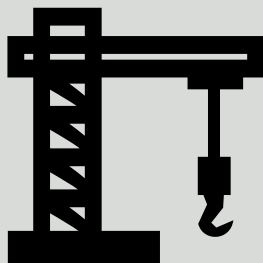


Marketplace Realities 2016

Analysis and Insights: Construction and Technology

The construction industry's history of slowly adopting new technologies may offer advantages in finding the right risk/reward balance, though the cautious approach is being increasingly tested by a variety of quickly advancing technologies.



Hardhats, high tech and the value of slow adoption

I've been in construction a long time and admit that at times we may deserve our industry's reputation of not exactly being early adopters of new technology. We're no strangers to high tech, of course. CAD, BIM, drones: we're doing fine, thanks, in the 21st century. But as long as people use buildings, roads and other infrastructure, construction will be mostly a physical job in the physical world. Bricks and mortar, hammers and nails, hardhats and lunchboxes. So forgive us if we tend to lean toward technology you can grab with both hands.

However, the industry now faces significant productivity challenges; a recent [McKinsey & Company study](#) shows that the typical large project in mining, infrastructure and oil and gas construction takes 20% longer to complete than scheduled and runs 80% over budget. Construction productivity has not kept pace with overall economic productivity, which has led to volatile financial returns for contractors.

We need to seek new and better ways of doing things, and that includes the cutting edge of technology, for the simple reason that the opportunities are so great. With opportunities come risks, of course. So here we review both — the risks and opportunities — presented by a handful of technologies, and we consider the case for caution. While each one of these technologies merits a much longer discussion, maybe this will start some useful conversations.

BIM

Building information modeling or management (BIM) is deeply embedded in the many parts of the construction sector but still presents technology issues that are gradually coming into focus. The sharing of documents and scheduling tools that are part of BIM can help prevent bottlenecks and identify critical dependencies in work and material deliveries. The collaborative nature of BIM, however, can be challenging. Sharing visibility into a project may mean sharing liability. Joint planning tools imply joint responsibility to the point where

allocating responsibility when problems arise can be problematic. Bidding on jobs is all about privately weighing estimates on time, effort and resources. It is traditionally a non-collaborative undertaking. And yet collaboration may be something of a requirement in the era of BIM.

Opportunities

- Instant communication and access to information
- Avoiding bottlenecks and scheduling mishaps
- Role clarity
- Efficient project management

Risks

- Difficulty in allocating responsibility and determining liability
- Complicating the bidding process by revealing work details
- Cyber security issues

Cyber security faces any online system and **BIM is no exception**. As anyone following the headlines will note, cyber crime rises along with cyber dependency. The further we go online, the more we are exposed to cyber vulnerabilities. A jewel thief would be quite happy to hack into the blueprints for a museum, store or other facility where valuables are stored. Like it or not, the construction industry is joining other industries, from retail to banking, where cyber security experts fight ongoing battles with cyber criminals, and the owners of the data being sought face liability questions of the cyber era: who is responsible when data is stolen? Those who created it? Those who store it? Those who access it? These questions can be as difficult to avoid as they can be to answer.

Drones

The drones are coming and the construction industry is one of the leaders of the charge. According to **recent reports**, the industry accounts for a commanding proportion of the waivers the Federal Aviation Administration (FAA) has granted for commercial drone use. The FAA is **now rolling out** new rules that will likely broaden the use of drones for many commercial and industrial applications. The value of these eyes in the sky in making inspections in hard-to-reach places is obvious. Next, drones will be arms in the sky, delivering materials to the workers in those same places. At some point, those responsible for the drones will have to look into aviation insurance coverage — something they may have never considered. The risks associated with drones will have to be addressed whether companies develop their own drone fleets and operators or simply hire a drone service provider.

