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From 1st July 2017 there will be a mandatory requirement to attend a two day CISRS CPD training course prior to Scaffolder or Advanced Scaffolder card renewal.
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Past, present – and future

This year is a busy one for RICS. There have been many achievements that we should be celebrating, and we are still only halfway through.

Soon, we will launch the International Construction Measurement Standards (ICMS) in Vancouver, Canada. We will be joining some of the other 40-plus institutions in the ICMS Coalition to mark the launch, as well as discussing future plans.

ICMS are a high-level cost classification for construction and infrastructure. In this issue of Construction Journal, Alan Muse discusses the relationship between the standards and building information modelling (BIM).

It is amazing that in such a short period of time the ICMS Coalition has created, consulted on and published its first global standards. The work of the coalition has had RICS professionals at its very heart, with ICMS already being used in industry, notably by High Speed 2.

This year has also seen the second RICS World Built Environment Forum (WBEF), which was held in Shanghai in March. The WBEF attracted more than 700 professionals from around the world and focused on the One Belt, One Road initiative, which aims to propel the next stage of not only China’s but the world’s economic growth.

There were more than 50 speakers during the two days of the forum, many media interviews and some 1.5m social media users reached. Our brand is already established as the leading global professional body setting and enforcing standards, and RICS is now also seen as the convener of professionals and thought leaders. Nobody else does what we do on the global stage, especially with so many RICS professionals involved in so many areas of industry and public life.

In April 2018, the third WBEF will take place in London. At the same time, we will celebrate 150 years since John Clutton convened a meeting in London to discuss the need for ethical standards of consistent practice in the measurement and valuation of property and land.

Reflecting on what Clutton and his peers were trying to achieve, a glance at our Royal Charter from 1947 lists the chief aim as being to promote the profession while acting for public advantage.

Marking 150 years
Many events planned to celebrate a century and a half of RICS, including global campaigns and regional activities, all designed to promote the profession and its value. But the success of the year’s celebrations will rely on members.

We will be asking for your stories about the personalities and achievements of our profession, past and present. There will also be an opportunity to get involved in ideas for our future, how we will equip ourselves for the challenges ahead and how we will continue, through our work as professionals, to provide solutions to the world’s challenges.

To stimulate your thinking you might like to watch two RICS films, one from 1964 and the other from 2017 (see www.rics.org/surveyorfilm and www.rics.org/whoweare), about our profession’s role in the world.
**EVENTS**

**International Construction Measurement Standards**  
31 May, Manchester  
5 June, London  
Attend this seminar to learn how the International Construction Measurement Standards (ICMS) relate to existing standards work and how they will affect the quantity surveying profession. You will find out why ICMS are important, their development process, routes to adoption and their relationship with the New Rules of Measurement.  
- [www.rics.org/icmsmanchester](http://www.rics.org/icmsmanchester)  
- [www.rics.org/icmslondon](http://www.rics.org/icmslondon)

**BIM Conference**  
6 June, London  
This conference occurs six months on from the publication of the UK BIM Alliance’s *BIM in the UK: Past, Present & Future*, which targets adoption levels of 75% across the supply and demand chain.  
The conference will cover the importance of ensuring security in common data environments, and the increasing use of geospatial data in BIM projects. A breakout session will be held for cost, project and facilities managers, covering more effective routes to early engagement and collaboration and best practice approaches to project handover.  
- [www.rics.org/bimconference](http://www.rics.org/bimconference)

**APC: Final Assessment Preparation**  
13 June, RICS HQ, London  
RICS is holding a surgery for those needing support as they approach final assessment. We will review your presentation, offer revision tips and look at the assessment process.  
A question and answer session for all disciplines will be led by RICS London Regional Training Advisor David Murray. Candidates are advised to bring their documentation.  
- [www.rics.org/finalassessprep](http://www.rics.org/finalassessprep)

**STANDARDS**

**Forthcoming**  
International Construction Measurement Standards  
Whole lifecycle carbon in buildings professional statement

**Recently published**  
Conflicts of interest professional statement

**Survey endorses value of journals**

In RICS’ recent survey of journal readers, 1,200 respondents provided feedback about the *Construction Journal*.  
We are happy to report that satisfaction levels have risen from the previous survey, conducted in 2014, with “very satisfied” and “satisfied” responses rising from 58% to 73%. Since 2014, digital preferences have shifted slightly, however, with the overwhelming majority of respondents wanting both print and digital editions, although there is still a strong demand for print copies alone.  
Responses to the survey are extremely helpful, and we will look at implementing your views. In light of your comments, we will continue to provide updates on RICS’ and international standards as well as including more practical articles, case studies and legal analysis and application.  
If you have any further suggestions about improvements to be made, please do not hesitate to get in touch at [journals@rics.org](mailto:journals@rics.org)

**RICS gears up for 150-year anniversary**

The foundations for RICS were laid in 1868 when 20 surveyors met at the Westminster Palace Hotel in London. They appointed a sub-committee to draw up resolutions, bye-laws and regulations and establish an association representing surveyors and the growing property profession.  
On 15 June 1868, the group, which now numbered 49 members, met at the same hotel to approve the resolutions and elect the first council, with John Clutton chosen as the first president of the Institution of Surveyors (IoS). Offices were then leased at 12 Great George Street, which remains our headquarters to this day.  
The IoS received its Royal Charter from King George VI in July 1947, when it became known as the Royal Institution of Chartered Surveyors.  
To celebrate our 150-year history, we have reviewed our archive and selected 150 stories about the organisation. Many will be published on [www.rics.org/uk/news/rics150](http://www.rics.org/uk/news/rics150), with others to be broadcast on our social channels.
Asta Powerproject BIM now links with our Bidcon estimating tool to deliver 5D BIM

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When working on a project, the most important thing to remember is that things can and do go wrong – even when they are very well managed. This may result from human error or overreliance on technology, but the key to being a successful project manager is how you react and resolve an issue and the time it takes to respond.

Being positive and addressing the issue as soon as possible is in many ways what we are paid to do, using our leadership and management skills. In this context, mistakes should be regarded as a learning experience: as project managers, we can sometimes learn more from something going wrong than when it goes smoothly. However, it is important to understand why the situation occurred, as well as whether and how it could have been avoided.

Equally, it is always best to avoid a knee-jerk response. While addressing obvious health and safety issues promptly is important, any time taken to consult and think through the situation will rarely be wasted.

**Defensive tendency**

Expecting people to take responsibility is different to blaming them, yet people tend to look to protect themselves. This is because, in the heat of the moment, it is very easy for emotions to take over. It is important that the project manager does not succumb to such a reaction.

Blame in itself is unhelpful: all it will achieve is to drive people into defensive mode. A blame culture, becoming overemotional and not giving issues due consideration cloud the situation and will be detrimental in seeking a resolution.

The challenge for the project manager is to maintain a functioning, efficient team capable of developing solutions to the issue – unless of course the problem lies with the team itself. If this is the case, then the project manager will have to be objective in assessing the issue and taking a robust approach to restructuring the team after careful deliberation.

Also beware of the temptation to hide behind the documents – the reaction can be to reach for the contract, an action often perceived as allocating blame, and that again will drive people apart rather than contribute to resolving the issue. There may well be notices or similar documents to issue; however, by making it clear that, as project manager, you are simply implementing the terms of any contract and advising people of their obligations – and your own – the likelihood of this reaction can be reduced.

