A decision making framework for planning and implementing collaborative working

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- What is effective collaborative working?
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Context
Technology use

- Technology is being used more and more in the construction sector

- A global business, as many projects span different time zones

- It is used to enable data, information and knowledge sharing, with differing success

- Heavy reliance on technology
Investment trends

Investment in technology

Investment in the strategies required to use the technology
These are not shrink-wrapped with the technology
PI ECC project

PIECC

Loughborough University
PIECC  
PI ECC project

- Planning & Implementation of Effective Collaboration in Construction
  - http://piecc.lboro.ac.uk/

Aim: “…to develop a strategic decision making framework to guide organisations in the planning and implementing effective collaborative working…”
PI ECC project

- Objective: review state-of-the-art in collaborative working – practices and technologies
- Objective: capture needs and requirements for...
- Objective: develop a decision-making framework for...
- Objective: test and validate the framework
Carried out at the level of:
- policy maker
- policy implementer
- policy user

Analysis of...

Semi-structured Interviews

Questionnaire

DATA

Needs & requirements for effective collaboration

Development(s) of framework

Test and refine prototype framework developments

Decision-making framework
What is Effective Collaborative Working?
Effective Collaboration

BUSINESS strategy

TECHNOLOGY strategy

PEOPLE strategy
Effective Collaboration - key factors

1. All members agree on the collaboration objectives and priorities.
2. An agreement on those to be used, and how they are to be used for the project, that describe how the collaboration is to work on a day-to-day basis.
3. Leaders need to ensure that all key participants are consulted as to the practices and procedures to be employed in the collaboration.
4. Time and resources allocated to enable all key participants to build relationships.
5. Standards and use of tools to be agreed by all key participants.

VISION

TECHNOLOGIES

PROCESSES

COMMUNICATION

ENGAGEMENT

TRUST

[Diagram showing different factors related to effective collaboration]
Needs of the industry
Needs of the industry

Categorised as

- Model
- Process
- Standards
- Good Practice
- Design
- Legal Aspects
Needs of the industry

Model

- “...a recognisable model for collaborative working does not exist at this time – it needs developing to enable a move forward...”

- “…must build upon work being done in other aspects of collaborative working – the AVANTI programme for example...”
Needs of the industry

Process

- “...processes that enable participants to agree a common vision and priorities for the collaboration – a route map for how the project is going to proceed, and must include suitable time for review of progress against vision and priorities...”

- “...procedures to promote trust in the collaboration – a key person needs to be in charge, they provide leadership, leading (hopefully) to better performance of the team, to build trust within the team...”

- “...a set of communication procedures that all stakeholders should use in the collaboration...”
Needs of the industry

Standards

- “...standards that facilitate interoperability between different software and systems – we are fed up with learning a new system for every new project!!...”

- “...suitable (and appropriate) help templates/screens for users to familiarise themselves with the software tools. They are removed when a level of competence is reached...”
Needs of the industry

Good Practice

- “...examples of good practice/case study material that shows tangible business benefits of collaborative working...”

- “…evidence of good practice of collaborative working to be published to alleviate frustration of the industry...”
Needs of the industry

Design

- “…intuitive interface design of software to reduce the requirement for training of new members of a collaborative project/environment…”

Legal Aspects

- “…clarification of professional liability of information generated. Who is responsible for the information generated and its trustworthiness? A right balance between the technology and professional liability is the issue to building trust…”
Framework Developments
Prototype framework

- A set of sub-processes for particular aspect
- A list of resources to include:
  - Suitable technologies & techniques to collaborate
  - Organisational change considerations
  - Examples of good & poor practices from previous efforts
  - Others??

Define the need ➔ Develop business case ➔ Design & Implement ➔ Maintain & reflect ➔ Feedback to next case
ALIGN BUSINESS STRATEGIES

1. Establish need to work collaboratively
2. Gain senior management approval & sponsorship
3. Appoint collaboration champion
4. Develop memorandum of understanding for collaboration
5. Allocate resources for collaboration

PLAN & IMPLEMENT COLLABORATION

1. Develop PROJECT strategy
2. Develop a shared vision
3. Determine scope & objectives
4. Map project lifecycle processes
5. Agree deliverables
6. Set success criteria
7. Assess collaboration risks
8. Agree standards and procedures

1. Develop PEOPLE strategy
2. Define roles & responsibilities
3. Match skills to context
4. Identify potential participants
5. Bring the team together
6. Enable participants to learn
7. Match skills to context
8. Identify potential participants
9. Define roles & responsibilities
10. Develop PEOPLE strategy

1. Develop TECHNOLOGY strategy
2. Decide role of ICT in venture
3. Identify current ICT systems & technologies
4. Identify ICT system & technology needs
5. Purchase & implement any new technology
6. Agree standards and procedures
7. Develop TECHNOLOGY strategy
8. Decide role of ICT in venture
9. Identify current ICT systems & technologies
10. Identify ICT system & technology needs