Opportunities

- Inspections of work and work areas
- Material delivery
- Documenting project progress

Risks

- Air safety issues
 - Air traffic control on the job site (including unauthorized drones)
 - Protection from crashes — property and liability issues
- Privacy issues
 - Supervisors looking in on works (possibly subject to union negotiation)
 - Inadvertent recording of off-site activity



The appeal of drones of course is that no human passengers or pilots are required — but humans end up having access to everything drones see and record. The privacy implications raise serious liability concerns. The privacy of workers on a jobsite may be at issue. So is the privacy of anyone working, living or traveling through the vicinity of a jobsite where drones may be in use. If a company drone sees some suspicious activity are they obligated to report it? If some embarrassing moment is captured on a drone's video and then a clip of it goes viral, where might responsibility rest should the result be reputational damage? These are just a couple of the questions companies should look into before they fly ahead with their drone plans.

Wearable technology

There's a lot to keep track of on a job site, including people. On some job sites today, workers wear transmitters on their hardhats so the job supervisors can keep track of them electronically. And on a hot day, everything becomes harder — including making sure that everyone on the jobsite is hydrated and no health issues arise. At least **one insurance carrier is supporting efforts** to get workers to wear health monitoring devices that can transmit an alarm if a biometric trigger (related to body temperature or heart rate, for example) goes off — or if a worker is motionless for a certain amount of time.

The potential advantages of wearables in the workplace in terms of efficiency and safety are clear. Those employing these technologies, however, may also want to reserve some risk management resources to monitor and track the potential liabilities that could develop from privacy and liability issues.

Opportunities

- More efficient deployment and management of workers
- Immediate biofeedback to prevent health problems from going undetected, allowing first aid to be delivered immediately
- More data available to research accidents and workplace injury claims

Risks

- Privacy issues for workers on and off break
- Health monitoring and HIPAA issues — laws protecting the privacy of health data
- Health monitoring responsibility and liability issues

Health care providers aren't the only companies that have to consider the laws regarding the privacy of personal health information. Companies that provide wellness programs with the intention of improving employee lives and productivity face these issues today. They must be aware of laws preventing discrimination according to physical appearance and condition. They must be extremely careful with any personal information — of any kind — they keep about individuals. Health monitoring on the job raises these and other issues immediately: who sees the biometric data? How is it stored? Who is responsible for its security? Can health monitoring be made

mandatory? If for reasons of privacy a worker does not wish to be monitored, can an employer change their assignment to one with lower risk? These are questions, potentially, for risk managers, lawyers and unions.

The question of medical responsibility arises at the same time. If the intention of a health monitoring program is to protect the safety of employees, how far does that protection go? If health monitoring reveals chronic health conditions that the worker and the employer were previously unaware of, who is responsible for whatever change in work status that may result?

A final set of questions loom in regard to investigating claims. When a construction company launches an incident investigation, workers on site are often reluctant to get involved in the interest of potentially protecting a co-worker or themselves. With workplace tracking, the employer may know for a fact that a given worker was close to the scene when an incident occurred. That may put pressure on them to divulge information they might have wanted to keep quiet, whatever the moral implications. It's important to remember that technology often has impact in areas it was never intended to affect at all.

Laser scanning and its applications: autonomous vehicles

Measure twice, cut once — the rule in carpentry is a reminder of how crucial accurate measurement is in construction work. Laser scanning, the technology behind self-driving vehicles, can raise measurement accuracy to new heights. Laser scanners can measure every aspect of a space at any stage of construction. The potential value is enormous. Lines that start out straight don't always stay straight in the real world and in complex projects, laying conduit, plumbing and anything that requires precise placement can be problematic. Laser scanners promise precision at any stage of construction. The ability to accurately register a 360-degree view of the world, as the technological basis for self-driving cars, heralds the development of autonomous construction vehicles.

