



Crossley, A. (2002). Frameworks For Improvement. *Construction Marketer*, 1(5), 9-11.

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Frameworks for improvement

Clients are starting to employ a whole new range of sophisticated assessment tools when choosing who to do business with. Andrew Crossley describes some of the new microscopes which marketers and their companies will be placed under.



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The whole supply chain needs to be integrated in a seamless manner and incentivised to contribute innovative ideas which lead to better value and to be rewarded appropriately' – UK Highways Agency Procurement Strategy 2001.

This is typical of the current change and improvement agenda of sophisticated clients. The demand for collaborative working and stronger team integration is expanding. To satisfy this demand advanced assessment and process development tools are being used to evaluate and help integrate construction teams. Industry practitioners need to understand the impact of such tools because they are likely to supplement or even supplant normal proposal and presentation approaches, especially for high value term contracts and programmes.

The process begins with selection and early team development. Detailed evaluation is necessary to ensure that the potential supply side network is able to:

- Deliver as part of an integrated team;
- Embrace an agenda of learning and improvement; and
- Be benchmarked against peer groups.

Marginal assessment is likely to limit future opportunities and adversely impact workload.

Industry Improvement Agenda

Measurable improvement and a more collaborative style of working appear as common themes from several influential reports. These are laudable goals but not so easy to deliver, given the complexity of the industry, the impact of change on people and on their employers.

This is why the recent report Accelerating Change identified the need for independent facilitation and more robust tools and techniques for improvement.

Where Do Assessment Frameworks Fit In?

Many infrastructure industry practitioners have commented on the generally ad-hoc, company or sponsor specific nature of selection and evaluation for projects and programmes. The application of high quality assessment frameworks will help participants reduce cost, save time and develop a more robust understanding of the selection and integration process. Assessment frameworks create structure and objectivity. The best of them:

- Identify the critical elements of performance;
- Measure the performance;
- Evaluate areas for improvement;
- Are repeatable; and
- Improve collective knowledge and experience.

The difference between KPIs and Frameworks

Key Performance Indicators (KPIs) measure outcomes i.e. historic performance and past trends – rather like a profit and loss account and balance sheet give an historic record of company performance – after the event. KPIs are therefore results metrics that benchmark the outcome, usually against an industry average or target. Their popularity with management and Clients relates to their relative simplicity in application and the desire for easy comparison.

Some infrastructure industry KPIs refer to the outcomes of projects completed up to 2 years prior to the KPIs publication date. Normal project timelines from feasibility to construction are typically 3+ years. Current KPIs are therefore reflecting the evaluation selection, design and management practices of 5 years ago. Given sector investment decisions, changes in client/supply side ownership and industry procurement dynamics, this is comparing the performance of a 5-year-old product with one planned for release in 3 years time – a potential quantum difference. This is always a challenge with lagging results metrics.

Advanced frameworks are generally ‘forward facing’ tools and process metrics. The best of them use predictive techniques that help drive innovation into the supply network from the assessment and evaluation stages through to site implementation. They map out linkages between ‘what we do’ and ‘what we get’. Successful application and implementation leads to dissemination of knowledge to additional teams, creating a positive forward momentum. Contrast this with unconstructive feedback on under-performing KPIs – you have a problem, sort it out or you are off the programme.

Assessment frameworks therefore have merit especially where they are:

- Objective;
- Forward looking;
- Team building/consensual;
- Real-time business improvement tools; and
- Well researched and developed.

Lessons from Fast-track Industries – Concurrent Engineering

An example of an early assessment framework, successfully deployed in fast track IT and advanced manufacturing is Concurrent Engineering (CE). In these industries CE has brought about significant improvements in many aspects of production. Assessing the extent to which organisations are ready to collaborate and integrate prior to implementation has helped map out and facilitate fast track production. The potential challenges are identified right up front. The team can therefore plan and implement joint improvement processes prior to project inception.

From CE to BEACON

Concurrent Engineering in manufacturing measures two critical elements – process and technology. This is too rudimentary for the infrastructure sector, which is acknowledged as being heavily dependent on people and their collaborative team skills to deliver successful projects that satisfy client needs and wants. Hence two additional elements for assessment are required: people and projects. The addition of these two elements led to the development of the Benchmarking and Readiness Assessment for Concurrent Engineering in Construction (or BEACON) framework (ref 1). This enhanced form of Concurrent Engineering measures the readiness and subsequent performance of the participants in the infrastructure and construction supply side.

BEACON has been devised as both a readiness assessment and performance enhancement framework for the global infrastructure industry. The technology emerged from over four years of research and development by the Centre for Innovative Construction Engineering (CICE) at Loughborough University in the UK. The process assists in identifying the critical factors involved in programme and project implementation for the management team and supply side.

How Does This Work?

The four elements (process, people, project and technology) are broken down into several critical factors. Each of these critical

factors is initially measured, during the appraisal stage, to assess a participant’s likely performance and the ‘hot spots’ for potential improvement identified. If the gap between the applicant’s current assessment and the client’s programme need is too great, that organisation may not be appropriate for selection.

Process: contains factors to assess the process maturity level of a construction organisation – Management Systems, Process Focus, Organisational Framework, Strategy Deployment and Agility.