**Have the conversation**

Never ignore an issue: even minor disruptions can escalate rapidly if they are not addressed when they occur. Early reporting to the client is equally important, because it shows that you are aware of what is happening and that you are proactively looking for a way to address it. Such conversations may not be easy, but they will only become more difficult over time. Equally, early disclosure will give the client confidence that you are on top of things and keeping them informed.

Your client will want to know what has happened and how the team plans to react and develop a solution. Depending on the circumstances, the client may decide to change the brief or the objectives of the project.

Often there is more than one solution to a situation, and balanced evaluation of the options will pay dividends in the long run. Give your client options: what seems the most obvious way to set the project back on track may not be the way to go if the client sees a different opportunity.

Generally, it is best to keep an open mind. In one highly publicised incident, a facade collapsed during the investigation stage of a refurbishment project, but rather than simply have it restored, the client agreed to a more substantial renovation, with completion resulting in a much improved asset overall.

Handling such situations properly is important, not only to resolve the issue itself but also to maintain team morale and the impetus that will continue to complete the project.

When a project goes well it is not always clear why. However, when things go wrong it can be obvious where the cause lies. Understanding why a mistake has occurred and learning lessons is vital – using this knowledge to inform subsequent projects is the way most of us gain our experience.

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Insured interest

How can businesses ensure they are sufficiently insured when things go wrong, asks **Chris Green**?

Consultant and contractor quantity surveyors are expected to have a good working knowledge of the types of business insurance needed to provide cover for occasions when things go wrong. This article will focus on three key types of policy that offer protection for clients, contractors and advisors in the construction and infrastructure industries.

Common types of insurance include:

- **Professional indemnity insurance (PII)**: for negligence or breach of contract committed as a professional advisor
- **Contractors’ all-risks insurance**: this covers damage to the permanent and temporary works, materials, property, plant, tools, equipment and personal effects of employees
- **Third-party or public-liability insurance**: for injury to third parties or damage to their property
- **Employers’ liability insurance**: for injury to employees
- **Directors’ and officers’ liability insurance**: for damages arising from any act, error or omission made while acting in the capacity of a director or an officer of a company
- **Environmental insurance**: for historical conditions that manifest as a result of, or are exacerbated by, construction activities
- **Latent defects insurance**: for physical damage to buildings that result from inherent defects in the structural parts of those buildings.

**Professional indemnity cover**

PII insures against claims for negligence or breach of contract by a professional advisor. This may be, for instance, a consultant quantity surveyor or a contractor who has accepted a level of design responsibility under the building contract. PII can be purchased for varying levels of cover and uninsured excess, and it is advisable to examine the excess in particular because it may be impossible for a client to recover this amount from the policy holder in the event of the latter’s insolvency.

For instance, if a client makes a claim for professional negligence against a professional advisor, the advisor’s PII policy will pay out the amount insured less the uninsured excess; however, they will still owe the outstanding amount, and if they become insolvent they may not have the funds to pay it. The danger is that consultants can buy a cheaper PII policy because they have very high uninsured excesses, and this poses a risk to both client and consultant.

The consultant quantity surveyor requires PII to protect themselves. RICS publishes guidelines on appropriate amounts for given expected fee incomes, specifically listed in regulation document *Professional Indemnity Insurance version 3*, effective from 1 November 2015 ([rics.org/piiguide](http://rics.org/piiguide)).

However, it is more important that the amount of insurance is sufficient to cover the aggregate liability accepted by the consultant in their various appointments.
The amount of insurance should be sufficient to cover the aggregate liability accepted by the consultant

Therefore, if the consultant carries a PII policy for £1m, it would be unwise for them to accept any appointment with a higher aggregate liability or they will be exposed to uninsured losses.

Policies should be arranged on an “each and every claim” basis, meaning that they will pay out up to the insured amount for each claim presented, without limit to the number of claims. This assures clients that insurance will be available to meet their claims regardless of the number made in each policy year. Insurers often refer to these policies as “any one claim” (AOC) policies.

PII may not respond, however, to claims for consequential loss, and it is therefore important that consultants do not accept any appointments that would make them liable for this. Neither will PII respond to claims made for a failure to honour the duty of care to ensure a project’s “fitness for purpose”.

Consultants are usually required to use reasonable skill and care in performance of their duties, but occasionally a client may require the consultant to ensure that the project will be fit for the purpose required; however, it may fail to do so even though the consultant has used all reasonable skill and care. In this case, the client will not have to demonstrate that the consultant has been negligent but simply to show that the works are not fit for purpose. Thus the PII may not provide cover, leaving the consultant, and hence the client, uninsured.

Care needs to be taken when reviewing appointments for this higher, uninsured duty of care. The wording may not always make this apparent, as the appointment documents may only refer to an obligation to meet the particular requirements of the specification. This is effectively a “fitness for purpose” requirement, which may be uninsured. It is advisable to obtain a legal review of appointment documents before accepting them.

PII is also referred to as insurance on a claims-made basis. The consequence of negligence or breach of contract may not materialise for several years after work has been completed, and the PII policy that applies is the one in force when the claim is made rather than that which was in place at the time of the negligent act or breach of contract.

Contractors now commonly take out PII so they can accept some or all design liability for construction works undertaken or temporary works design. Again, it is important to obtain sufficient insurance to cover the contractual liabilities accepted under the building contracts.

A contractor’s liability is often expressed as a percentage of the contract sum. On large infrastructure projects this can be in excess of insurance readily available in the market. In such instances, it is advisable for the contractor to agree an inner cap, meaning that within the overall liability cap, no claim greater than that inner cap can be brought, which equates to the insurance being carried.

For example, on a £1bn infrastructure project, the total aggregate cap may be 15% of the contract price, that is, £150m; yet the contractor may only carry a maximum of £50m PII cover. It would therefore be advisable to agree an inner cap of £50m per claim within the total liability of £750m for all claims, to be certain that all liabilities are properly insured for the benefit of both contractor and client.

Contractors’ all-risk cover

All-risk insurance policies provide protection for damage to the works from specified causes or from the performance of the works. While the policies are generally known as “all risks”, there are many specific exclusions that must be understood on a per-policy basis.

It is important to take out sufficient cover for the value of projects undertaken. This may not be the full reinstatement value of the works, but should be representative of the likely cost of damage to them.

For large-value projects, it may be advisable for the client to arrange project-specific insurance so the works are effectively covered during the construction and the potential duplication of premium costs incurred by parties working on the project – in addition to their usual annual premiums – is avoided.

Where the client provides works insurance, the policy is often referred to as an owner-controlled insurance policy (OCIP). Contractors need to examine the detail of the policy as it may not cover all elements of the works being undertaken. In such an event, the contractor will have to take out an additional policy to cover the shortfall, often referred to as difference in conditions insurance (DIC). If the contractor provides defective materials or the quality of work is poor, then the cost of rectification will not be covered by the policy. Subsequent damage to the works may be recoverable under third-party or public-liability insurance. In a simple example, if a pavement sub-base is laid defectively, the costs of rectifying it may not be recoverable, but the cost of replacing the paving above may be.

Third parties & public liability

Third-party and public-liability policies provide insurance for injury to persons other than employees of the contractor and damage to property other than the works themselves. As outlined above, this may be useful in recovering some of the costs arising from defective materials or poor quality of work.

Completed works become third-party property and are thus covered by third-party insurance. The policy may also respond to non-negligence claims, where the contractor has not been negligent in carrying out the works but damage to third-party property has still arisen.