Opportunities

- Laser accuracy
- Measurement of complex spaces
- Use of self-driving construction vehicles

Risks

- New technologies to learn, new expertise required, dependence on specialized equipment
- Liability and reliability issues facing self-driving, autonomous vehicles

It's probably safe to say that, costs aside, the opportunities represented by laser scanning in taking measurements during construction outweigh the risks. Taking the next step and using autonomous vehicles, which employ laser scanning to act as the eyes of the self-driving machinery, may be another matter. The appeal

of autonomous backhoes and cranes is clear — the work can be dangerous and extremely precarious. But the recent [news reports](#) of the first death of a driver of a semi-autonomous vehicle — while possibly pointing to human error more than machine error — serve as a reminder of the dangers and liabilities courted by early adopters.

VR training

One of the largest construction equipment rental companies we know offers virtual reality (VR) training for users of hydraulic lifts, scissor lifts and other heavy equipment that can pose a danger to operators and people nearby if not operated correctly. Virtual reality offers an immersive experience akin to the 3D reality of the job site without the physical dangers. It potentially offers access to different scenarios and situations that a trainee can expect to find in the real world. And it is one of the most engaging training technologies ever devised. Your attention remains focused when you're wearing 3D goggles and begin interacting with the virtual world.

Opportunities

- Engaging and immersive training experience
- Hands-on practice with no risk — and no wear and tear on equipment
- Monitoring training results and progress

Risks

- Over confidence, complacency and desensitization
- Liability for assuring sufficient training before workers use dangerous equipment

Yes, VR is more like real life than pictures in a training manual. But it is not the same as real life, and VR shouldn't be taken as actual real-life experience. VR offers what programmers have imagined. Real life offers everything we can imagine and more. Which brings me back to where we started. Construction is physical reality. The virtual, digital, cyber and wireless world is no doubt part of our reality and when it comes to adopting new technology, we'll move ahead. But we'll keep our yellow and black caution signs in mind.

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The construction insurance marketplace

Expectations for construction risks: rates, terms and conditions

The U.S. construction property and casualty market remains pliable with aggressive rates and flexible terms and conditions. With the exception of some industry pockets, the soft market continues. Even in the harder areas, such as New York construction and residential construction, some stability in pricing and coverage is starting to take hold.

While increased carrier competition, especially from new regional markets, is keeping the overall market soft, underwriters are disciplined — in some cases aggressively disciplined — in taking a hard look at loss history and safety procedures when reviewing accounts. Contractors who do not manage safety well will find a harder market than industry averages would suggest

While pricing remains soft, markets are looking to decrease their exposures via policy exclusions and limiting endorsements. This is particularly true with some of the newer market entrants and the excess and surplus lines markets. When reviewing quotes — both from new or incumbent carriers, possible exclusions, such as residential exclusions, broad wrap-up exclusions, anti-stacking endorsements and others must be fully vetted to avoid sacrificing long-term stability for short-term pricing.

One short-term area of concern is the auto liability market. Where auto liability was often viewed as an add-on to a multi-line placement, the rising frequency of claims from distracted drivers and aggressive drivers is driving those rates up.

Contractors casualty insurance (general liability, workers' compensation, auto liability, umbrella/excess liability coverages)

General liability: Rates are stable with downward potential for accounts with aggressive and demonstrated safety protocols. The focus on safety is also leading to an increase in options with greater risk retention; higher deductible options are being offered and considered.

In the residential sector and in New York construction, recent spikes in rates have decreased and some stability is starting to take hold. In these areas, there is lower carrier participation, but those carriers in the market are committed. There is little, if any, opportunistic underwriting taking place.

Workers' compensation: For the most part, medical costs are flat, which has contributed to rate stability. However, there are several warning signs on the horizon that could make 2017 a harder workers' compensation market.

- Prescription drug use and costs are rising. Some carriers have tried to control this by putting limits on opioid usage, but the trends on both usage and costs are rising. Also, on a similar track, concern mounts over marijuana as more states decriminalize and/or legalize usage.
- Judicial and legislative decisions are driving costs. For example, NCCI estimates that a recent Florida Supreme Court decision will lead to a 17.1% rate increase in Florida. While other states have also felt rate pressure, election concerns are deferring rate increases until after November 2016.
- While the frequency of losses may remain flat, an aging workforce is leading to increased severity of losses.

