

What do you want to learn?

A systemic perspective on stakeholder communication and risk mitigation on major capital projects in the Higher Education sector

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Contents

Executive Summary	1
Introduction	2
Reacting to Change	3
Risk Management	5
The Stakeholder Paradox	8
Communication Systems	9
Project Communication Models	10
Case Study	11
Formal and informal communications - a systemic approach	14
Feedback and Feedforward Systems	15
Digital Data Collection Systems	17
So What?	19
Contributors	20
About the Authors	21

Executive Summary

This is a paper on communication between all of the parties involved in the development of a Higher Education facility. Our initial interest was to understand the connection between risk management and effective communication practices. We wanted to investigate the idea that by engaging stakeholders throughout the project cycle, the team could produce a more satisfactory outcome than is often the case using traditional communication practices.

In addition to using our personal experiences and paper based research to explore the topic, we engaged with a number of experts in the construction of higher education facilities for one-on-one research and to take part in a workshop. The purpose of the event was to identify the common project risks that were specific to the university sector. The output of the workshop was a schedule of the top 10 risks, which are listed in Table 1.

One of the interesting observations from the exercise is that the risks identified are rarely included in a typical risk register assembled by a construction team. Our analysis indicates that these risks are created by **Behavioural** problems resulting from the interaction of individuals or **Systemic** issues, reflecting an institution's underlying practices and systems. Many of these problems arise from the cultural environment within the institution, and the existence of various subcultures that hamper cross-team connections.

This paper explores a number of suggestions for mitigating behavioural and systemic risks by focusing more resources on establishing enhanced communication protocols in the early stages of a project. The paper closes with a review of the potential use of digital technology that can make the collection and dissemination of data much easier. The key message is that a better outcome is reliant on encouraging the continual engagement of the project stakeholders and their willingness to contribute.

Introduction

Building a large university project is a complex undertaking. The commissioning, construction and operation of a new facility requires the engagement of a substantial number of stakeholder groups. Further complexity is added by issues such as sources of funding, and the need to work across various boundaries between academia and other sectors, such as health, science or industry. For the project team, it can be difficult to work out just who you need to speak to, what you need to tell them, and when they need to hear it. You also need to recognise who to listen to.

There has been a growing awareness in the construction industry that stakeholder engagement needs to be given a greater priority, particularly in the early stages of a project's inception. Evidence from a wide variety of project failures has highlighted the tendency for project teams to make too many assumptions as to the needs and requirements of the people who commission and use the building.

Before we go much further, it is worth defining what we mean by stakeholders. The Association for Project Management (APM) Body of Knowledge defines a stakeholder as *'an individual or a group who have an interest in the project, program or portfolio because they are involved in the work or are affected by the outcomes'*. This definition casts a very wide net, but for the purposes of this paper, we will focus on the key internal stakeholders, i.e. those people or groups within the institution who have a high degree of interest in the project. This will include not only those parties that control the resources that are made available for its completion but also the groups who wish to influence the output specification.



Reacting to Change

The environment in which a Higher Education (HE) institution now operates is far more fluid than it used to be. The PESTLE factors (Political, Economic, Socio-cultural, Technological, Legal and Environmental) that influence all decision-making will be constantly shifting. The logic that led to a particular decision at the inception of the project may no longer be relevant 12 months later. This is particularly problematic when the funding regimes change in response to political or economic pressures.

One of the most difficult challenges for a project team is to deal with changes in the project once it starts. Construction projects require a huge number of technical, design and management decisions. Any late changes to requirements by the academic or maintenance teams mean that time and energy will have been wasted. Change is nevertheless inevitable on any major project, particularly when the project is started in haste. Change can also be expensive, but the costs can be mitigated if everyone has early notice that the plans may have to vary.

The underlying message of this paper is that time taken with high quality stakeholder engagement at the early stages of a project should aid the identification of likely changes so that they can be planned into project design and delivery.

Figure 1: The Players

For the sake of simplicity we have identified three significant stakeholder groups within a typical Higher Education (HE) project team that require the greatest level of interaction.

1. The Budget Holder (Project sponsor)

The individual or group from the University executive body that has the final say as to how much money will be available to construct the building, and to fill it with the furniture and equipment required for its intended purpose. The title will vary in different institutions, but the complexity of the model increases for many research universities where the budget holders may be the Departmental Head and is working with external trusts or philanthropists.

2. The End User

The individual or group who will be based in the building, such as academic staff, professors and lecturers. Within academic institutions, floor space has a high degree of importance, and can often be as much a symbol of status within the organisation as it is a requirement for the department to fulfil this function. The End User's chief representative needs to be named and responsibilities allocated. This becomes more complicated when a number of departments are going to use the new facility. There will often be conflicting needs and desires between the parties, but they need to have a coherent voice at the briefing table.

3. The Project Instigator (Estates Team)

This is the group who are tasked with commissioning the (mostly) external contractors and consultants who will design and construct the desired facility. The majority of capital projects will start under the direction of the professional Estates Team.

It is interesting to note that the **students**, who would logically also be seen as important stakeholders, are infrequently included in the communication process. The primary explanation given for this is that most students are not engaged with the institution for long enough to see a project through from inception to occupation, and are therefore likely to have limited interest. There is a conundrum here however, as one of the major pressures facing many HE bodies is the current, or future, need to compete for students. Providing facilities that create an attractive environment is an important consideration.