Opportunities to recover losses incurred on contracts due to the damage caused by defective materials and poor quality of work are often missed due to limited understanding of the cover provided by third-party insurance.
Making the right decision

More effective and productive construction work depends on combining technological advances such as building information modelling with processes that are internationally standardised, says Alan Muse

Cultural change and technological innovation are axiomatic. In the built environment, building information modelling (BIM) and big data promise much, but they have to overcome global industry challenges and fragmentation.

Various studies have shown that improving project performance is only possible by refining the decision-making process at each lifecycle stage. In turn, this process can be improved by providing the right information in the right form at the right time. Developing standards for this information is therefore crucial.

Of course, we need open data standards at an IT level; but we also need standards in the professional work processes for those who are populating building information models, particularly those involved in the business management of the project.

However, accessing information is like turning on a fire hose: it can quickly overwhelm you. It therefore needs defining in accordance with the decisions made at each stage of the project lifecycle.

Technology requires professional standards – and, in terms of data collection, use of predictive data and general relevance, professional standards need technology. As BIM advances and technology disrupts property and construction, the need for international professional standards gets ever greater.

Decision-making on construction projects involves the management of multiple, interrelated parameters such as quality, space, time and cost. The uncertainty associated with each of these, and the evolving relationships between them, is at the root of complexity in project management. Accounting for this complexity is critical if project managers are to plan effectively for contingencies and test the usefulness of alternative decision-making strategies. However, predicting the consequences of complex behaviour is difficult, as these often emerge in dynamic contexts.

A simple way to avoid making the wrong decisions at the wrong time is to establish a series of gateways, at which the project team compiles information describing the current status of the project, and the client assesses that information then either asks for changes or gives its approval and instructs the contractor to progress to the next stage.

At each of these stages, certain aspects of the project may be frozen, meaning that it can only be changed with the explicit agreement of the client when the cost implications and the disruption have been evaluated and accepted and the change itself recorded.

By progressively reviewing and approving aspects of the project, it moves forward in a controlled way. If this strategy is not adopted, the client and project team can lose focus, uncertain of what has been decided and what has not, and unable to make progress. There can also be ‘scope creep’, where instructions are given but no proper assessment is made of whether the instructed work is included in existing fees, whether it has been authorised and whether it is a sensible use of the clients’ funds. BIM can substantially help with this staged decision-making process.

Staged gateway data drops

To ensure that projects are properly validated and controlled as they develop, data is extracted from the evolving building information model and submitted to the client at various milestones. This submission is described as a data drop or information exchange.

Complex context

Recent trends, such as the push for sustainability, increased desire for public engagement and the globalisation of construction, have influenced the environment in which decisions are made. Consequently, decision-making models should adapt. More attention is being paid to technological development and networks, and this evolutionary, possibly chaotic, process needs to be managed and the collective intelligence of users harnessed to devise innovative solutions.
Generally, data drops are aligned to the project stages described above, and the information required reflects progress made at that stage. This might be considered analogous to a stage report on a conventional project. The nature of data drops should be outlined in a set of requirements at the beginning of a project. These may be considered to sit alongside the project brief: while the brief defines the nature of the built asset that the employer wishes to procure, the requirements define information about that asset to ensure that the design is developed in accordance with its needs and it is able to operate the completed development effectively and efficiently.

Typically, standard plans of work for buildings and infrastructure have accommodated these data drops. Critically, time and cost risks depend on the level of detail adopted at each stage of the Digital Plan of Work and Assemblies (http://bit.ly/2pa7zVk) and decisions should be taken in this context (see Figure 1).

**Standards spread**

Business practices are increasingly demanding global rules, such as the International Financial Reporting Standards used in the accounting profession. As land and property together represent 70% of global wealth, measurement of space in property and construction costs are prime candidates for standards of their own.

Such global standards would allow more consistent project decision-making using BIM across different markets, in turn enabling better benchmarking and greater transparency.

This is an important consideration, as there are difficulties in comparing the cost of construction projects on an international basis. Surveys of cost consultants in 40 countries by Building Cost Information Services (BCIS) and the European Council of Construction Economists have shown that:

- around 50% of countries do not have any published standard classification of building parts
- in the absence of locally agreed standards, professionals frequently adopt foreign standards or ad hoc standards developed in house
- there is no common way of expressing cost per square metre, either in terms of the cost definition or the floor area

The BCIS report concluded that: “Although there are countries with quite complete cost-related standards and information sources, there appear to be many more where the quality of published guidance and cost information falls short of what local professionals might wish.” Reports from the World Economic Forum and the McKinsey Global Institute, *Shaping the Future of Construction (2016)* and *Reinventing Construction (2017)* respectively, emphasise this point. The first says the industry can be transformed by collaborative standards and “the standardised definition of costs, classifications and measurements ... will lead to comparability and compatibility among projects.” McKinsey meanwhile maintains that poor productivity will be improved by “encouraging transparency on cost and performance, as the [International Construction Measurement Standards (ICMS)] do”.

Progress on the ICMS has been good: they are now out for a second public consultation (www.icms-coalition.org) and on track to be published this summer.

**Classification and costing**

The ICMS are intended to serve as a global framework for classifying and costing construction projects, and enable cost decisions to be made on the basis of the same measurements and definitions. Governments, clients and property and construction professionals can then talk the same language across sectors, disciplines, and even national boundaries. ICMS will be an essential global classification, allowing more consistent international use of building information models. In turn, this will lead to better collection of data for both cost prediction and, ultimately, machine learning. As BIM, big data and smart cities begin to merge as concepts, standard classifications will assume an even more important role in making sense of the deluge of data.

ICMS will thus benefit financial institutions, investors, clients, consultants, contractors and the supply chain at a project level; governments, regulatory and standards-setting bodies and professional institutions at a national level; and financial institutions, investors, clients, consultants, NGOs and global professional institutions and umbrella bodies at an international level.

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![Alan Muse](https://example.com/alan-muse.jpg)

*Alan Muse is Global Director of Built Environment Professional Groups at RICS amuse@ric.org*

**Related competencies include** Data management, Procurement and tendering, Quantification and costing of construction works, Teamworking.
Disruptive influence

How can proptech stimulate much-needed infrastructure development? RICS sought the opinions of thought leaders on this issue project.
The desire to invest in infrastructure is now at the top of the political agenda on both sides of the Atlantic – but how can property technology, or proptech, play a role in this?

RICS brought together thought leaders from across the sector to address the key issues – first and foremost how clients must see data as a business asset. When working on large infrastructure projects and managing their assets, the quality of data and how and with whom it is shared are major concerns.

Technology can both streamline and disrupt traditional ways of working, and the government has an essential role in overcoming obstacles. On one point, the panel was unanimously agreed: the client of the future should be prepared to embrace change, and proptech professionals are the ones who should be starting these conversations.

Let's start by discussing the relationship between data and infrastructure – where do you think the challenges are?

KJ: The basic problem is that there's too much data. Information overload is what we're dealing with every day.

AC: You need the right data to enable informed decision-making. I don't think we've seen 'peak BIM' (building information modelling) yet. We have more than enough data – it's the systems engineering approach that's missing. I call it the golden thread running through BIM, from land acquisition, valuation, design and construction to, at the other end of the process, asset management and asset performance. If we can crack that, we can solve a lot of the industry's current problems.