People: contains factors to assess the team level issues within the organisation – Teams in an Organisation, Discipline, Team Leadership and Management, Team Formation and Development.

Project: contains factors to assess the Client’s requirements and design related issues Facility Design, Quality Assurance and Client Focus.

Technology: contains factors to characterise the introduction and utilisation of advanced tools and technology within the organisation – Communication Support, Coordination Support, Information Sharing, Integration Support and Task Support.

For each of the four elements and their critical factors, five different maturity levels assess the likely level of performance within the supply side, from Ad-hoc at the most basic level to Optimising at the highest level. A high ranking correlates with a greater ability to integrate a team and therefore increases the likelihood of success.

The Framework Evaluation Process

The process:

- Helps clients evaluate their own situation;
- Derives the relative weighting of importance for the elements (the Client’s Value System); and
- Provides early identification of areas needing improvement.

Having metricated the Client’s Value System, the supply side is assessed including:

- Professionals;
- Contractors;
- Sub-contractors; and
- Suppliers.

Note that the evaluation is not necessarily in this sequence. It depends upon the procurement/contract strategy. A traditional procurement strategy would be different to early design and build for instance.

The framework gives us:

- Individual measurement and improvement (if re-assessed over time);
- Prioritisation;
- Sector and contract based comparisons – PFI, Design and Construct, ECC and PPC 2000 for example;
- A cross-sectional diagnostic and agenda for supply side 'hot-spots'; and
- A forward looking/improvement orientated programme.

However, the critical issue is early adoption. The impact and therefore the benefits will lessen, the further into the project such a framework is introduced. For an industry going for 25 to 30% value improvement, the earlier, the better.

The typical process has 6 stages:

1. Initial assessment. This needs to be handled professionally and by trained assessors, to ensure the right questions are raised and objective results logged.
2. The assessment is then processed and a factual report produced.
3. An independent team then works with the client and supply side to analyse and determine the team's strengths, areas for improvement, opportunities to integrate further and any potential threats to under-achievement (SWOT).
4. Experience with both Partnering and Value Management would recommend a workshop approach to agreeing and embedding priorities and necessary improvements.
5. After a suitable interval (depending upon the workshop's agreed programme) it is recommended that re-measurement take place. Sometimes workshop teams agree programmes that are not implemented and secondly – the client needs to correlate the improvement against the cost of change.
6. Finally a post-project review is recommended – especially where a team is working under a term commission/strategic alliance approach.

Links with Other Frameworks

Other frameworks needed to help improve outcomes are Value Management (VM) and Partnering. VM is a powerful tool to develop whole life, best value project outcomes. It tends to kick in where a team is in place and the project's business case developed. Concurrent Engineering is highly complementary to VM in that it gets the right people in the room in the first place then focuses on integration and collective performance – it cements the value chain. Development of Partnering skills and culture underpins the delivery of benefits by fostering a win/win approach in an open/trust-based environment.

CE links with Partnering and Value Management:

- During the pre-project phase, it helps chose the right project management team and facilitates transfer of the client Value System to that team.
- During pre-construction, CE and Partnering processes build and reinforce important relationships between key representatives of the supply side.
- That team can then work with a suitable facilitator to develop the project/programme action plans.
- During the construction phase the tools help audit the agreed improvement.
- Finally, post completion a review to assess the time, cost & quality of delivery benchmarked against the BEACON evaluation – gives empirical performance data for future projects. This is especially important for a term commission or programme.

Typical Results

Analysis has been undertaken for: clients, consultants, contractors, sub-contractors and suppliers. In general, results to date confirm that the construction industry still needs to work together to achieve:

- Improvement in many of the critical areas with the team's development needs identified;
- Better team-working; and
- Closer business integration.

Results indicate that the better team performers are likely to be major contractors and specialist sub-contractors, whereas clients, consultants, suppliers and

manufacturers need to improve their ranking towards optimising. This tends to concur with the NAO and the Accelerating Change reports.

Conclusions

Concurrent Engineering, through its derivative BEACON, is an objective framework for assessing project and programme performance – before and during construction. It assesses the readiness of the construction supply side to best support the project mission and the client's management team. Therefore such tools are likely to become the basis of supplier selection and integration over the next decade. They will be adding significant value to clients over the more basic reference and application-based systems for short-listing. The latter are likely to become more automated/database driven – Construction-line being a typical approach. There is also a place for the results metrics such as KPIs as indicators of latent potential. Process metrics dealing with team interaction and the future are the real drivers of change.

The benefits to the infrastructure industry of these framework tools can only be achieved through effective assessment, planning and action based improvement. The focus is on delivering best value level of performance throughout the supply side, with respect to the critical success factors. BEACON enables industry participants to evaluate and benchmark their project delivery processes, identify areas requiring improvement or change and work together in an active business partnership to deliver real, measurable success. It is a forward facing tool of change. As with any significant framework the master data set grows over time, as more clients, suppliers and projects are added. The information and knowledge base therefore becomes more and more valuable for industry practitioners and more frequently used as part of the initial selection process.

References: 1. An investigation of the Readiness of the Construction Industry for Concurrent Engineering – Khalfan M, Anumba C, Carrillo P, 2001 (see www.servq.com for downloadable copy)