The other major player is **The Project Team**. This is the collective group of consultants and contractors who have the technical knowledge and experience to design and construct a building. This is usually a diverse collection of personalities who will have some interesting communication challenges with each other. But on the assumption that the project is run by an adept and experienced project manager, we will assume that the project team is able to speak and to listen as a single entity.

On most major projects, one of the key stakeholder groups would be the primary sponsor, who would usually have a clear and formal communication channel set up to connect to the Project Team. One of the particular challenges associated with HE projects is that each of the three stakeholder groups identified in Figure 1, often regards themselves as the Primary Sponsor. This can have the effect of distorting communication and governance structures, particularly when the internal politics of the wider organisation are played out in the project environment.



Risk Management

Large HE projects have a high degree of risk and uncertainty, particularly in the early stages. All participants want to manage the risks that they can identify as potentially causing damage to the desired outcome. The methodologies for identifying and mitigating potential risks will vary from project to project. Some projects have no formal process, whilst others seek comfort in the creation of a risk register. A more sophisticated and experienced team will take the time to explore potential threats to the project, and put actions in place to mitigate potential problems before they occur. There is a common problem with many risk registers and mitigation strategies in that they are often simply based on bad experiences from past projects. Since every major construction project is unique, neither the exact previous circumstance, nor the result of that circumstance, are likely to repeat themselves. In a dynamic market, risk management on complex projects needs to be addressed in a different way.

In his book *'Tame, Messy and Wicked Risk Leadership'*, Dr David Hancock (Director of Construction, Cabinet Office) has a useful and insightful definition of risk as *"nothing more than uncertainty about decisions that other human beings are going to make and how we can best respond to those decisions"*. This is a simple, but very valuable, insight into risk and how we adapt to change.

Results from a senior workshop on risks in HE projects

In December 2014, we held a workshop with a number of experts who had many years experience of working on HE construction projects. The participants, who are credited at the end of this paper, were able to articulate the concerns of each of the key stakeholder groups. The purpose of the workshop was to try and understand the risks that are common to developments on university campuses. The discussion focused on the different stages of a typical construction project and how the various stakeholders interacted with each other and with the project team. The top 10 risks that they identified are set out in Table 1.

There are of course, hundreds of additional potential project risks, but the value of this 'top 10' is to recognise that, whilst each project is unique, the environmental conditions which affect a project's success are often similar. Looking through the list, one can identify two primary underlying sources of risk, which we would call Behavioural and Systemic.

Behavioural risks arise as a result of the interaction of individuals and the extent to which those interactions create positive or negative outcomes.

Table 1: Top ten risks common to large HE capital projects

Key risk area*	Some typical causes	Source
Lack of trust between stakeholders (Estates/ Academics)	<ul style="list-style-type: none"> • Low levels of mutual understanding. • Internal politics. 	Behavioural
Scope creep	<ul style="list-style-type: none"> • Lack of engagement at the right time. • Understanding of cost implications. • Low levels of accountability. • Unrealistic aspirations. 	Systemic
Poor communications	<ul style="list-style-type: none"> • Lack of recognition of time required to maintain connections. • Information not passed up or down the chain as required. • Silo cultures. • One way communication, little feedback. 	Systemic and Behavioural
Lack of rigorous challenge	<ul style="list-style-type: none"> • Power imbalance between sponsor and project team. • Problems and differences of opinion not voiced in time to prompt change before cost are incurred. 	Behavioural
Project funding patterns and funders imposed constraints	<ul style="list-style-type: none"> • Lack of predictability of long-term finance for capital projects. • Need for multiple sources of funding. 	Systemic
Institutional change outside of project parameters	<ul style="list-style-type: none"> • Regulatory or adoption of alternative practice, i.e. DDA, new external funding arrangements, new strategic initiatives. Sustainability. 	Systemic
Personality types of users and stakeholders	<ul style="list-style-type: none"> • Lack of comprehension of different styles of psychological profiles which affect communication. • Lack of team motivation. 	Behavioural
Underestimating the need for pre-construction processes	<ul style="list-style-type: none"> • Impatience to start. • Lack of understanding of the need to put good set-up practice in place. Lack of recognition of the disruption to the on going business of the university. 	Systemic and Behavioural
Poor briefing	<ul style="list-style-type: none"> • Lack of ability to articulate what is going to be required. • Lack of challenge in the briefing. • Lack of understanding of the design interpretation. 	Systemic and Behavioural
Changing stakeholders	<ul style="list-style-type: none"> • Change of senior people leading to a lack of consistency of decision making and a change in priorities. 	Systemic

*In no particular order of priority.

Humans can adapt their behaviours when they recognise the benefit of doing so, but sometimes they need help in recognising the mutual advantage of a win-win scenario. Behavioural risks may also arise from the actions (or lack thereof) by individuals in key positions, who are unable to perform the role that the project requires.

Systemic risks arise from the established processes and systems whose impact on the project is not immediately apparent. Some of these factors are quite obvious once you look for the source of disruption, but many systemic factors originate from the different sub-cultures that exist in large institutions. The behavioural norms that arise from these different subcultures are rarely recognised by the members of the distinct 'tribes'. The result can be conflict and miscommunication, which appears to have no rational foundation.