JB: The fragmented nature of infrastructure owners is a big issue. The key thing is the lack of information around the built environment. There's huge innovation going on in data monitoring, both above ground and below ground. But there are still huge gaps. Technology can only go so far.

What data is missing?

JB: UK plc needs to get a much better handle on underground assets, with a focus on street works. We need to coordinate information – if I'm digging a hole, who else has got assets in this location? Coordination can be achieved by developing very simple standards. But trying to share practices across 250 stakeholders who own those assets is very difficult. The biggest challenge? Legacy: 90% of the information we have is historic.

KJ: From a contractor’s perspective, you've got to understand that the design life of infrastructure is much greater than that of a building. Roads are there for centuries. But when you dig a trial hole, you may find that kerbs have been moved and overlaid, and so cables that were under the footpath now run underneath the road.

MT: Crossrail has done a lot of ground radar. We put it all into GIS (geographic information systems), went out and dug lots of trial holes to verify the data, and shared it with everyone who needed it. When we leave, we'll have a complete 3D picture around our sites. When we first got into those areas, we didn't have a clue.

KJ: Buying up-to-date mapping data from the Ordnance Survey is incredibly expensive. Should it be free? There's a strong argument in favour.

AC: Look at Transport for London (TfL) and national rail operators – they've made all their real-time service data freely available, and have let the market respond. Third parties have created smartphone apps such as Citymapper, allowing people who are using the infrastructure to interface in a totally new way – this is the kind of thing which is going to drive change.

MT: The problem I've got with TfL is that, while, its data might be amazing from a customer's point of view, when it comes to asset management there still isn't enough of the right data. To manage an asset effectively, you want to have as little data as possible.

What can be done to help with the flow of data?

SM: Our clients are very reluctant to release data that could be used to make forecasts of asset performance. That's their intellectual property – why should they give the competition insight?

AC: Clients need to take an intelligent approach. They often have the data but aren't able to use it themselves across different buildings.

KJ: As a contractor, we don't own the structure. We work on it, and pass it over to the client. Often, clients don't want to share data. Many have security concerns.

TS: The danger with BIM is that people get so carried away with 3D modelling and pretty pictures they forget that the "I" – information – is the most important.

JB: At Terminal 5 at Heathrow Airport, we put GIS at the heart of the BIM process. Too often, people think BIM is just about buildings, which is why I don't like the term. BIM is a combination of computer-aided design (CAD) and GIS, which have been in separate silos for years – they shouldn't be.

How does this relationship need to change in the future?

JB: The issue for BIM is that it tends to look at infrastructure data through three separate lenses – getting a construction or project view, an asset management view over the life of its operation, or a customer-centric view. The golden thread is to identify what the infrastructure aims to achieve, and improve the outcome of, then feed the data back into, the project, so you can start to use it to predict future infrastructure requirements.
SM: We need to have joined-up databases that enable you to access the information you need and make decisions more quickly.

TS: The Internet of Things and radio frequency tagging mean that inanimate objects can tell you a story and feed information back. Look at smart buildings – they’re monitoring energy usage and turning the lights on and off, while compiling data about how rooms are used. Leeds City Council is already using that kind of data to reduce its commercial building stock.

JB: There is a revolution across all industries to create information-centric strategies. If you centralise information in the cloud, it’s all in one place – you leave it in data lakes. Technology lets us search that unstructured information and grab what we want.

Infrastructure is designed to last for decades or more, whereas technology constantly changes. How do you reconcile them?

SM: Technology is moving much faster than immobile built environment-centric strategies. If you centralise information in the cloud, it’s all in one place – you leave it in data lakes. Technology lets us search that unstructured information and grab what we want.

TS: Generative design – where the computer does it for you – can only work if the data’s good.

KJ: For now, there’s still a lot of uncertainty. You don’t know what you’re going to find until you start digging and technology can only tell you so much. But we have radar, excavation controlled by GPS, and equipment that can be operated remotely.

WN: All of this is going change when AI turns into artificial superintelligence – that is the moment that we all become redundant as humans. These wonders ultimately rely on decent data. In the future, AI could scan the data and use feedback loops to work out where it is likely to be wrong.

How well prepared is the property and construction sector to deal with the challenges technology will bring?

AC: We need intelligent clients – and Crossrail’s Learning Academy is a prime example of how to be an intelligent client. If a client constantly drives down the price, they’re not going to get innovation. By innovation, I’m talking about off-site management, prefabricated materials, 3D printing – how do we start to bring these in? If we get this right, the reward will be increased cost certainty in the construction phase, and then into the asset management phase.

JB: Clients have got to see information as an asset that’s valuable. We have to communicate this message to clients – they understand reducing costs and the risks downstream of managing an asset.

PHB: It takes real courage getting a client to ditch old technology. Take the train industry – there are still paraffin-powered signals in Wales.

MT: You’ve got to have a transition period where you run two systems – they can’t change overnight.

KJ: As fast as we create something, there’s always something new around the corner. It’s the technology we haven’t thought of – look at Uber and Airbnb and how they’ve disrupted traditional sectors.

What is the kind of technology that is going to disrupt the property and construction industries?

TS: I am fascinated by 3D printing. In China, they’re able to make 3D-printed houses for less than $5,000. There’s a 3D-printed bridge in Amsterdam that’s been built across a canal. And then there’s robotic bricklaying – the Shanghai Tower was built in less than 16 weeks.

PHB: We’ve already witnessed a revolution on construction sites. It now takes relatively fewer people to build. When you make the systems people work with automated systems, you increase productivity. When major projects such as HS2 (High Speed 2) hit the ground, 3D printing could be the answer to the skills crisis we’re currently facing.

What do companies need to do now to ensure they can capitalise on this?

JB: What we’re witnessing in other industries is the rise of the CDO – the chief data officer. When will we get a CDO at a major property company? A lot of major industries are starting to recognise the importance of data as an asset in their business.

And finally, investing in infrastructure is becoming a much bigger government priority – on both sides of the Atlantic. What measures do you think that the UK government could take that would bring benefits?

JB: The government itself should lead the way and become a much better client, show leadership in what it wants, and encourage supply chain innovation across the sector.

AC: Pensions funds and infrastructure investments go hand in hand. They have long investment horizons, and a highly predictable income stream. That’s why City Airport sold for [such a high price] to a Canadian pension fund.

WN: One thing that the government could do would be to push on with the Open Data Project started by Sir Tim Berners-Lee (see https://theodi.org). There’s a whole lot more data it could push in – including the Ordnance Survey MasterMap, Land Registry data and information from the former Department for Business, Innovation & Skills.

These data sets are not necessarily infrastructure-related, but they open up information about companies beyond what you get in Companies House. And the UK is great at innovating.

MT: The only reason we’re not seeing so many plastic bags in supermarkets is because the government has legislated. Similarly, it can force businesses to manage their assets properly treat buildings as a resource if it legislates to do so.

The first in a series of RICS ‘white paper’ debates, the event was chaired by Clae Barrett, editor of FT Money, on behalf of RICS in November 2016.

Related competencies include Data management, Design economics and cost planning.
Base yourself

David Falkenstern and Ilke Sahin offer advice on how to ensure contract termination is the last resort

For many troubled or delayed construction projects, contract termination seems an inevitable course of action. Yet the liability for the claimed sums is often determined by whether or not the termination was carried out properly. If it is the only option left, owners must proceed with caution. The first step is to get legal advice.

