement and deformation data; site meteorological records; inclinometer records; borehole logs; and any associated laboratory testing of samples of soil, rock and groundwater records.

Managing the repair

If a significant section of a tunnel has collapsed removing the debris and putting in place a suitable repair scheme generates its own set of challenges. Jonathan suggests that this will “initially relate to safe access and then considering different options, for example subject to permits building another tunnel to go around the damaged segment.”

Andy recently adjusted “a loss that involved a NATM tunnel collapse which left a large sinkhole. The successful solution was the implementation of a Cut and Cover repair using auger piles and a concrete cap.”

These repairs almost always far outweigh the original construction cost. A Zurich Insurance presentation in 2011 cites a Hull Wastewater Tunnel loss where the repair was 4,667% of the original contract value. That’s why Scot suggests that “when designing the cover Marsh JLT Specialty will sit down with the client to discuss the project in detail, including scenario testing to evaluate the maximum potential loss and determine the limit of indemnity required.”

Cover considerations

There may be questions about the number of deductibles to be applied, for example if there's subtle differences in defective workmanship causing damage to different sections of the tunnel. Cover could possibly depend on the definition of 'physical damage', for example if shotcrete sprayed onto the crown of a tunnel does not adhere. Or, perhaps, require a broad definition of 'property insured' if the actual defect is in the surrounding ground, rather than the contract works.

But many of the technical differences in opinion about policy coverage are likely to come back to two significant factors that Scot suggests "are key to the design of the policy wording. The specific tunnelling clause in the policy which confirms the basis of indemnity for tunnel losses, in other words what Insurers will cover and the maximum they will pay if insured loss or damage occurs, which during loss adjustment will work hand in hand with the scope of design cover afforded in the policy wording."

Hardening market could add complexity

The NATM construction method naturally raises questions about the extent of design cover under the policy, as many losses arise from defective workmanship or design. CAR policies written with design clauses

DE3 or LEG2 will naturally invite more disagreement and difference in opinion about the interpretation of the insurance cover and, potentially, lead to a dissatisfied insured and a delay in settling the claim.

It can be inherently difficult with NATM tunnelling projects to define 'defective property' and be able to ascertain and exclude the cost of repairing with the original defect. As a consequence, Scot suggests that "when it is available we always recommend DE5/LEG3 over DE3/LEG2 even with a higher deductible as we prefer our clients to have certainty of cover which supports a smooth adjustment process."

During the soft market this has generally not been an issue, but as the market has started to harden Scot suggests "we're seeing the number of lead Insurer options reducing and pressure being placed on policy wordings, notably the design cover. Whilst it's still possible to secure cover with DE5/LEG3 there is no doubt that it is becoming more challenging."

The management of tunnelling claims are among the most complex in the insurance market and can be challenging for Insurers, the Insured, Loss Adjusters and other professional advisers. Andy suggests that "the majority of claims are settled without dispute, but the hardening market and potential restriction of design cover is a matter for concern as this has the potential to polarise opinion."

Six initial causation enquiry questions

- 1 Were the pre-work ground investigations thorough enough to identify all of the possible ground conditions?
- 2 Are the fundamentals of the concept part of the design and construction process?
- 3 Is the shape of the tunnel and are the cycles of the excavation sequences (topheading, bench, invert, sidewall drifts) appropriate for the prevailing ground conditions?
- 4 Was sufficient support applied at the appropriate time?
- 5 What is the real NATM experience of the designer and of the contractor?
- 6 What is the experience of the engineers and tunnelling crews carrying out the works?





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Mark Ball (London) E: mark.ball@integratechnical.com T: +44 (0) 203 879 8320

Keith Charles (London) E: keith.charles@integratechnical.com T: +44 (0) 203 879 8320

Andrew Gibson (Sydney/Singapore) E: andrew.gibson@integratechnical.com T: +61 (0) 2 8216 0281

Denis Speyer (Sydney/Singapore) E: denis.speyer@integratechnical.com T: +61 (0) 2 8216 0281

Tom Wilson (Singapore) E: tom.wilson@integratechnical.com T: +65 6909 0950

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INTEGRATING RENEWABLE ENERGY AND

Offshore oil and gas platforms require energy to power their primary and tertiary activities. Traditionally this power requirement has been satisfied through the use of gas turbines and diesel generators. As we all seek to reduce our carbon footprint Government Authorities and firms are looking at the potential of an integrated offshore energy solution, with renewable energy being used as part of the power mix for offshore oil and gas installations.