The highly respected writer on organisational psychology, Ed Schein (2009), identified three generic sub-cultures that exist in all large organisations, which he categorized as being Operator, Engineer and Executive sub-cultures. These form a neat alignment with the three key stakeholder groups within the HE environment that we identified above. Schein distinguished the primary concerns and beliefs of each distinct culture, a sample of which is used in Table 2.

Table 2: Schein’s Generic Sub Cultures as seen in HE Institutions

Sub culture	Core beliefs	Primary concern
Operator (Occupying User/department)	We are the people that do the real work in this place.	How do we get the resources we need to do our job?
Engineer (Estates team)	We design the processes that make this organisation work efficiently.	Why do people continually struggle to follow the rules?
Executive (Vice Chancellor’s office)	We are responsible for the financial survival and growth of this institution.	How do I get information from within this place that I can trust?

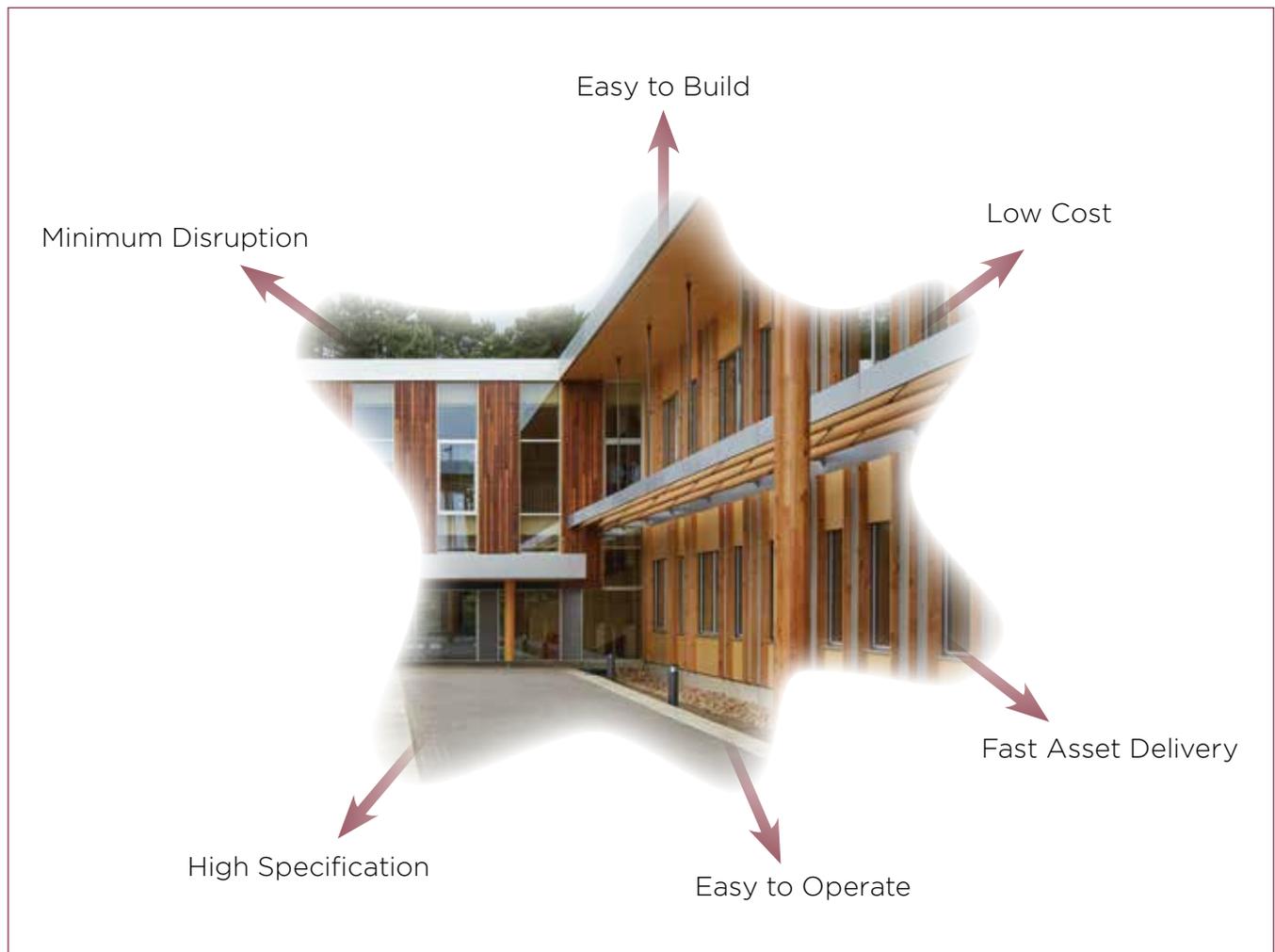
These are the normal dynamics of most organisations, and are not specific to Higher Education. An analysis of the cultural beliefs of different university departments would easily slot into one of the three generic sub-cultures. Once you recognise that each sub culture has its own tacit beliefs and assumptions, it is easy to see why the decision-making processes might often seem bewildering to someone from outside the institution.

Behavioural and Systemic risks are often excluded from the technical risks that are scheduled in the typical construction risk registers. This is primarily because they are beyond the direct influence of the Project Team. We nevertheless believe that such risks can be mitigated. Research into project success and failure repeatedly identifies the benefits of using a good set of procedures that are implemented **before** the project starts. The point is reinforced by many project post-mortems, which highlight the lack of attention to interpersonal communication in the early life of the project.

