

# Funding Technology Adoption –

Connecting Technology, Risk Management, and Finance Teams  
to Fund the Future State

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# Introduction

Stakeholders involved in the design, construction, and operations phases of an asset's lifecycle aim to ensure their role contributes to the assurance that the delivery and operations of the asset meets all parties' expectations of performance certainty. Never has there been a time where technology is, or will be, playing such a leading role in achieving this goal of asset performance certainty. Unfortunately, identifying those technologies, or solutions, that offer the greatest impact on certainty requires all stakeholders to invest in piloting these solutions to determine their impact, thereby creating a roadmap as to which solutions should be implemented first. Adopting new technology requires an up-front cost that several stakeholders are reluctant to absorb, as it involves uncertainty of return, and thus some prefer to keep using what they deem to be the "tried and true" traditional approach. Therefore, the trick is to find a way for all stakeholders to fund the costs associated with adopting this future state of asset development and asset management, while at the same time providing them with the empirical evidence to reinforce that the decision to adopt this future state is the right decision.

# The Hurdles

For some sectors of the economy, like manufacturing, transitioning from a traditional state to a future state is easy. However, when it comes to designing, constructing and operating assets, such a transition has several hurdles to overcome before that future state will be widely adopted. The following are some of the leading hurdles preventing this vital sector of the economy from adopting its future state:

1. **Siloed Multi-Stakeholder Framework:** Constructors and operators of the world's physical assets are many and they often work in isolation from each other. With so many players involved, often with a siloed mindset, coordinating and collaborating to move to a future state can be a tremendous challenge.
2. **Margin is Insufficient to Encourage Innovative Approaches:** Some of the stakeholders within the asset construction and operations value chain earn very low margins relative to the risk being borne by their companies. Thus, the additional cost and risk of implementing a future state can be too great a risk to already thin margins, preventing investment in new technologies and methods.
3. **Fragmented Sector:** Not only are there many stakeholders involved in the asset management value chain, there are many companies represented in each stakeholder group globally. The design, construction and operations stakeholders number in the millions and thus with so many firms within all the major geographies, coordinating a future state becomes even more challenging.
4. **Unique Assets and Lack of Standardized Data Measures:** Every developed and operational asset is to a large degree unique — the geography (climate, geotechnical traits), the specific design, the asset class (subway, commercial tower, bridge), and the entities responsible for building and operating the asset. Due to this dimension of uniqueness, standardizing data for each phase of the asset's life becomes a significant challenge as evidenced by the fact that there is very little standardization around construction and operations phase data.
5. **A Traditional Mindset:** The design, construction and operations sector can be very traditional in its mindset. The way in which construction has been done, from the building of the Empire State Building to the building of current mega-high-rise towers, has not changed much. The phrase “we've always done things this way” is quite common in the design, build and operate sector of the economy. This is further evidenced by the fact that this sector is notorious for being one of the least digitized sectors of the economy.<sup>1</sup>

The above represent some of the top hurdles that the design, construction and operations sectors need to overcome to help transform from its current traditional state to an improved future state. Other industries that have already made this transition have overcome these hurdles and went on to significantly improve productivity and significantly reduce risk. The construction and asset management sector of the economy can make this transition and there isn't a better time to begin the journey to its future state.

<sup>1</sup> *Digital America: A Tale of Haves and Have Notes, McKinsey & Company (See Page 5)*

# A Simple Solution to Remove the Hurdles

All the stakeholders involved in the design, construction and operations of physical assets have capital partners that are necessary to create and operate their assets. These capital partners extend funds to allow the asset development to move forward and, once created, provide funds to keep assets operating. The following diagram outlines who these capital partners are and the foundational role they play in the creation and on-going operations of the world’s physical assets:

| Asset   |   |   |
|---|---|---|
| Design  | Construction  | Operations  |
| Capital Partners  |   |   |
| <b>Project Finance</b><br>Provides equity and debt capital necessary to create and operate the asset. Examples include shareholders, private equity, banks. | <b>Insurance &amp; Surety</b><br>Provides risk finance capital to indemnify the asset against a multitude of risks in each phase of the asset’s life. | <b>Commercial banking</b><br>Provides bank lines of credit, term loans, revolvers, and other credit solutions to all asset management stakeholders throughout each phase of the asset’s life. |
| <b>Cost</b><br>Estimated to be between 1-12% across all three different capital partner options depending on geographic location.                           |   |   |

Capital partners assess the risk associated with the capital they are putting forward through an underwriting process. Underwriting involves a deep review of the risks that could cause the capital to lose a portion of its investment. The story of the risk-reducing technologies coming to the asset management marketplace should be told more coherently to these capital partners. If these technologies can show that they can empirically increase the certainty of delivery, the reduced risk facing these partners' investments should be reflected in improved terms.