Programme of action
Terminations often relate to a contractor’s inability to gain an extension of time; if it is to do so successfully, it is essential to be consistent with project reporting.

In this regard, submission and approval of the project’s baseline programme and the production of subsequent updates are essential. Information should be provided in its original electronic format so that it is accessible and understood by the client team.

Without regular and reliable updates, the client is limited in its ability to assess extension-of-time claims, leading to potential disputes. Where programmes are not produced in line with the contract requirements, the client should withhold payment until those requirements are met.

Concerns about the acceptance of potential liabilities can mean a client is reluctant to approve the contractor’s baseline programme submissions. This situation should be avoided: the client should seek to approve the baseline to establish the initial agreement between the parties, and measure the effect of any potential delays against this agreement.

By actively providing comments and requiring further submissions, the client is likely to obtain a baseline with which it can work, and limit the potential for future disputes.

Once the baseline is approved, clients should request regular progress updates; they should also review and understand the progress of the critical path in those updates. In this way, they will be aware of any critical delays at an early stage, and will be able to document them.

Clients should be aware that, often, contractors are pressured to programme updates that show no delay. Manipulating the programme to show an artificially early completion date will likely lead to an inaccurate critical path, yet this is a common feature of construction disputes that exaggerate their scope.

Therefore, clients should not pressure contractors to show no delay in their updates when delay is inevitable. Inaccurate programme updates will also cause erroneous project forecasting, including financial forecasting. Consequently, this can exacerbate cash-flow problems for both contractors and clients and lead to further dispute.

Extension-of-time claims
When the contractor claims for an extension of time from the client, the client should try to resolve this as soon as possible; it is not enough to reject a claim for inadequate substantiation. Typically, a client has a presence on site and should be familiar enough with the detail to provide a thorough response.

Setting out the client’s position on the project’s critical path, this response should discuss the effect of and liability for each delay event. By not fully responding to the contractor’s position, it is possible that the client is actually binding itself to its own potential liabilities. If the client later decides to terminate the contract owing to its lack of understanding of the contractor’s position, then it may not be able to defend the termination successfully in a post-contract dispute.

Proactive clauses
It is important for clients and contractors to implement proactive contractual measures that could help limit the scope for dispute that may result in termination.

Several issues that could be agreed at tender stage include:

- defining the method of analysis to be used in an extension-of-time request made soon after the parties first become aware of the delay, and possibly an alternative method to be used after the completion of the affected works
- ownership of programme float, the spare capacity built into the programme
- how concurrency – that is, when two delays simultaneously affect the critical path – should be analysed.

Last resort
Contract terminations are complicated. A strong delay-related claim for ongoing projects will be grounded in actual events; by contrast, termination cases focus on how such events are likely to affect events after the date of termination.

A contractor may not have exceeded its completion date when the client terminates the contract owing to delay. In such cases, the extent and cause of likely delay to completion must be established to determine whether the client was justified in terminating the contract. A reliable programme is essential, updated to the termination date to establish the project’s anticipated completion time and critical path at that point.

Before termination, clients should ensure their concerns are clearly recorded in various contemporaneous documents, stating that:

- the project’s critical path is affected
- that the contractor has failed to address these concerns satisfactorily.

Doing this may help the client justify its termination and prove that the contractor is unable to mitigate past delays.

By insisting on regular, reliable programming information from the contractor and seeking to obtain an accepted baseline programme while resolving extension-of-time claims as early as possible, clients are best placed to resolve disputes successfully and avoid termination. Once it becomes inevitable, however, clients should make the case for termination by reference to consistent, contemporaneous records listing the contractor’s failures.

Related competencies include
Contract administration, Contract practice, Procurement and tendering, Risk management
Managing payroll in the construction industry is no small feat. Construction companies must take account of the Construction Industry Scheme (CIS), the employment status of contractors and subcontractors, the Construction Industry Training Board (CITB) Levy and the Apprenticeship Levy – not to mention requirements such as producing a slavery and human trafficking statement, gender pay gap reporting and the duty to report on payment practices and performance.

Construction practitioners must understand and comply with all of these to deter any tax investigations at the same time as running their businesses, meeting their clients’ expectations and undertaking their primary operations.

This is why many construction companies choose to outsource the engagement and payroll of their labour to temporary work agencies, and to contracting intermediaries that will assume responsibility for the relationship with self-employed subcontractors. Temporary work agencies will also often engage the services of a third-party intermediary known as an umbrella company to complete the supply chain.

Engaging agency labour
Outsourcing labour engagement to a third party brings its own set of challenges, however. While there may not be a significant financial risk to the client in respect of tax compliance, the reputational risk associated with the further end of the supply chain is a different matter – one that requires careful consideration.

It is vital for every construction business to ensure that each third-party supplier of labour is meeting all the necessary legislative and regulatory requirements under which the sector operates. Many construction companies use third parties for recruitment, such as employment businesses and contracting intermediaries – and if you do so, we recommend that you review your supply chain and develop a preferred supplier list, which should be refreshed regularly to satisfy HMRC’s due diligence approach to the engagement of temporary workers.

Any investigation of an intermediary’s tax affairs by the authorities will include reference to the original client, which will inevitably be required to verify responses made by that intermediary. The risk that this approach causes should not be underestimated – if HMRC considers that the client has been culpable, then rules on transfer of debt may apply.

Gross payment status
We are seeing an increasing number of HMRC inspections in relation to the operation of the CIS. HMRC is approaching companies in construction supply chains to check CIS and employer records. A failure to comply with the CIS can result in the revocation of gross payment status, especially where there are missing traders; that is, intermediaries that have ceased to trade while still owing considerable sums to HMRC.

Compliance is crucial as many construction companies are registered for gross payment status, which lets them take control of their own cash flow, and improves a subcontractor’s standing with reputable contractors; large contractors will require their subcontractor to have gross payment status by default. In this regard, it is important that subcontractors comply with all tax regulations to ensure that they do not lose such status.
In the case of The Commissioners for HM Revenue and Customs v JP Whitter (Water Well Engineers) Limited [2015] UKUT 0392 (TC), the Upper Tribunal found that HMRC had been right to cancel the engineers’ gross payment status registration, despite the detrimental financial consequences for the company. It was found to have been late when making several PAYE instalments and so, following a review, HMRC cancelled the company’s registration under the CIS.

The Upper Tribunal stated that the financial consequences of a decision to cancel registration for gross payment status were irrelevant to any issue of future compliance: a taxpayer whose business would be so adversely affected by the cancellation of its registration should not repeatedly fail to meet its compliance obligations and then rely on the inevitable collapse of the business as a reason for challenging a HMRC decision. Compliance is key.

**Reasonable excuses**

If gross payment status is removed, the natural defence is to look towards a “reasonable excuse” under the Taxes Management Act 1970, section 118(2). Although there is no statutory definition of “reasonable excuse”, in Rowland v HMRC [2006] STC (SCD) 536 it was held to be “a matter to be considered in the light of all the circumstances of the particular case”.

Other case law dictates that a reasonable excuse can include the return being lost in the post; when HMRC advice on which you relied was misleading; you have insufficient funds; you face difficulties filing online; or you experience unforeseen hospitalisation.

The Finance Act 2009 Schedule 55 (23)(2) also lays out the circumstances that do not constitute a reasonable excuse. It specifies that reliance on another person does not constitute a reasonable excuse, neither does a lack of funds; however, HMRC may in fact accept the latter as a reasonable excuse for late payment of tax debts, though only where it is “attributable to events outside a person’s control”.