The Stakeholder Paradox

Good set-up practice begins with clear understanding of the wants and needs of each of the participants. So what do they want from their new facility?

Figure 2: The Tensions of Different Desires



The Project Team are unlikely to be able to deliver against all of the above requirements as there is a tension between each of these objectives, particularly when budget constraints impact on each requirement. For the project to be successful, there needs to be a mechanism to reconcile the paradoxes that are inherent in these different aspirations. Communication procedures need to be established between the different groups so that realistic expectations are established and priorities are understood.

Communication Systems

Communication involves exchanging information so that the sender and receiver understand the meaning of the exchange in the same way. When communication is working well, information is exchanged at the time that it is needed, and in a format that can be absorbed and understood. It is worth acknowledging, however, that a lot of communication is misunderstood.

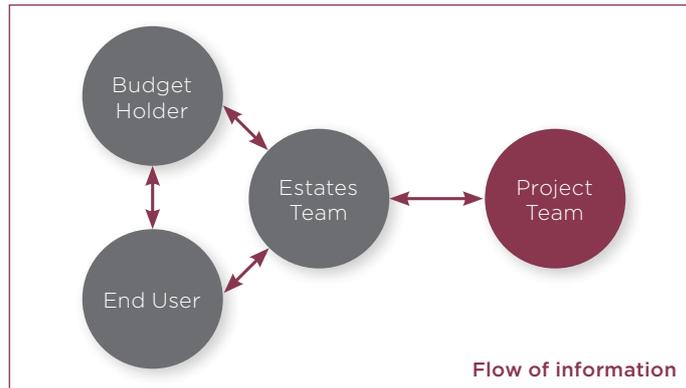
Humans often have difficulty recognising that other people have their own filters through which they take in information and decide how to interpret it. Just because both parties are using the same language does not mean that sender and receiver ascribe the same meaning to the message. So to communicate effectively, both parties need to invest some time first understanding each other's perspectives, drivers and concerns. They can then work out how to adjust the transmission so that both parties can understand each other. This requires creating a mechanism to generate data around which the parties can test each other assumptions.



Project Communication Models

The traditional model of communication as illustrated in Figure 3, assumes that the Estates Team will liaise with the Budget Holder and the Users to create a design brief, which the project team would then deliver. The project team would make periodic indirect connection with the primary sponsor, usually in some form of a monthly report.

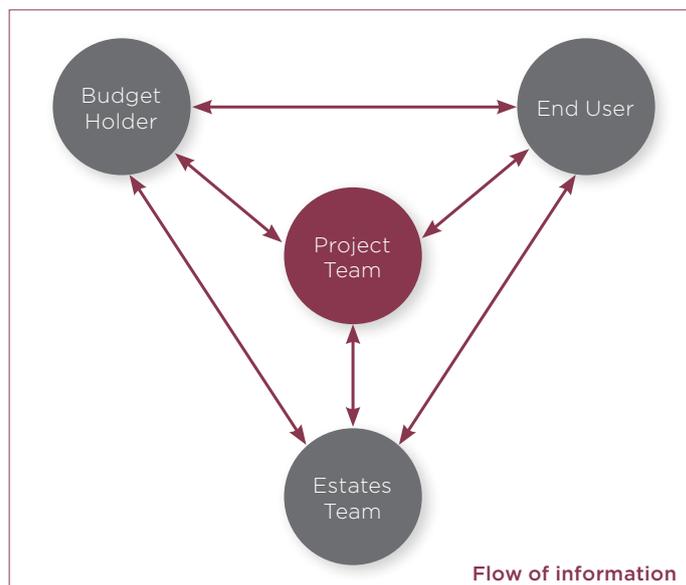
Figure 3: Example of a traditional communication structure



An alternative communication model, as shown in Figure 4, anticipates a much more dynamic level of interaction between the parties. This approach recognises that the fluid nature of the client's internal environment will have an impact on the project, and vice versa. This type of structure requires the parties to establish and maintain lines of communication with each of the other three key stakeholder groups.

A successful communication strategy recognises that each stakeholder will have different levels of interest at different times in the program. They will also be interested in different information. It is just as important to recognise that the Project Team needs to be kept up to date on any internal issues that may affect the project. The project manager, acting as the primary representative for the project team, needs to be adept at coordinating the connections between the various parties.