1. Day-to-day management of collaboration
2. Measure collaboration performance
3. Review & revise collaboration procedures
4. Reflections and feedback of collaboration

Collate & disseminate procedures for collaboration
Collaboration Brief

- Appoint and bring the Collaboration management team together
- Develop a shared vision (To include:
  - Scope and objectives
  - Success criteria
  - Role of ICT in venture
  - ...)
- Assess collaboration risk

Plan the Solution

- Define roles and responsibilities
- Match skills to roles and responsibilities
- Map project lifecycle processes
- Identify current ICT systems and technology requirements
- Agree standards and procedures

Implement Solution

- Identify / recruit potential partners
- Bring the project team together
- Collate and disseminate procedures for collaboration
- Provide management training and mentoring as necessary
- Purchase and implement any new technology
- Provide technology training and mentoring as necessary

Business Strategy

- Establish need to work collaboratively
- Develop internal business case
- Appoint collaboration champion
- Gain senior management approval and sponsorship
- Identify potential partners
- Allocate resources for collaboration

Collaboration Brief

- Collaboration not viable

Plan the Solution

- Collaboration not viable

Implement Solution

- Collaboration not viable

Reflections and feedback of collaboration

Collaboration support (from external sources)

Measure collaboration performance
Prototype framework: 
supporting pages

Measure Collaboration Performance

Why?
The aim of the monitoring process is to ensure that the objectives set out in the
'Collaboration Procedure' document remain on track, that the success criteria agreed
in the planning and implementing stage are met.

Items that can be chosen and weighted include:
- Safety
- Quality
- Commitment
- Issue resolution
- Grapevine feedback
- Co-operation
- Communication
- Budget control
- Programme control
- Public relations
- Timely reporting

Who?
The collaboration champion should either conduct or appoint a specific person to
measure the performance of the collaboration.

How?
Complete periodic performance evaluation

Evaluation reports are to be made monthly by the collaboration champion. A standard method for reporting
should be used. A typical example is included over. The reports should be discussed at monthly meetings with representatives from all involved in the collaboration.

Investigate significant variances

Performance evaluation reports may show results that depart significantly from the
standard set out in the 'Collaboration Procedure' stage. Where this is the case, the results
should be examined in greater detail and reasons for them sought. The reports may
also indicate opportunities for improvement that should be followed up.

Incentives

Incentives should be considered for both organisations and individuals. In respect of
individuals, performance reporting and issue identification should involve incentives.
These are designed to stimulate a continuous interest and a measure of constructive
competition. However, care must be taken to ensure that the benefits are fairly shared by
all contributors. Benefits may be non-monetary.

Significant savings in cost that result from improvement in performance should be
shared in agreed proportions between the collaborating organisations. The

Scores

<table>
<thead>
<tr>
<th>Alignment of purpose</th>
<th>How well aligned are participants around the business context; overall vision and mission; goals and objectives; and priorities for the venture?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to perform</td>
<td>How effective are participants at getting the job done; contributing their best focusing on excellence making a difference ensuring individual and shared accountability for outcomes</td>
</tr>
<tr>
<td>Attention to process</td>
<td>How effective are meeting management; progress monitoring and reporting; decision-making problem solving; conflict resolution; governance and the internal/external measurement systems for your venture?</td>
</tr>
<tr>
<td>Acuity of communication</td>
<td>How well does the group exhibit openness/candour; use discipline and skill to provide and receive information; ensure timely and accurate feedback in all aspects of the venture?</td>
</tr>
<tr>
<td>Attitude of mutual trust and respect</td>
<td>How well do the group exhibit trust and respect; blend extraversion and interdependence; acknowledge and support each other</td>
</tr>
<tr>
<td>Adaptability to learn and change</td>
<td>How much attention is paid to continuous learning for all individuals; offer action briefings; institutional memory; continuous improvements</td>
</tr>
</tbody>
</table>

Total score (0-600)

Table 1: An example of a performance evaluation form
There is widespread recognition that the UK construction industry must embrace new and better ways of working if it is to remain competitive and meet the needs of its ever-dwindling clients. Project delivery in construction is highly dependent on the effectiveness of the team put together to execute the project. In many cases this is a function of how well members of the team work collaboratively and how effective the communications infrastructure used by the team is. Significant efforts have been invested in recent years to develop tools and techniques that enable distributed teams of professionals to work collaboratively. Some of these systems were able to improve some aspects of collaborative working, but did not address the dynamics of construction organisations, projects, and processes sufficiently enough. The business and cultural environments within which collaboration takes place still remain important issues to be investigated.

Image adapted from "http://www.journals.elsevier.com/jorj/march-2004-1.html"
Thank-you for listening

Any Questions?

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