The taxpayer must have taken reasonable care to avoid the failure, under Schedule 55 (23)(2)(b) of the 2009 act, whatever that failure may have been. In Whitter, HMRC contended that the company had not ensured its compliance even after being told to do so following several late PAYE instalments; it could not therefore be deemed to have taken reasonable care.

Why place yourself at the mercy of a tax tribunal that, based on a similar set of facts, could find either way?

**Correct classifications**

CIS was introduced as a method by which HMRC could receive a payment on account in respect of tax or National Insurance contributions.

HMRC still believes that false self-employment in the construction industry is widespread. It is important that all workers who are self-employed are properly classified to avoid potential liabilities arising for missed PAYE and National Insurance contributions as a consequence of HMRC determining that the workers were incorrectly classified as such.

Missed PAYE is recovered by HMRC under regulation 80 of the Income Tax (PAYE) Regulations 2003, a process that is mainly used where an employer has failed to deduct such tax and there has been no previous direction that it should be recovered from the employee. Under such circumstances, the responsibility for the tax lies with the employer, even though the employee has received their gross payment.

**Decision-making**

It is worth noting that many decisions are invalid because of the way that they have been formulated. Professional advice should be sought in the first instance. In employment status cases, it is possible to ask HMRC to transfer any liability to the subcontractor, which is more than likely to have declared its income to the authorities. This is done by making application under regulation 72(5) of the 2003 regulations, which governs the situation where a PAYE failure is a result of an employer making an error “in good faith” after taking reasonable care to comply with the regulations.

In appropriate cases, the HMRC PAYE Errors Unit may make a ruling under regulation 72(5) condition A that the employer is not liable to pay HMRC. If such a direction is made, then the regulation 80 determination will be reduced or withdrawn.

“HMRC believes that false self-employment in the construction industry is widespread

Companies operating in the construction sectors need to consider the many different aspects of compliance. Rather than rely on HMRC or the tax tribunal to determine culpability, it is possible to reduce the risk associated with third-party labour by following some simple rules:

- review your labour supply chain on a regular basis, asking pertinent questions regarding contracting intermediaries and umbrella companies
- keep up to date with legislative reform such as the off-payroll rules (IR35 reform)
- review the employment status of self-employed subcontractors, that is, the direct engagement of professionals
- consider the scope of the CIS: professionals such as site supervisors, site engineers and certain quantity surveyors may fall under the scheme even if paid through a limited company

It is vital to establish a compliance protocol and to refresh it on a regular basis as there are changes in legislation or interpretation. The industry remains high on the risk agenda for HMRC, with regular reviews being undertaken. It is important that when the tax collector does come to call, you are properly represented by advisors who understand HMRC’s approach; this will help to bring any inquiry to a satisfactory conclusion.

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Related competencies include Business planning, Commercial management of construction, Procurement and tendering
The error of our ways

Error can prove immensely costly in the construction industry, so a new initiative aims to inculcate a culture where mistakes are avoided and quality is assured, as Tom Barton and Ed McCann explain.

The Get It Right Initiative emerged from discussions at the Institution of Civil Engineers (ICE) Best Practice Panel, which wondered how much money is being spent as a result of avoidable errors and how these could be prevented.

This discussion prompted a significant piece of research, collaboratively funded and informed by a number of major contractors, clients and the Construction Industry Training Board, to explore the costs and causes of avoidable error in the UK construction industry. The results of the research are set out in detail in the Get It Right Initiative research report, published in November 2015 (http://getitright.uk.com), the findings of which are discussed below.

Costs of error

Key international studies suggest that the measured direct costs of avoidable errors are in the order of 5% of project value or £5bn per annum across UK construction, and higher than average profit levels across much of the industry.

When day-to-day errors and inefficiencies and indirect costs such as delays caused by these errors are included, the situation worsens, with estimates of the total between 10% and 25% of project cost or between £10bn and £25bn per annum across the sector. Figure 1 shows the cost of error as a proportion of total project cost.

When we present these figures, people tend to express surprise either that the total is not more, or that it is as much as it is. Quite often, this latter view changes once the indirect and unmeasured costs are explained.

Given the scale of the losses, it is interesting to note that very little research is being carried out into the subject of error in construction in the UK, and as authors we have had to rely on evidence from Australia, the USA and Scandinavia in compiling the report.

The industry tends to focus on defects and non-conformities that are the outcome of uncorrected errors. But most errors do not result in defects and just mean that the job is done twice or materials are wasted. The costs of correcting these errors results in low productivity and a reduction in project profitability. Many errors may only come to light in the form of defects long after the project is finished, with people unrelated to the original project dealing with and paying for them.

The approach to resolving these is highly variable, with many recording only the number and type of defects. Some record their own direct costs for dealing with defects, but usually only as a precursor to a claim from those responsible – who in turn tend not to record the cost specifically, preferring in effect to write it off instead.

Overall, the factors described above mean that, as an industry, we grossly underestimate both the number and cost of errors.

Causes of error

Through workshops, interviews and questionnaires, the root causes of error were explored. We found that the top ten reasons for error are reported as:

- inadequate planning
- late design changes
- design information that is poorly communicated
- poor culture of ensuring quality
- poorly coordinated design information
- inadequate attention paid to construction process in the design
- excessive commercial pressure on finance or time
- poor interface between management and design
- ineffective communication between team members
- inadequate supervisory skills.

Error as a proportion of overall project costs. Source: Get It Right Initiative research report.
In effect, the causes are a combination of inadequate culture, processes and skills.

**Investing in errors**

We asked a study group of contractors to consider how to invest a finite sum of money in eliminating error and prioritising that investment. The results are shown in Figure 2.

The results show a keen interest in improving skills as well as creating an appropriate culture of ensuring quality and reducing errors.

**Skills and knowledge**

Discussions with the study group suggested that the skills that are of most interest relate to planning, communication and supervision. This was true whether we were talking about trade skills or design skills.

It is also clear that the following set of competencies are required:

- to have ideas and to evaluate them against appropriate criteria, both subjective and objective
- to exercise judgement and to make good decisions
- to be able to deal with change in an appropriate fashion
- to communicate effectively using means appropriate to the circumstances
- to establish and maintain effective working relationships.

A common observation was that poor decisions were often made because of a lack of understanding of their implications, for example:

- decisions made by designers who do not understand the construction or commissioning process
- decisions by buyers who do not understand the implications of swapping one drainage pipe system for another

- decisions by contractors who do not understand the significance of overloading a key structural element during installation.

**Getting the culture right**

To also better knowledge of the overall process, it is important that all concerned develop and exercise respect for other parties involved. A lack of awareness of what others do is often associated with a lack of respect for them or their role, and this greatly impedes effective relations and communication.

It is also critical for people to want to do the job well. This applies equally to the designer ensuring that their design is a fit place to do the work as it does to the person making sure that the site is a fit place to do the work.

Creating a culture in which this can happen requires those at the top of construction companies to set a positive example. We know that many people in our industry take pride in their work and are frustrated when things go wrong. A key objective will be to engage that pride to reduce the number and extent of errors that are made.

**Next steps**

Following the research, the funders and participants were very keen that we should address the problems found. The Get It Right Group considered carefully the merits of setting up an independent initiative or attempting to get one of the existing industry groups to assume responsibility for such an endeavour.