Figure 4: Example of a communication structure on large HE projects



Case Study

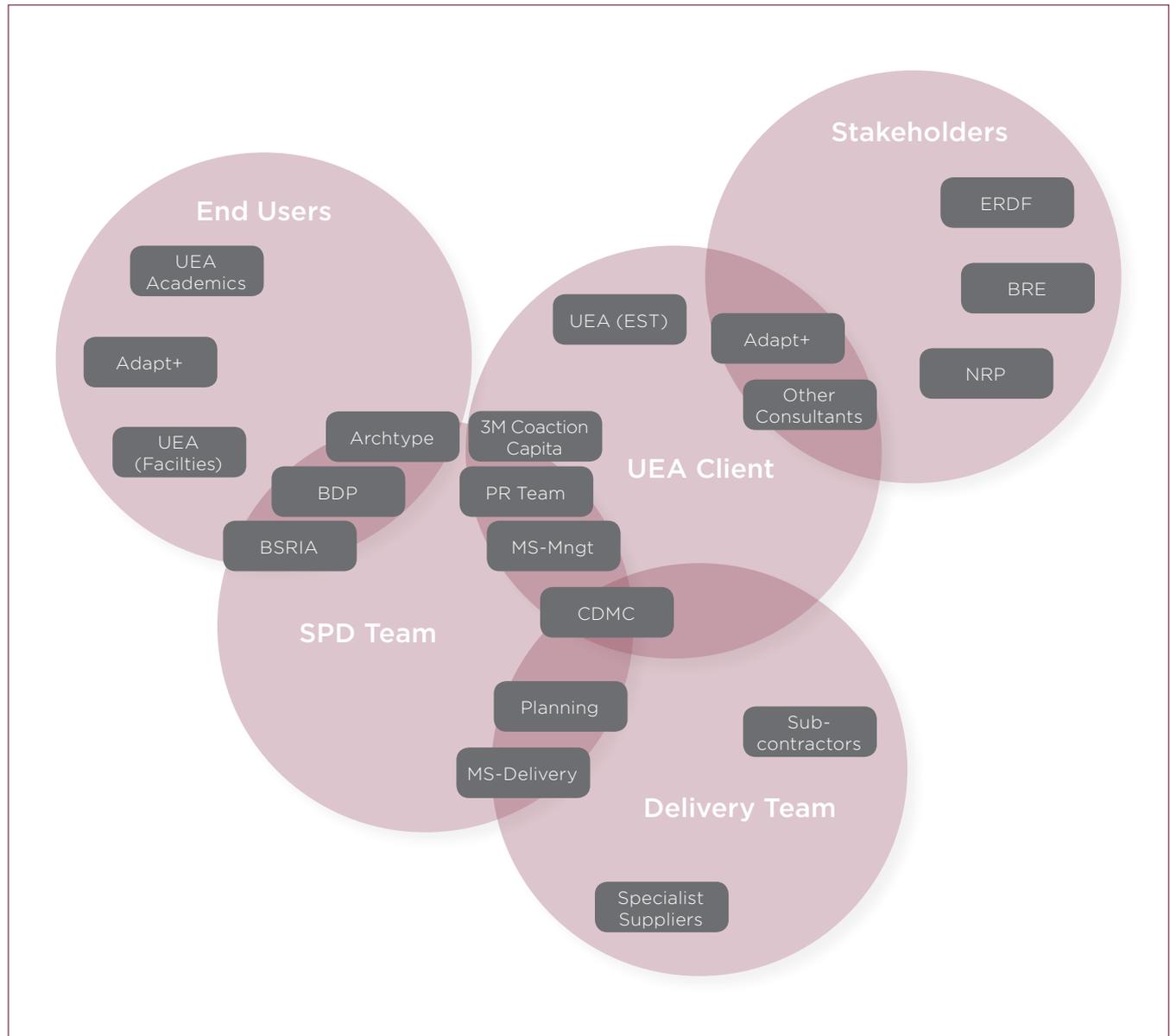
The new Enterprise Centre at the University of East Anglia has recently been completed to great acclaim. The Enterprise Centre at UEA was an ERDF (European Regional Development Fund) funded project that adopted single point delivery and collaborative working. The Project set out to create a signature building that would be used both for teaching and as a business incubator for local businesses in the low carbon technology sector.

The unique, and exceedingly challenging brief was to achieve Bream Outstanding, Passive House Certification, 70% biorenewable content and a carbon footprint of less than 500KG Co2 per sqm over a 100 year design. All this whilst supporting local supply chains and small businesses. At the time of writing it is on target to deliver all of these.

The project team was structured as broadly described in Figure 3 using many of the propositions set out in this paper. The team structure was supported by Patrick Watson of 3PM (Project Managers) acting in the role of project mentor. The addition of this role benefited the flow of information and general project communication.



The actual structure is illustrated below.



Having taken this project from concept to delivery, Dr John French, CEO of ADAPT at UEA has therefore been able to comment first hand on the points raised in this paper.

Dr French notes *“Having a client side project director as I have been i.e. both academic and commercial director, has confounded the traditional and embedded working practices and ensured the ambitious project objectives have been retained. It has enabled project risks which might have affected cost, especially when they have been triggered by high levels of innovation, to be analysed and managed through.*

As the client side director and Grant Holder I have been empowered to take control and prevent mission creep. As client side I am therefore satisfied with the end point and the achievement of the objectives that were set down prior to procurement or design development. Although atypical, I would recommend this route when combined with collaborative working.”

The project team used the ResoLex RADAR tool as the feedback and feedforward system throughout the duration of the project. *“The RADAR tool is a useful early warning device that enables mitigation of problems within a large collaborative team before they occur saving both time and money.”*

Dr French finishes by commenting *“Thinking institutions keen to advance best practice may adopt value engineering during the preconstruction period but in so doing they need to make allowances for the poor understanding of this process within the construction industry. Value engineering is a highly sophisticated and intellectually driven process that assumes the delivery team representatives have adopted the same values – this is unlikely to be the case and needs a sense check to avoid confusion with cost mitigation which may result in damaging mission creep.”*



Formal and Informal Communications – a Systematic Approach

As mentioned above, the objective of a good communication system is to get potential problems into circulation as soon as possible. We therefore advocate the development of a communication and risk management strategy built around a systemic approach. The exercise involves mapping out the project environment as it sits within the structures of the wider institution. Lines of communication are then established on a formal basis between ‘offices’ as opposed to people. If the personnel then change, the communication structure remains intact.