For example, if a technology could be actuarially shown to decrease workers compensation insurance loss ratios by 35%, one would expect the insurer offering such insurance to reduce the premiums by as much as 35%. Thus, it would make sense that the capital partners, in this case the insurer, offer such a discount for any insured that implements this risk-reducing technology. Ultimately, if the capital partners are reducing their capital risk and this can be evidenced empirically, then the capital partner could have reason to partially provide funding for the adoption of new technology. To put this into dollars, using the above example, if a new commercial high rise were being constructed in New York City at a construction value of \$1 billion, the cost of workers compensation and employer's liability insurance during construction could be as much as 8% of the construction value, or \$80 million. A 35% reduction in rate, due to a commensurate anticipated 35% reduction in loss ratios, would result in a savings of \$28 million. That savings is likely much more than the cost to implement the technology on the project site. Thus the insurance capital partners on this project should, in the least, consider paying for this technology to be implemented on the project out of their premium collected, and at most, consider giving the project a significant savings on premium with which the stakeholders to the asset could then use to fund their transition to a more technologically advanced future state. This would thereby create further improvement to the capital partner's profitability as the adoption of risk-impacting technology creates more certainty of outcome.

Capital partners will reap significant benefit to their profitability when risk-impacting technologies are implemented in all phases of an asset's lifecycle. Therefore, the research & development funding problem outlined above could be partially or entirely borne by these capital partners. Developing a better framework needs to occur to inform these vital capital partners as to how whole-life asset management technology could improve their profitability, and as a result, they should consider funding the technology implementation. To do this, we need to devise a strategy, or a roadmap, to help educate these capital partners achieve this goal.

# The Roadmap to Educating Capital Partners

Within a given firm, there are employees responsible for assessing and implementing new technology and employees responsible for communicating to the various capital partners referenced above. The titles usually associated within these two camps are as follows:

Table 1

| Titles of Employees Implementing Technology  | Titles of Employees Responsible for Capital Partner Communication  |
|--|--|
| <ul style="list-style-type: none"><li>• Chief Operating Officer</li><li>• Chief Technology Officer</li><li>• Chief Innovation Officer</li><li>• Chief Data Officer</li><li>• Enterprise Intelligence Officer</li></ul> | <ul style="list-style-type: none"><li>• Chief Financial Officer</li><li>• Chief Development Officer</li><li>• Head of Equity Services</li><li>• Head of Procurement</li><li>• Risk Manager</li><li>• Insurance Manager</li></ul> |

The leadership of your organization (i.e., Board of Directors, Chairman, CEO, President, etc.) should establish a strategy to better connect these two camps so that they can develop a framework to better communicate to key capital partners and create a path towards unlocking funds that could be used to invest in the creation of a company’s future state. The following represents a high-level roadmap which could be helpful to colleagues from both camps to develop a more detailed Capital Partners Technology Communication Plan (CPTCP):

Table 2

| Step | Details   |
|------|---|
| 1    | <b>Building the Team to Tell the Story</b><br>Identify a team inside and outside of an organization to create a story to unlock maximum funds from capital partners. These team members should come from those within the organization responsible for the implementation of technology and those that communicate with capital partners (see above titles reference in Table 1). Remember to involve advisors outside of the organization that can provide insight and data into how technology impacts capital partner results and, ideally, also have relationships and knowledge with these capital partners.   |
| 2    | <b>Target the Risks that are of Most Concern to Capital Partners</b><br>Ensure focus on the risks that have the greatest impact on capital partner underwriting. This information will come from those both within and outside of the organization that are responsible for capital partner communications. Depending on an organization’s size it will likely be outside advisors that best understand the key drivers of a capital partner’s underwriting process and the key risks that those capital partners concentrate on to arrive at their terms. These are advisors like financial advisors, investment bankers, insurance brokers, technical advisors to capital, and even the partner technology companies. |

