A white paper by Alistair McLeod
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Adopting Communication and Collaboration technology for greater visibility & quality information throughout project delivery

A construction-focused paper

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Introduction

The construction sector has traditionally been slow to adopt information technology solutions for communication and collaboration. This is perhaps a reflection of the way the industry views where value can be created - often the focus is on simply reducing building costs through better procurement and on-site management. Attempts to improve team productivity and information quality through technology are often treated with a certain degree of scepticism, with stakeholders citing that the business case and return on investment do not stack up.

The benefits are well understood

Rethinking Construction by Sir John Eagan's task force over a decade ago clearly highlighted the need for better collaboration throughout the supply chain by improving team integration and making use of information technology as a means to enable this. It's now over a decade since this report and the recent review by Constructing Excellence Never Waste a Good Crisis clearly showed that little progress has been made. When posed the question "What are the main benefits you have seen following the Rethinking Construction Agenda?" many in the industry reported that collaborative working and integration have improved while IT has had little impact!

A typical construction project comprises many information workers spread across a number of locations who interact with each other and collaborate on project data and documentation. The majority of workers are not collocated with their colleagues and many workers move between different locations. This "location uncertainty" makes it difficult to collaborate effectively and results in communication latency throughout the team. Furthermore, a project team is multi-faceted with contractors, manufacturers and designers from different organisations working in partnership. Duplication of information is common, particularly when data is shared between organisations, breaking down traditional project governance boundaries and blurring visibility.

The industry can leverage value from project collaboration and communications technology, replicating what has been achieved in other sectors. For example, Retail and Manufacturing organisations have both demonstrated that tightly managed processes coupled with the relevant technology can help integrate supply chains and drive down costs throughout the entire delivery lifecycle.

So what is stopping it from happening?

There is clearly a need for the right technology to better control and measure project processes, however many organisations would argue they have been using technology for years (nearly every organisation has email, business productivity tools and file and print storage). While there is little doubt these technologies are useful, they need to be applied in the right context. For example, email is an effective communication tool; however its flexibility allows users to send messages and attachments asynchronously making it difficult to prevent multiple versions of the same information propagating out into the supply chain. Downstream this places additional risk and cost on the IT Architecture by unnecessarily creating storage and archiving complexity for the IT support function and taking time and focus away from value adding strategic IT projects.

Start with the strategic objectives

What is clearly needed is a strategic approach to addressing the problem. Too often IT projects are driven by tactical decisions at an operational level, rather strategic decisions in line with the overall business goals. This leads to scenarios where technology is implemented as an act of faith ("Lets install the technology and see how it goes") or implemented to address niche problems within the organisation. For example, Microsoft SharePoint is no doubt a highly effective, functionally rich collaboration platform, but many organisations are rushing to install and deploy the technology without proper consideration for the business objectives and knowledge worker requirements. I have encountered many organisations who have secured a budget for implementing SharePoint with little understanding of what it's going to be used for. The issue is often amplified in the construction sector, where business processes may not be fully understood or variations may occur depending on the type and size of project. Furthermore, project teams tend to work independently of each other and evolve their own processes or adopt technology piecemeal to address their specific needs.

It is important to be clear on what the overall strategic communication and collaboration needs are for the organisation. What objectives are driving the need for better integrated teams? How do future business plans influence this? What cost and risk constraints are there to implementing technology? What is the impact on culture and how will change be managed?

Understand the behaviour and needs of the knowledge workers

Knowledge workers tend to gravitate towards traditional communications technology such as email, productivity tools (for example Microsoft Office), telephone and face to face meetings. They feel comfortable with the flexibility these methods provide and the technology tends to be fairly ubiquitous, making it easy to adopt. Introducing additional technology must be seen to add value rather than replace these traditional methods. Remote knowledge workers require information quickly and easily and need the ability to share and collaborate with colleagues, regardless of distance. With this in mind, technology will only be of value if it can achieve any of the following:

- **Single version of the truth.** Access to all relevant information in one centralised area that is accurate. The technology must help with eradicating duplication of information and provide a flexible way of managing quality and approval
- **Be easy to use.** The technology must be intuitive and build upon the behaviours of knowledge workers. Knowledge workers need to be able to forge and maintain working relationships over distance and the technology must not be prohibitive to this. Cumbersome user interfaces and clumsy processes will ensure knowledge workers will avoid using the technology.
- **Location and device independent.** Knowledge workers are spread across multiple locations and organisations, making device standardisation difficult. Any technology must be accessible through simple protocols (such as HTTP) for on-line access, and if possible allow users to work off-line when connectivity is poor. Furthermore, off-line access must not comprise on information management and quality.
- **Integrate with existing technologies.** It's important that knowledge workers can continue to use existing technologies and methods of communications. Any new technology should complement and enhance not aim to remove functionality. Telephone, email and face to face meetings will persist, however management and quality can be improved through centralisation of data and automated workflows for approval and governance.