Communications experts are nevertheless clear that humans tend to prefer informal communications, where we connect with people on a one-to-one basis. We tend to trust ‘gossip’ more than the written word. The best form of early warning system is to create a culture where thoughts, opinions or concerns that are typically passed informally between parties are also collected, analysed and used to predict potential risks. The project team then have a chance to adapt their plans before too much time (and money) has been wasted.

Both formal and informal communication systems rely on setting the right behaviours at the start of the project. Communication is a cultural issue. Organisations that are used to working within ‘silos’ find it difficult to adjust to the need to keep other parties informed. The onus is on the Project Team to ensure that everybody understands that it is in their personal interests both to talk and to listen.

Table 4: An outline structure for a communications strategy workshop

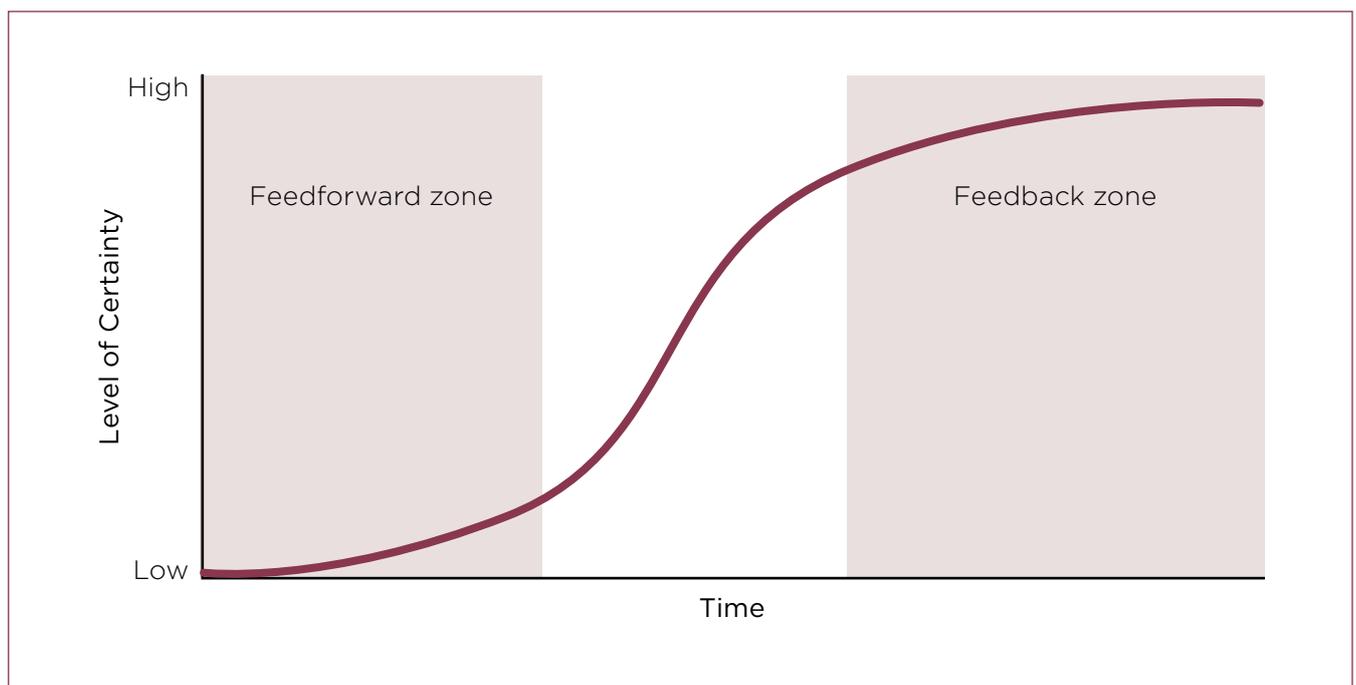
Step	Agenda item
1.	Identify the parties, recognise the phenomenon and discuss with other stakeholder groups and the Project Team.
2.	Consider the options for establishing formal and informal communications channels.
3.	Identify stakeholder barriers: <ul style="list-style-type: none">• Recognise stakeholder paradoxes.• Identify any subculture issues that interface with the project.• Articulate the benefits of good communications and risks of poor communication.
4.	Decide on feedforward and feedback systems: <ul style="list-style-type: none">• Who needs to be engaged?• When do we/they need it?• How should we/they receive it?
5.	How will the Communications system be monitored and reinforced?
6.	When will we review and adapt?

Putting in place a workshop that is specifically focused on communication at the start of the project will pay significant dividends. Our experts were able to identify a wide variety of case studies of problematic projects where the behavioural component of the project setup had been omitted on the basis that it was considered to be time-consuming and unnecessary. Our advice is to learn from the costly mistakes of others and to ensure that a communications workshop is part of any set-up programme.

Feedback and Feedforward Systems

An important element of the communication strategy should involve both 'feedback' and 'feedforward' processes. Feedback is a well understood mechanism for regulating a system by collecting data which is used to maintain a desired state. Less well understood is the concept of Feedforward, where information is collected that is intended to shape the future. The degree of certainty in any project follows a classic 'S' curve, as illustrated in Figure 5. In the early stages of any large project there are many questions that still need to be resolved. There is consequently a very low level of certainty as to how the project will actually play out. As the project progresses more data is collected and certainty increases to the point that the path to achieving the outcome becomes relatively clear. On complex projects, the curve is actually made up of a series of smaller 'S' curves as the environment changes and new solutions need to be found.