After reviewing the options, we decided in the interests of maintaining momentum to set up the Get It Right Initiative to make significant reductions in error in the UK construction industry. The initiative’s goals are:

- to change the attitudes of those involved in the industry so they care about and concentrate on reducing the number of errors in their field of work
- to advance knowledge across the sector so all parties properly understand the ways in which design and construction processes can be impeded and how this can and often does lead to error and waste
- to improve decision-making and planning skills across the sector so that all involved are able to react and adjust to unavoidable process disturbances.

Modelled on the Temporary Works Forum, the initiative has been established as a membership organisation that uses subscriptions to raise funds and work towards its goals. Its activities include:

- a skills development programme
- a campaign to change and align attitudes across the sector
- improving management processes and systems
- improving construction technology and techniques.

**Drawing conclusions**

Error is the elephant in the room. The industry is beset by error and, as our research shows, it potentially costs the country more than £20bn a year. It is a major, chronic factor in UK construction’s productivity problem. Moreover, errors do not just cost money, they result in scarce materials and energy being wasted, to say nothing of the impact on the reputation and morale in our industry.

There are opportunities to do something about this now. By establishing the Get It Right Initiative, a positive first step is being taken towards making a substantial change.

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**Figure 2**

Proposed distribution of spend to eliminate error. Source: Get It Right Initiative research report

[Image of a pie chart showing the distribution of spend on various factors: Financial pressure 3%, Time pressure 8%, Culture 16%, Trade skills 21%, Management skills 18%, Planning 14%, Design skills 20%]

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A look at the books

Ian Frankton details what is expected on the Accounting principles and procedures competency

As a coach of APC candidates, I have found that many have difficulty obtaining sufficient experience to demonstrate some of the mandatory competencies.

Candidates often say that the working day is filled with activities that provide them with a good knowledge and experience base for the core and optional competencies. But despite this, sufficient regular exposure to gain the knowledge and experience required by some mandatory competencies is lacking – Accounting principles and procedures being one such.

So, let’s explore what is expected in the final assessment and what the assessor will be looking to glean from you at interview.

We should be clear we are not expecting you to be professional accountants or bookkeepers. Please remember that, if you are on the Quantity Surveying and Construction pathway, you are only asked to take the Accounting principles and procedures competency to Level 1, which means that you need to demonstrate to your supervisors, counsellors and interview panel that you generally understand and appreciate its requirements.

You do not need to provide evidence of being able to do accounts; neither do you have to be able to give advice in this area.

The APC guidance material states that candidates should be able to demonstrate knowledge and understanding of accounting concepts, the format and preparation of management and company accounts as well as profit and loss, cash-flow statements and balance sheets.

Often candidates ask, “I don’t get involved in any of that, so how am I going to show any knowledge and understanding, seeing as we did not cover any of it at university either?”

If this sounds familiar to you, then you are not alone.

I would recommend the following courses of action.

- Identify this as an area or competency of concern to your supervisor and counsellor as soon as possible. Discuss how they may be able to increase your exposure to the areas mentioned above before your final interview.
- Candidates can often arrange a meeting or two with either the company accountant or finance director to explain the basics of company accounts and see some examples of previous years’ books, how they are compiled, what is included and what they say about the financial position of the organisation. If this is not possible, perhaps your employer could provide a set of company accounts for you to review, so you can appreciate the key differences between a balance sheet and a profit-and-loss account, for example. The important point is that a balance sheet shows the value of everything that the company owns, owes or is owed on the last day of the financial year, whereas a profit-and-loss account shows the company sales, running costs, and the profit or loss that it has made over the financial year. But what sort of items or breakdown would you expect to see in each of these documents?
- RICS and other organisations provide regular training and CPD on the Accounting principles and procedures competency; make sure you know when and where such events are being run so you can book to attend. This is also a very good way of demonstrating that you have identified and addressed your needs through targeted training events in your CPD records.
- Structured reading can also be conducted around this competency by researching the basics of company accounts and see some examples of previous years’ books, how they are compiled, what is included and what they say about the financial position of the organisation. If this is not possible, perhaps your employer could provide a set of company accounts.

While this list is not exhaustive, it does provide you with a flavour of the types and areas of question that you should expect during your assessment interview.

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Related competencies include Accounting principles and procedures

- how company cash-flow projections are prepared, what is considered and why they are important
- different company ratio analysis, such as gross profit margins, average collection periods, working capital and so on
- what insolvency and its effects are
- where to find information if you were looking to evaluate a company from a financial perspective, and what you would consider.
The increasing use of data in building information modelling and other applications requires robust cyber defence measures, warn Emma Vigus and Philip Tansley.

The Ipsos MORI Cyber Security Breaches Survey 2016 revealed that only 29% of surveyed companies have cyber-security policies and just 10% have formal incident management plans (http://bit.ly/2xeX8Z).

Given the lack of preparedness, 65% of respondents said they had detected a cyber-security breach or attack in the preceding year.

The 2016 Crime Survey for England and Wales (www.crimesurvey.co.uk) showed that online fraud is the most common crime in the UK. It is more prevalent and complex than domestic burglary, with criminals using numerous methods from malware to spyware to exploit data for financial gain. In addition to this threat, human or hardware error continues to be a key cause of data loss.

Leaving doors unlocked

Unless an organisation is specifically targeted, which is rare, cyber criminals indiscriminately ‘knock’ on lots of system ‘doors’. When they find one open – an easily accessible system – they enter. They are now a few steps from your client and employee data. Few people leave their house unlocked, yet many leave the virtual door to their business ajar.

The impact of a traditional property break-in is immediately obvious, but that of a cyber breach is harder to spot. The initial electronic break-in may go undetected; its effect may be difficult to ascertain and what happens immediately after the attack can determine the severity of the outcome. An immediate and informed response can make a significant difference, and this is why cyber-liability insurance policies can prove so valuable.

Covering your buck

Perhaps because of the use of the term insurance and the big numbers cited in the media, the value of cyber-liability insurance is often assessed purely on the cover provided for a financial loss, with the buying decision heavily influenced by whether that loss would be covered by another insurance policy, as it often will be.

For instance, a firm purchasing an RICS-compliant professional indemnity insurance (PII) policy will be indemnified from third-party civil liability claims arising from the conduct of professional business. This could include a claim from a client who has lost money as a direct result of a cyber attack on your business. PII policies are, however, largely untested in terms of their response to such attacks, and the extent of cover available requires ongoing scrutiny.

Furthermore, unless your PII policy contains a first-party fidelity extension, it is unlikely to offer any protection for loss of your business’s own funds. This leaves you potentially exposed to electronic funds transfer fraud, ransomware and cyber extortion.

The real value of a cyber policy lies in its ability to respond to a cyber attack by providing 24/7 access to an incident response team; this will help manage everything from communication with clients and employees through to providing identity theft mitigation services and assistance with managing reputational damage. Few firms have access to this expertise in house or, at short notice, via a third party, and it is expensive. A cyber-liability policy ensures you know where to turn and also covers the cost.

Cyber liability cover is relatively inexpensive in the UK at present. Until recently, there had not been many claims, and our regulatory and litigation landscape is several years behind the USA’s. As claims increase, however – which they inevitably will – insurers are likely to place greater scrutiny on a firm’s approach to risk management.

In many cases, a little thought will help you identify which aspects of your business are most vulnerable and how you can manage that risk. Where you do not have the necessary expertise in house, a growing number of consultants and government schemes are available to help assess and manage risk, such as Cyber Essentials.