Auto liability: This area is seeing increased rate pressure across the board. The rise in claim frequency and severity, coupled with a historical tendency of underwriters to underprice the true costs when this coverage is part of a multiline purchase, has led to a market shrinkage and price correction in 2016. This trend is expected to persist through 2017. Underwriters will take a much harder look at fleet safety, driver records and loss control procedures than they have in the past.

Umbrella/excess liability: The market remains robust, with plenty of capacity and pricing pressure from domestic, London and Bermuda markets. Concerns with such coverage center on proper terms and conditions to ensure alignment with primary general liability, auto liability and employers liability coverage.

Builders risk and construction property coverage: Heading into the third quarter of 2016, the U.S. construction property and inland marine market remains soft due to an abundance of capacity, which stems from domestic carriers continuing to increase their net and treaty capacities, as well as new and formidable international players entering the U.S. market space.

In lockstep with continued downward pressure on pricing, carriers are being driven to provide broader coverage on all projects. Over the past six months, in an effort to remain viable, many carriers have released new master builders risk and project builders risk policy forms. Many of these forms are now including, automatically, coverage that had previously been negotiated and underwritten (e.g., fungus, pollutant cleanup and removal, contract penalty, etc.).

Competitive market conditions are expected to endure well into 2016 and beyond, especially if predictions hold for a slower than average Atlantic hurricane season.

Contractors professional liability insurance: The professional liability (PL) marketplace has been very active over the past year as new market entrants have increased capacity, broadened coverage and created more competition and flexible options for the ever-changing construction industry.

We are experiencing the most capacity in history in the construction professional liability space for contractors and owners with limits of roughly \$300+ million available in the U.S. through primary and excess capacity. If required this can be supplemented by a further \$150+ million of additional capacity in London, Bermuda and elsewhere for construction-related professional liability risk.

Among the traditional providers of contractor-based professional liability coverage new carriers have entered the space and are aggressively approaching renewal and project-specific opportunities. Through this competition, buyers have seen favorable terms and conditions on renewals by lowering retentions, enhancing coverages and increasing limits in corporate programs. Rates are flat to -5% on typical contractor renewals.

As mentioned in previous issues, residential (i.e., for-sale) construction continues to drive loss ratios for professional liability insurers from both a frequency and severity perspective. This is a challenge, as the marketplace is restricted, but owners, design firms and contractors have significant exposures on residential projects as evidenced by adverse loss ratios. Currently, there are only a few markets that offer project-specific policies on residential projects at restricted limits and conditions. Pricing for these policies is higher than prices for any other project class.

The owners protective professional indemnity (OPPI) product has gained popularity, with its ability to offer the project owner greater protection from damages from professional negligence than contractually requiring annual policies or project-specific policies from contractors and design firms. The marketplace for this product has expanded along with the PL marketplace in general. Historically, and depending on project type, four carriers could offer competitive primary options— but now have at least eight. In addition to those eight, there are many more that can offer excess-only capacity on top of a primary OPPI.

As the values of construction projects grow at an unprecedented rate — the billion-dollar project is commonplace — delivery methods and contractual obligations have also changed at lightning speed and many contractors are finding themselves underinsured in relation to the exposure. We have seen an increase in design-delegated responsibilities inside of general contracts and construction management agreements. These design delegated subcontracts need to address professional liability exposures. General contractors, design-builders and construction managers alike are reviewing their subcontractor agreements and are requiring increases in professional liability limits of subcontractors with professional exposures as part of their sub-packages. The marketplace is keen to help address these exposures.

More focus is being placed on what have up to now often been nice-to-have bolt-on coverages. The operation of first-party, mitigation of loss cover is becoming more and more relevant with growing popularity in design and build procurement. As technology/network liabilities evolve,



a spotlight is being thrown on the level of protection actually offered by cyber liability extensions within professional liability placements.