Figure 5: Timing implications for Feedforward and Feedback.



The purpose of feedforward is to collect data that helps the project team develop their thinking as to how the project will achieve its objective. Some writers refer to it as a self-fulfilling prophecy because it helps the team choose the future direction as opposed to accepting the patterns of the past. The most obvious form of feedforward is the creation of the vision that underpins the need for the project. Feedforward is therefore part of the iterative process of working with the project stakeholders to agree what it is that they really want. It is also an essential agenda item in early project meetings, where the team needs to be open to different possible actions that will take the project to the next stage. Feedback systems are designed to collect information to enable one to correct and adjust to a known path. Feedforward, on the other hand, is concerned with looking at the different routes available and deciding which one is the most likely to be successful.

It is important to recognise the difference between feedforward and problem solving. Feedforward is concerned with helping the team find certainty in the future rather than resolving an issue that has already arisen from the past. The concept is important because feedforward seeks to obtain inputs from multiple sources, both inside and outside of the project team.

Asking stakeholders to provide their thoughts and ideas as to how the project should develop may seem like an admission of a lack of confidence. The actual process is a little more subtle, and is tailored to the specific circumstances of a particular project. The key however is to be open to suggestions of alternative strategies and tactics that will help the ultimate delivery plan become more certain.



Digital Data Collection Systems

We have come across an increasing number of projects that have implemented some form of automated feedback and feedforward system, whereby selected team members at all levels of the team/stakeholder structure are invited to provide views and opinions that will benefit the project. The systems vary, from simple requests for information collected by e-mail, to more organised procedures such as using monthly questionnaires. One of the more sophisticated tools available is a system called RADAR, which has been developed by ResoLex (see Figure 6). These mechanisms are still however just tools. Their value to the project relies on how they are implemented, as well as the elegance of the system. Feedback systems work best when the power imbalances between the stakeholder groups and the delivery team are levelled, and senior figures encourage candid and open feedback. This should include feedback on their own impact on the project.

Stakeholder engagement is not something you can do to someone. It is a process that your stakeholders will go through over a period of time, in which they realise that their input and commitment to the process adds value to the project from their perspective. To enable stakeholders to realise the impact they are having, the communication loop needs to be rigorously enforced. A 'you said, we did' message should be continually communicated so that stakeholders know what effect their feedback is having. This leads to empowerment of stakeholders which in turn leads to the higher performing projects in terms of output value.

As with all initiatives, there is a danger of engagement fatigue as individuals become less engaged with the project and cease to make the feedback process a priority. The project team need to work to keep the program feeling fresh, relevant and important to the project decision-making process. The systems should therefore be subject to periodic review and adjustment.

Figure 6: RADAR

RADAR is a communication system created by ResoLex. The purpose of the service is to enable the project team to regularly monitor stakeholder perceptions and opinions around key project issues and behaviours. It has primarily been designed to improve project communications and help project managers and team members avoid dispute and mitigate risk by generating an early warning of potential issues. The ethos is to incorporate human dynamics into the project risk systems and facilitate prompt resolution of discord.



The basis of the RADAR service is the combination of proprietary software and industry expert analysis. A critical component of the system is the use of neutral third parties to monitor the perceptions and opinions of the project stakeholders. Neutrality is important as it provides a safe environment for project stakeholders to provide feedback and comments to the rest of the team. This process often picks up informal information that may not be disclosed openly in team meetings and tests personal assumptions to enable consensus to be reached amongst the team. The data collection and reporting process also establishes a mechanism to ensure that everyone has been asked for their views. It therefore avoids the common complaint *“if only you had asked me sooner, I could have told you”*.

The software provides a simple mechanism for gathering raw data, which is then aggregated and analysed by experts not directly linked to the project team.

A monthly report is prepared highlighting any new intelligence on potential issues or risks that have arisen in the past month, as well as monitoring feedback on issues that have previously been identified. This completes the communication loop by testing that the understanding of the information recipients mirrors that of the information providers. It also clearly identifies a feedback-action loop with a “you said, we did” approach to the use of information provided and the subsequent actions that are taken.

The structure of the monthly data collection questionnaire is adjusted as the project develops in recognition that different stakeholders have varying levels of engagement with the project as the program moves from inception to completion.

So What?

Bringing together the various strands identified above, one can see that creating a good communications strategy at the start of the project will help reduce uncertainty. Such a strategy will help mitigate the systemic and behavioural risks that have a negative impact on many Higher Education construction projects. Good stakeholder engagement should be concerned with the building of working relationships, rather than a one-way communication process.

The key ingredient in all of these observations is the ability to take soundings from project stakeholders and to be able to test assumptions. Senior leadership teams often lack a clear consensus of opinion, not because of any intentional discord, but because individuals assume that their opinions are shared with others. Lack of consensus at leadership level is then amplified as it filters down through stakeholder groups.

Our exercise supports the evidence from other studies on high-performing project teams which have recognised the value of establishing mechanisms for gaining feedback from the project stakeholders. To generate the intelligence needed to add value to the project, the system needs certain attributes, to be conducted by a trusted party, to be anonymous at the point of reporting and a fast speed of turnaround.