But be careful their needs do not undermine the need to improve quality and visibility

These traditional technologies can contribute to the breakdown of information governance, allowing data to proliferate within project teams with little quality control and management. There needs to be a balance struck between the needs of the knowledge workers and the need to improve information quality and visibility throughout supply chain. Formal information governance will help and there are plenty of best practice frameworks that can be applied, however the implementation of the right technology will help support and manage this more effectively. For example secure portals and workflow tools can provide a flexible way of allowing users to share and collaborate, but within a controlled and automated way.

Next build a strong business case and secure stakeholder buy-in

Any technology project must be justified within the context of the value it will bring to the organisation and these benefits must be communicated effectively to the business leaders and stakeholders. As previously mentioned, projects to improve communication and collaboration are given a low priority in the construction sector because the value is misunderstood and priorities lie elsewhere. There is no doubt that cultural barriers will need to be overcome; however in order to secure buy-in and gain budget approval, a robust business case will need to be developed. Benefits take the form of cost savings, cost avoidance, generation of new revenues, and intangibles. Some examples include:

Strategic Alignment. The in-tangible benefits that outline the “soft” return for the project. The main focus is on staying consistent with the business objectives and making some assumptions on medium to long term forecasts. The actual benefits are high-level and difficult to measure however intangible benefits are the reasons for doing things that measurable benefits can’t justify.; For example “The system will automate knowledge management throughout the organisation lowering duplication and increasing quality” or “The Supply chain will be better integrated because we will have tighter relationships with partners and we will be able to share information more efficiently”.

Operational Value. The quasi-intangible benefits looks at the “enablers” that allows a process, project or team to achieve a specific outcome. These benefits are

obvious and are again difficult to measure. For example “Improved Information Management”, “Improved Version Control” or “Reduced omissions or errors”

Tangible Benefits. The tangible returns for the investment and the only benefits in the business case that are quantifiable and measurable. It is a good idea to spend time defining and detailing what these are and typically you are looking to include costs savings, increase in revenues or reductions in business risk. For construction projects examples would include “% decrease in variations on site” or “the reduction in the number of hours during the design process” for example.

Finally define and document a Communication and Collaboration Strategy

Finally you can create a strategy that can be used to define the current and future project communication and collaboration needs for the organisation. The strategy should include:

- A set of **business and project objectives**, detailing the business processes, functionality required and use case scenarios
- A detailed **business case** outlining the strategic, operational and tangible returns to the organisation
- A definition of the **required technology**. This should also include a roadmap that unites all communication and collaboration technologies under one enterprise architecture framework and allows the IT department to plan and manage the required changes. Too often these technologies are implemented in isolation with little consideration for the different layers in the product stack. For example, archiving and retention is nearly always addressed at the infrastructure layer with large investments in storage and backup. This is unnecessary if the correct document retention and governance is implemented at the application layer.
- A **governance framework** that details the security policy and information retention plans for and a description of how it integrates to the overall business governance framework
- A **project portfolio** that defines the budget, priorities, anticipated timescales, business case and risks for implementing the strategy.

Conclusion

The successful completion of a construction project depends on effective communication, accurate information and the exchange of critical information between distant team members. Productivity and quality can both be improved if traditional communication methods are combined with new on-line based collaboration technologies. This will only happen though if the sector embraces the concept of a communication and collaboration strategy that defines the right technology investments based on the business objectives, meets the needs of the knowledge workers and has a robust business case that outlines the tangible returns.

About the Author: Alistair McLeod

Joined in 2000

Alistair is an experienced IT Consultant and the Account Director responsible for Social Housing and Construction clients at Waterstons. He has over 18 years' experience across a wide scope of projects including software design and development, business intelligence solutions and IT strategy consultancy. Previous roles at Waterstons have included the strategic head of both the business applications team and the business consultancy team. He is a Chartered IT Professional and a Prince 2 Practitioner.

Alistair's engagements have included the development of an IT Strategy for a large marine engineering client, programme management of a communication and collaboration solution for one of the largest registered social landlords in the UK and the management of a wide area network acceleration solution with a blue chip construction company.

Joining Waterstons from a software development and consulting background, Alistair's previous appointments include Yorkshire Electricity, The Sage Group and SEMA Group.

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