Frameworks

BEACON

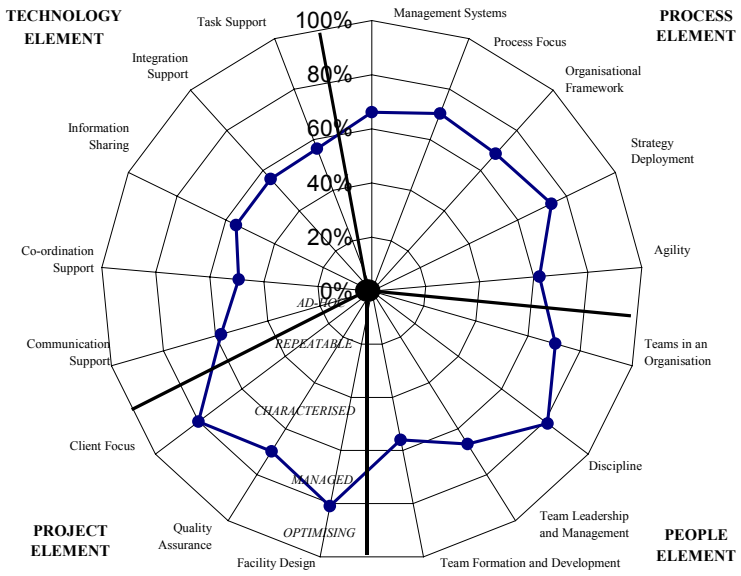
'Definition - a person or thing that serves as a guide, inspiration or warning'

The Benchmarking and Readiness Assessment for Concurrent Engineering in Construction methodology measures the readiness and subsequent performance of the participants in the infrastructure and construction supply chain. It is built on the principles of Concurrent Engineering (CE), used so successfully in major manufacturing and technology businesses.

BEACON targets and measures optimisation of the programme and project from conception through design, procurement and construction to achieve reduced lead times and better integration of activities by maximising concurrency and collaboration in working practices. Full implementation of the methodology has the potential to make construction projects less fragmented, improve procurement assessment, team-working, project quality, reduce construction time and lower project costs.

In other industries, such as manufacturing and software engineering, the introduction of a CE based approach has brought about significant improvements in many aspects of production. Assessing the extent to which organisations in an industry are ready for the adoption of CE before implementation, helps facilitate the production process. This establishes the level of CE maturity of different participants in the supply-chain to target required improvements.

BEACON has been devised as both a readiness assessment and performance enhancement process for the global infrastructure industry. The technology emerged from over 4 years of research and development by the Centre for Innovative Construction Engineering (CICE) at Loughborough University in the UK, latterly in partnership with ServQ. The process will assist in identifying the critical risks involved in programme and project implementation for the management team and supply chain.



CE readiness of Clients from case study results demonstrated on BEACON.

The key to BEACON is that it incorporates the Process and Technology elements of other CE assessment tools with the additional critical elements of People and Project present in major infrastructure developments.

Measurement of these four elements targets the following:

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

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

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

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

For these four elements and their relevant critical factors, five different levels of performance indicators assess the level of project planning and performance within the project team and supply chain, from *ad-hoc* at the most basic level to *optimising* at the highest level.

BEACON objectively measures CE readiness and performance in the infrastructure industry. Relevant research was undertaken in five segments of the industry: clients, consultants, contractors, sub-contractors and suppliers. In general, the results show that the construction industry still needs to deliver: improvement in most of the critical areas, better team-working and business integration. Segments that appear ready for CE adoption are those which: are client-focused, monitor and control the project development process and target continual improvement of their processes and operations. The research indicated that the better performers are likely to be major contractors and specialist sub-contractors, whereas clients, consultants, suppliers and manufacturers needed to improve their position.

The construction industry needs appropriate guidelines for improvements in the weaker critical factors, as well as standards for the implementation of CE within the industry. The BEACON process is an objective tool for assessing project and programme performance before and during construction. It also assesses the readiness of the construction supply chain to best support the project mission and the management team.

The benefits to the infrastructure industry of CE 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 chain, 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.