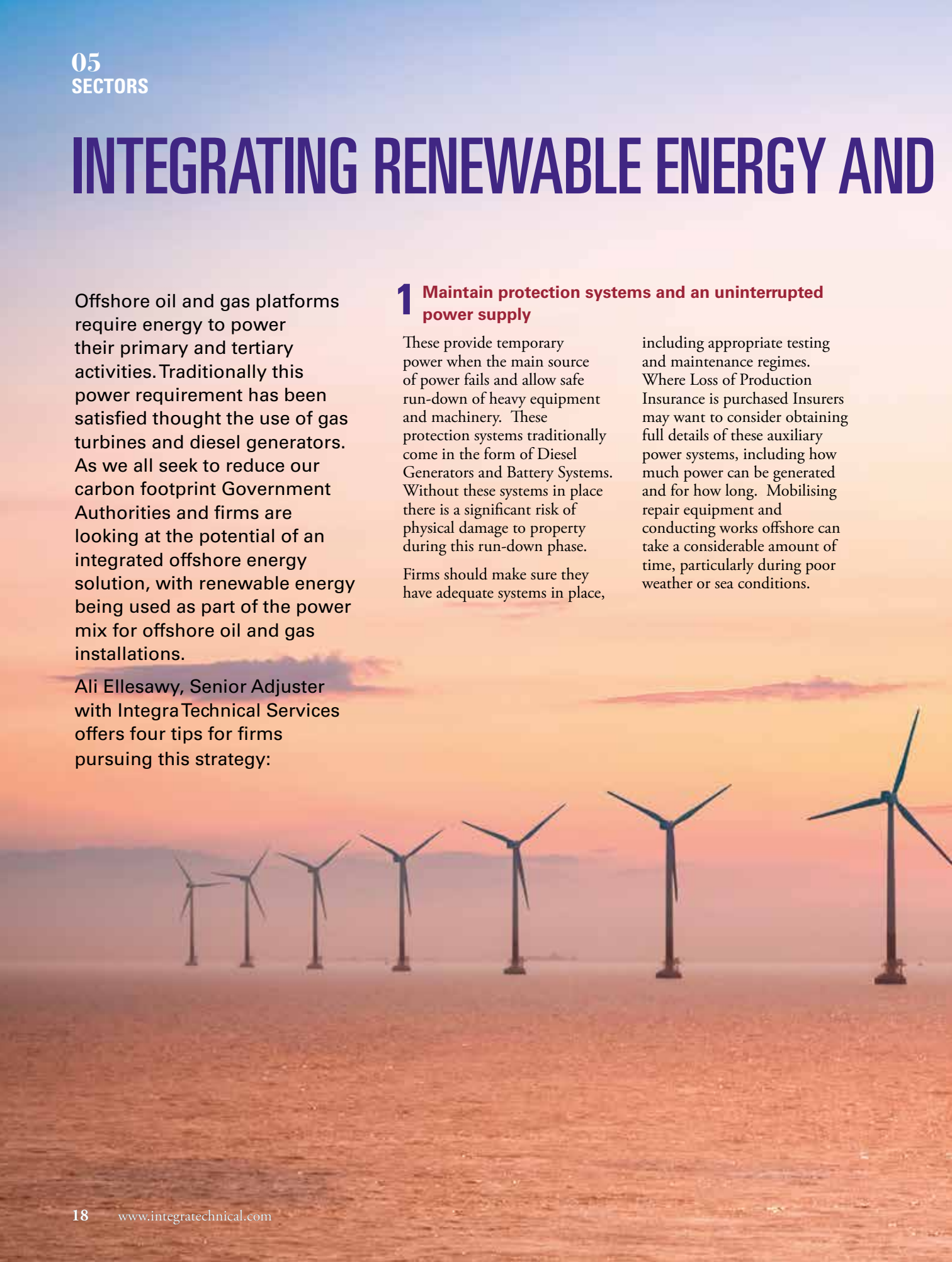
Ali Ellesawy, Senior Adjuster with Integra Technical Services offers four tips for firms pursuing this strategy:

1 Maintain protection systems and an uninterrupted power supply

These provide temporary power when the main source of power fails and allow safe run-down of heavy equipment and machinery. These protection systems traditionally come in the form of Diesel Generators and Battery Systems. Without these systems in place there is a significant risk of physical damage to property during this run-down phase.

Firms should make sure they have adequate systems in place,

including appropriate testing and maintenance regimes. Where Loss of Production Insurance is purchased Insurers may want to consider obtaining full details of these auxiliary power systems, including how much power can be generated and for how long. Mobilising repair equipment and conducting works offshore can take a considerable amount of time, particularly during poor weather or sea conditions.



TRADITIONAL OIL AND GAS OPERATIONS

2 Consider the potential for damage to existing property during construction

The renewable energy source will be integrated into an existing platform and infrastructure, creating a risk of damage to the existing property. This risk can be in the form of power umbilical cables laid in close proximity to the platform and subsea infrastructure, vessels manoeuvring and lifting equipment onto the platform, etc.

3 Alternate power management system

Given the cyclical nature of renewable energy (for example, wind farms experiencing low, medium and high wind conditions), the power management system should be able to alternate and distribute power loads between the main generator and the renewable source. It should take into account that producing a higher than required load can be inefficient, adversely a lower load can result in physical damage to equipment.

4 Prototypical technology

The concept of tidal energy is well established, however whilst the technology is fast developing its implementation remains in its infancy.