Finally, owners and lenders are contractually requiring annual and project-specific professional liability policies at higher limits and are more educated on professional exposures than in the past. This has resulted in contractors and design firms with lower limit policies that can mean struggles with contract compliance. As the marketplace is more competitive than ever, it is time to consider raising the limits on practice policies especially as the exposure base grows.

Contractors pollution liability insurance

The application of environmental coverage to the construction industry remains at an all-time high as a result of contractual requirements, an increase in exposure due to regulation and enforcement, and broad coverages offered by more than 30 environmental carriers. Sustained domestic and international construction activity has fueled demand for contractors pollution liability products, especially when placed in conjunction with builders risk or wrap-up programs. Despite this demand, soft market conditions have resulted in flat to decreasing rates for preferred classes of monoline contractors pollution liability programs, except where buyers have seen significant claim activity or professional liability exposure.

The continued rise in the frequency of environmental claim activity, especially resulting from indoor air quality (IAQ) issues, including mold and Legionella challenges both the construction industry and environmental insurance providers. More recently, high-profile claim issues related to wastewater treatment, water supply, and oil/gas pipeline operations could have an adverse effect on contractors working on projects related to these industries. Potential exclusions or limitations on capacity of \$10 million or less could soon be commonplace. Accordingly, insureds are becoming more aware of the importance of establishing an environmental claim protocol, including incident reporting and notice, before claims happen. Similarly, insureds are seeking to further reduce their exposure by broadening environmental coverages wherever possible on their standard P&C lines (general liability, builders risk, property, auto) to increase their potential for overlapping coverage with environmental policies.

Potential threats to the favorable underwriting conditions in the environmental marketplace include a decrease in appetite by some carriers for habitational exposures as well as redevelopment and

M&A activities that may pose longer-term and potential moral hazard exposures associated with known conditions and voluntary testing. Additionally, recent market consolidation by major environmental insurance carriers could signal an eventual hardening of the market if the trend continues.

Controlled insurance programs

The controlled insurance program (CIP) marketplace continues to be competitive and grow for both mixed-use, multifamily residential, homebuilders and commercial construction. Pricing is stable and project capacity is plenty.

Regarding residential construction, CIPs are primarily placed in the excess and surplus lines marketplace. Coverage terms and conditions can vary, and there is greater awareness among project sponsors that specialist retail broker and wholesale partners are necessary.

While general liability-only (GL-only) programs are commonplace for residential construction, in particular, for-sale construction, isolating the workers' compensation from the CIPs is becoming commonplace for commercial construction. Factors driving this shift include coverage consistency, collateral control and policy certainty through the statute of repose. Admitted markets still shy away from for-sale construction risk in their portfolios. Apartments, too, are still a less tolerable risk profile for the admitted marketplace due to the possibility of conversions in future years to condominiums. Large complex projects such as infrastructure, light rail and heavy civil and commercial construction still command competitive WC/GL CIP programs from the admitted markets, typically with retentions starting at \$250,000 but with upward pressure on retentions.

New York remains a unique place for construction risks due to the state labor laws. For the most part, projects in the metro area and the five boroughs, in particular, are underwritten on a project-specific basis, non-CIP. These CIPs are typically two-line and afford little true risk transfer. In other words, the retentions are usually close or equal to the limit of liability provided on the general liability line of coverage. Without legislative relief, we see little to no change in how construction insurance is underwritten in New York City. Finally, overall excess pricing for CIPs remains very competitive, especially above the lead \$25 million layer. We do see the need in today's marketplace for arranging the lead \$25 million with more than one or two carriers. In many cases, carriers will provide ventilation options, meaning they will participate with a smaller limit (e.g., \$10 million) in the lead \$25 million and then provide additional capacity above the \$25 million lead layer.

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