Complex exposures

However, it may be less obvious how to protect yourself when the potential exposures are in a complex system such as building information modelling (BIM). Whichever BIM platform is used and irrespective of where it is hosted, all project participants need to be aware of potential cyber-security issues.

The most obvious of these is the loss or corruption of data held on the platform,
that the increasing power of analytics actions by consumers. Bear in mind, too, enforcement or enforcement and privacy (ICO), and it may occasion regulatory to the Information Commissioner’s Office evaluate whether it has to be disclosed implications, most notably the need to access to it has various regulatory that data is secure.

**Intellectual property**

BIM data is likely to be commercially confidential or proprietary. Accordingly, its loss or disclosure creates a significant first-party risk and the potential for third-party exposure to the owner of those intellectual property rights. Increasingly, regulated personal data is held on a BIM platform. Unauthorised access to it has various regulatory implications, most notably the need to evaluate whether it has to be disclosed to the Information Commissioner’s Office (ICO), and it may occasion regulatory enforcement or enforcement and privacy actions by consumers. Bear in mind, too, that the increasing power of analytics software means BIM data that maps the behaviour of the occupants of a building may, in certain circumstances, become regulated as well.

A significant data breach may also have other regulatory implications: for example, the Architects Code requires that adequate security precautions are in place to safeguard clients’ data. The regulatory burden will only increase with the advent of the new General Data Protection Regulation (GDPR), which brings with it compulsory notification obligations and increased fines of up to €20m or 4% of global turnover in the most severe cases.

**Specific risks**

These risks manifest themselves in different ways for different project participants. Industry standards such as the Construction Industry Council (CIC)’s BIM Protocol and PAS 1192-5 require the appointment of a BIM information manager. For all but the largest projects, this role is likely to be taken by the design lead or project lead, although it is beginning to be outsourced to specialists, and that trend is likely to continue.

The information manager has overall responsibility for establishing and maintaining the BIM platform, which also covers cyber security. This includes ensuring that, when established, the platform hardware, software and system architecture are sufficiently robust to withstand cyber attack, as well as mandating the protocols and procedures to be followed by BIM users, such as implementation of information management and breach response plans.

Once the platform is up and running, the information manager has a continuing responsibility to ensure that it operates properly, monitoring adherence to procedures and implementing necessary updates and security enhancements.

If there is a breach, the information manager will be the most likely subject of any ensuing liability claim. Ultimately, however, project security measures will be mandated by the employer according to the sensitivity of the project. The employer’s main exposure arises from its responsibility for appointing a suitably qualified information manager. Failure to exercise this responsibility properly could make the employer liable.

Every project member with access to the BIM system shares responsibility for protecting platform security, though. Principally, this will mean they should each adopt high standards of cyber security to ensure that issues such as unauthorised access do not arise from their failure to follow agreed processes or adhere to basic security standards.

**Risk v reward**

The use of any new technology presents cyber risks, and though BIM is no exception the benefits of it should outweigh such risks. These should be managed in a proportionate way. The CIC and PAS guidance, particularly the helpful triage process set out in PAS 1192-5, are very clear that the level of cyber-security precautions depends on the level of risk in particular cases.

One of the main lessons from the automotive and engineering industries is the importance of designing systems with cyber security in mind from the outset, and privacy by design will become a regulatory requirement under the GDPR. It is also critical that cyber risk is recognised and managed at board level.

The most basic protection is to be more security-conscious. It is important to train staff and to introduce breach response plans and information security policies that are regularly reviewed. You must also ensure you understand any regulatory requirements, such as whether registration with the ICO is necessary and whether you must also ensure you understand any regulatory requirements, such as whether registration with the ICO is necessary under the Data Protection Act 1998.

As a last line of defence, good-quality cyber insurance policies start at just a few hundred pounds – less than the typical home insurance policy. In contrast, the cost of managing a breach can easily run into hundreds of thousands.

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Related competencies include Building information modelling (BIM) management.
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When things go wrong on a project, the first step will usually be to check what the agreed contract says and which provisions apply. The position will be worse if it is not possible to identify what contract, if any, determines the parties’ rights and obligations, as three recent cases demonstrate.

Parties to the contract
The lack of a written contract was the cause of uncertainty in Dacy Building Services Limited v IDM Properties LLP [2016] EWHC 3007 (TCC). The main contractor encountered financial difficulties, which led to direct payments being made to its subcontractors by IDM Construction London Ltd. When the problems continued, the main contractor approached Dacy Building Services Limited, the claimant, and, following an informal meeting at a bus stop, Dacy started work on site. IDM Properties Ltd, the defendant, was the employer’s agent, and one of its employees also attended this meeting.

When Dacy did not receive payments following its fifth and sixth applications, it began adjudication proceedings against the defendant, with the aim of avoiding a lengthy and costly court case. It relied on email exchanges, a business card given at a meeting by the defendant’s contracts manager, an SMS text and payments already made to argue that its contract was with IDM Properties LLP. The adjudicator accepted its argument and ordered the defendant to pay the claimant £247,250.

Dacy took the adjudicator’s decision to court to enforce, but it refused to do so. After looking at the evidence in detail, the judge held that it was unclear with whom Dacy had contracted, if anyone, and that there was a direct conflict of evidence, both in terms of the background to and circumstances of the meeting at the bus-stop. It was noted that the subsequent conduct of those involved pointed at different times in different directions. As a result, Dacy could not enforce the adjudication and faces the uncertainty of having to prove with which party it had contracted.

Letters of intent
The decision in Spartafield Ltd v Penten Group Ltd [2016] EWHC 2295 (TCC) is a reminder of the uncertainty that the use of letters of intent can cause. In this case, the tender stipulated that the terms of the JCT Intermediate Building Contract with Contractor’s Design 2011 would apply. However, the works commenced on the basis of a letter of intent, which stated that the execution of a formal contract would follow.

The parties sought to agree the terms of the contract, and final versions for execution were prepared. The works were managed on the basis of the JCT form Conditions of Contract, but, owing to the need to resolve responsibility for delay to the works, the contracts were never signed. The contractor then commenced adjudication proceedings.

The adjudicator found that the parties’ relationship was governed by the letter of intent. When the employer took the matter to court, however, it came to a different conclusion, noting first that the letter of intent was not well drafted – describing it as “a patchwork of individually familiar provisions that in combination do not always sit easily with one another”. The court also held that the conduct of the parties among other things showed that the JCT terms did apply, despite the lack of formal execution. The JCT terms were still subject to those of the letter of intent and to the ability of both parties to withdraw from the contract. The decision allowed the employer to pursue its claim to set aside the previous adjudication decisions.

Clear conclusions
The importance of having a contract was stressed in Harlequin Property (SVG) & Anor (a firm) v Wilkins Kennedy [2016] EWHC 3188 (TCC), where the defendant’s advice not to enter into a contract was found to be negligent. The judge stated it “should have known and should have advised that not having a contract regulating the work being undertaken was ridiculously risky”.

All three cases demonstrate the uncertainty that can arise in relation to issues such as delay and additional payment when the contractual position is unclear. Ambiguity can often be caused by oral agreements or the use of letters of intent, but the position will be worse when there is an issue over whether there is in fact any contract between the parties. A contract in writing with clear terms, signed by both parties, will go a long way to avoiding that uncertainty and reducing the chance of dispute.

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