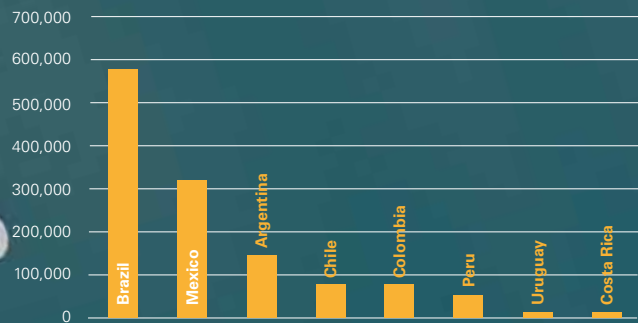
(Re)Insurers will be well versed with risks involved with new technology, including but not limited to: lack of expertise in the particular field; long lead time for spare parts and equipment; and limited experience in fault finding or root cause analysis. (Re)Insurers should look to work with the Insured to understand the technology and the components which would form part of the critical path in the event of a failure. It will equally require clear discussions between the (Re)Insurer, Broker and Insured about the policy wording for defective design and fortuity.



POWER GENERATION IN LATIN AMERICA

Many countries in Latin America are heavily reliant on hydroelectric dams for their electricity supply. This creates a potential supply vulnerability with the region particularly exposed to tectonic hazards and natural weather phenomena. How can firms better prepare for these catastrophic incidents, so that they minimise supply interruption?

According to the 2016 data published by the International Energy Agency (IEA) Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru and Uruguay are largest producers of electricity in Latin America (see below). With the exception of Argentina and Mexico, the rest depend on hydroelectric power generation to meet electricity demand.



Electricity Generation Capacity (MWh) - 2016 (source: IEA)

This demand is increasing as the middle class grows and purchases more electrical appliances and countries invest in energy intensive industries. Forecasts suggest that consumption could rise by more than 70 percent by 2030. Latin America already has one of the largest shares of renewable energy of any region in the world, but more than 80 percent of its renewable energy currently comes from large hydroelectric dams.

Whilst the hydroelectric share is likely to reduce as other forms of renewable energy grow, notably wind and solar, countries will still be heavily reliant on hydroelectric power to 'keep the lights on'. This creates a potential supply vulnerability with Latin America being particularly exposed to tectonic hazards and natural weather phenomena, such as El Niño, causing floods, droughts, hurricanes, mud slides, tsunamis, etc., and which are arguably being exacerbated by climate change.

A good example of potential supply interruption occurred in Colombia in 2016, when emergency energy saving measures were imposed to avoid blackouts after a major drought. That same year, Venezuela experienced a drought that dried up the supply of water for the main generation basin in the Caroni River.

Domingo Salerno, Senior Executive Adjuster, with Integra Technical Services suggests "the region has to address specific challenges to ensure that power generation businesses can quickly recover from catastrophic incidents and minimise business interruption."

He suggests a four-phase plan:

1. It starts at the design stage, ensuring that the engineering firms that design and build new power generation plants have access to climatological, geological and hydrology data. A lack of this type of data analysis has been the root cause of several catastrophic failures during construction or shortly after commissioning and handover. Examples include the collapse of underground tunnels, dams, and penstock, and landslides caused by heavy rain that washes away machinery installed in the powerhouse of a hydroelectric plant.

2. When placing the insurance, the Insured should leverage the knowledge and experience of the (Re)Insurer, Broker, Appointed Loss Adjuster and OEM to help them develop more robust business continuity plans.

3. Investing in building a wider pool of local technicians and workshops near the power generation plants to reduce the time required to carry out temporary or permanent repairs, effectively reducing the Property Damage claim and mitigating the time element for Business Interruption losses.

4. Appointing a Loss Adjuster at the pre-loss stage that can build knowledge of the power generation plant and who has experience dealing with the sector and in the region. Factors that increase the complexity of the loss and where the Loss Adjuster can add value include: understanding the Service Agreements with the OEM; comparing repair and replacement costs and looking at second hand options (see Case Example); availability of specialised local labour to perform repairs on site (see Case Example) or to replace the equipment versus the use of foreign technicians; and mobilising expert consultants to assess the damages.

CASE EXAMPLES:

Mitigating the loss

There had been a fire at a hydropower generation plant in Mexico and the Insured was facing a potential downtime of 283 days, the time it would have taken to purchase, build, transport, install and commission a replacement generator. The potential Business Interruption loss amounted to USD55.187 million.

Working with the Insured's team and the OEM, Integra Technical Services sourced a temporary 'used' generator in Houston, Texas. The cost of purchasing, testing, transporting, retrofitting and then dismantling this temporary generator amounted to USD12.5 million. But this reduced the Business Interruption to less than 85 days and a total Insured loss of USD29 million, a saving of over USD26 million.

Loss Adjuster Network

A power generation plant in Bolivia located 4,000 meters above sea level was facing a dilemma following an insured loss. They needed to repair mechanical and electrical equipment but technicians and workshops in the locality of the loss didn't have the tools and equipment to carry out the repairs, nor the technicians approved by the OEM. It seemed the only option was to transport the damaged items to workshops in Santa Cruz, Bolivia and Miami in Florida.

'Integra Technical Services' Loss Adjusters have settled numerous claims throughout Latin America and thanks to their contacts in the region, the Property Damage and Business Interruption losses were significantly reduced by locating an approved contractor in Medellin, Colombia, who had the experience, technicians and tools needed for performing onsite repairs.

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