For a high-performing project, stakeholder engagement is not merely a process by which people are told things. It becomes the central pivot around which the project turns, allowing better understanding of needs leading to better briefing, better team working, better risk management and a project outcome which is valued higher by all stakeholders, as well as meeting the business and operational objectives of the university.

Contributors

Our thanks to the following experts for their assistance with the research and in pulling together this paper.

Ian Caldwell, King's College London

Ian has over 20 years' experience as director for estates and facilities organisations at three universities, Sheffield Hallam, Imperial College and King's College London. In this capacity he has been responsible for estates development strategies and many substantial building projects, both new and in existing buildings. Ian is also Chairman of the Higher Education Quality Design Forum.

Professor Daniel Ralph, University of Cambridge, Judge Business School

Professor Danny Ralph is a Founder and Director of the Centre for Risk Studies, Professor of Operations Research at Cambridge Judge Business School, and a Fellow of Churchill College.

Richard Bayfield, University College London

Richard is a chartered Engineer and he also holds a master's degree in construction law. Since 2005 he has been working at University College London as part of the Estates team helping to deliver major capital projects and £multimillion development programmes. He also occasionally sits as an Adjudicator and was a member of the panel for the London Olympics. In 2006 he was appointed to the UK construction minister's sounding board of 6 'industry figures' who advised on proposed changes to construction industry legislation. Richard's many years working with Honda have informed much of his subsequent thinking in areas of collaboration and innovation.

Stephen Wells, Queen Mary University of London

Stephen Wells, is a chartered member of the Institute of Building (MCIQB) and has held Director of Estates and Facilities roles both within the NHS and Higher Education. Stephen has significant experience in the development of estates masterplans, management of multi-million pound capital programmes and wider operational management of general facilities management services.

Mike Rhodes, Coaction Management

As Head of Projects at the Open University from 2003 to 2011, Mike headed up a number of new building and refurbishment works. He set up the framework which successfully carried out all the capital projects from 2008 to 2010 which was Highly Commended at the Construction Excellence London and South East Awards 2011 for Integrated and Collaborative Work.

Patrick Watson 3PM

Patrick is a Founding Partner of Portfolio, Programme & Project Managers 3PM and is a founding member and supporter of Higher Education Design Quality Forum (HEDQF). His experience covers a number of the 1992 and the Russell Group including; the University of Southampton, LSE, UCL and is currently seconded into the Estates Team at the University of Cambridge. He collaborated with Barclays on the development of a capital funding initiative for the sector HE which, coupled with experience from a series of Estates audits, gives Patrick a unique insight into the workings of the sector.

Professor Jim Yip, Salford University

Professor Yip was appointed Director of Special projects in October 2013 to chair project boards for a £55m new building, and refurbishment and reconfiguration of other buildings. He also has responsibility for establishing a number of international hubs around the world, redeveloping the student information system and lead developments in China.

About the Authors



Dr John French

John is a university based academic and entrepreneur with a track record in developing and financing major university infrastructure projects. He is active across the low carbon, bio-based and creative industries sectors. Internationally he helps UK companies gain access to export markets and is a judge on the UK-China Entrepreneurship Competition.

Educated at London University and then at the University of Cambridge where he gained his PhD he has a Chair in Enterprise and Sustainability at the University of East Anglia where he is also CEO of the Adapt Low Carbon Group and Director of the Enterprise Centre.

John has been responsible for leading a number of significant EU funded projects including the InCrops Enterprise Hub, The low Carbon Innovation Fund and the Exemplary Low carbon Building project, the £17m Enterprise Centre which opened its doors to a hub of green businesses and student entrepreneurs in June 2015. Having held academic roles at a number of universities included; Homerton College, Cambridge, Chester College (now Chester University), Suffolk College (now University of Suffolk and then University of the Highlands and Islands, John is presently leading a transformational change project at UEA aimed at establishing entrepreneurship across the wider university culture.



Tony Llewellyn

Tony is a partner in the Fairlight Project LLP, a firm set up to help organisations manage their way through behavioural change. He qualified as a Chartered Quantity Surveyor in 1985, and has worked as a specialist advisor on wide range of construction projects. He has held a senior role, either as partner or director in a number of surveying and engineering firms. Tony made a career shift in 2011, completing a Masters Degree in Coaching and Behavioural Change. He is

also a visiting lecturer at the University of Westminster in the faculty of Architecture and the Build Environment. His book, Performance Coaching for Complex Projects has recently been published by Gower as part of their Advances in Project Management series. Tony now works primarily with teams providing a range of consultancy, facilitation and coaching services that enable clients and project managers to identify, and mitigate behavioural risk.



Edward Moore

Edward has been Chief Executive at ResoLex since 2004, during this time he has worked with some of the country's leading project risk experts on creating RADAR, a web based project horizon scanning and risk monitoring tool. The service has been developed to understand the human dynamics of risk management that bridges the gap between forensic data and the perceptions of project stakeholders which often leads to breakdown in communications and increased risk. Under

the RADAR banner Edward is currently working with Higher Education, Housing and Infrastructure clients as part of the Risk Management and Collaborative Working processes on projects.

Outside of his commercial work, Edward is Chairman of Concordis International, an international peace building charity working in conflict areas using mediation to build dialogue and relationships of mutual trust to develop and implement policies that improve human security and lay firm foundations for lasting peace.



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