| Step | Details  |
|------|--|
| 3    | <p><b>Collecting the Data to Tell the Story</b></p> <p>Ensure that the chosen team brings data from both within and outside the organization to provide empirical evidence that the implementation of new technologies is, in fact, impacting the very risks that are of most concern for capital partners. In an ideal world, the data unequivocally proves that the profitability of the capital partner will improve with the implementation of the various technology solutions.</p>   |
| 4    | <p><b>Collecting Data where None Exists</b></p> <p>Sometimes there will not be any readily available data from an existing technology implementation. In those cases, running a pilot program can help develop statistically significant data sets that evidence the technology implementation improvements. Such pilots should add relatively little cost on a few projects and the results, with enough pilots, could be sufficient to provide empirical evidence that the technology implementation has positively impacted the key risks driving capital partner terms. NOTE: Some capital partners are already funding these pilots themselves in order to assess the impact of technology. Use this pilot funding strategy to obtain necessary pilot data.</p> |
| 5    | <p><b>Developing the Actuarial Models to Tell the Story</b></p> <p>After identifying key areas of risk that capital partners can focus on to develop their terms and obtaining the data from those key areas of focus, the next step is to devise actuarial evidence that validates the story. This will involve showing the pre-technology implementation data results and the post-technology implementation data results. The degree of impact will determine the degree of improvement in terms. This measure might be called a Risk Impact Rating which indicates the amount of discount that should be applied to that capital partners' product offering.</p>   |
| 6    | <p><b>Developing the Technology Narrative to Combine with Actuarial Models</b></p> <p>Firms will need to work with technology companies to develop a narrative around the technology, its developers, its history, and how the companies believe the technology is impacting risk. This would be a preamble to the actuarial models to provide the capital partners with a background on the technology.</p>   |
| 7    | <p><b>Creating the Submission to Capital Partners</b></p> <p>The submission is the single document that combines the technology narrative with the actuarial model. It is the document that the capital partners will initially view to determine if they will consider offering improved terms based on the implementation of the technology on the asset. This document should ideally close with proposed new terms that reflect the improved profitability to the capital partner due to the technology implementation.</p>  |
| 8    | <p><b>Joint Actuarial Work with Capital Partners</b></p> <p>Though actuarial science should be sufficient evidence for capital partners to offer improved terms for assets that implement risk-impacting technologies, capital partners will often recruit their own data and analytics teams. Patience will be required as the capital partners work through the numbers and may even conduct their own pilot programs. If this is the case, it helps to assist the capital partner in this process to accelerate their decision on whether they can improve their terms.</p>   |
| 9    | <p><b>Final Negotiations</b></p> <p>When the capital partner advises that they agree with the impact on the key risks driving the capital partner's terms, then the next and final stage is negotiations. Several negotiation techniques should be implemented at this stage by firms and their advisors to ensure best terms are obtained (benchmarking, relationship leverage, knowledge of alternative capital sources, business leverage, etc.).</p>   |



# Conclusion

There is no doubt that a wave of risk-impacting technologies is coming to the all phases of physical assets. There are several hurdles the current asset management economy faces to adopt these risk-impacting technologies and move into that crucial future state. Identifying those that will fund the future state of the asset management economy is vital. The capital partners that support asset development and operations could be one key source of potential funding. These capital partners will reap significant reward through improved profitability if these risk-impacting technologies can be shown to work. As a result, perhaps it should be capital partners that remove several of the hurdles to investment and implementation of technology that are preventing the transition of the asset management sector to its more profitable future state.

By offering improved terms to those assets that adopt the best risk-impacting technologies, capital partners will provide key asset stakeholders the necessary capital and confidence to start designing, constructing and operating assets with more certainty (underpinned by these risk-impacting technologies). Such a strategy will require improved communications between those in organizations responsible for implementing technology and those responsible for communicating to capital partners. It will also require the use of outside advisors with access to data, relationships, and leverage with capital partners to unlock these solutions that have potential to remove said hurdles. Whatever the concerns with going down this path, the benefits that come as a result of this journey will far outweigh the costs. Further, the benefits will extend well beyond those seen by organizations and will extend into the general economy and society as a whole.

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## About Aon

Aon plc (NYSE:AON) is a leading global professional services firm providing a broad range of risk, retirement and health solutions. Our 50,000 colleagues in 120 countries empower results for clients by using proprietary data and analytics to deliver insights that reduce volatility and improve performance.

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